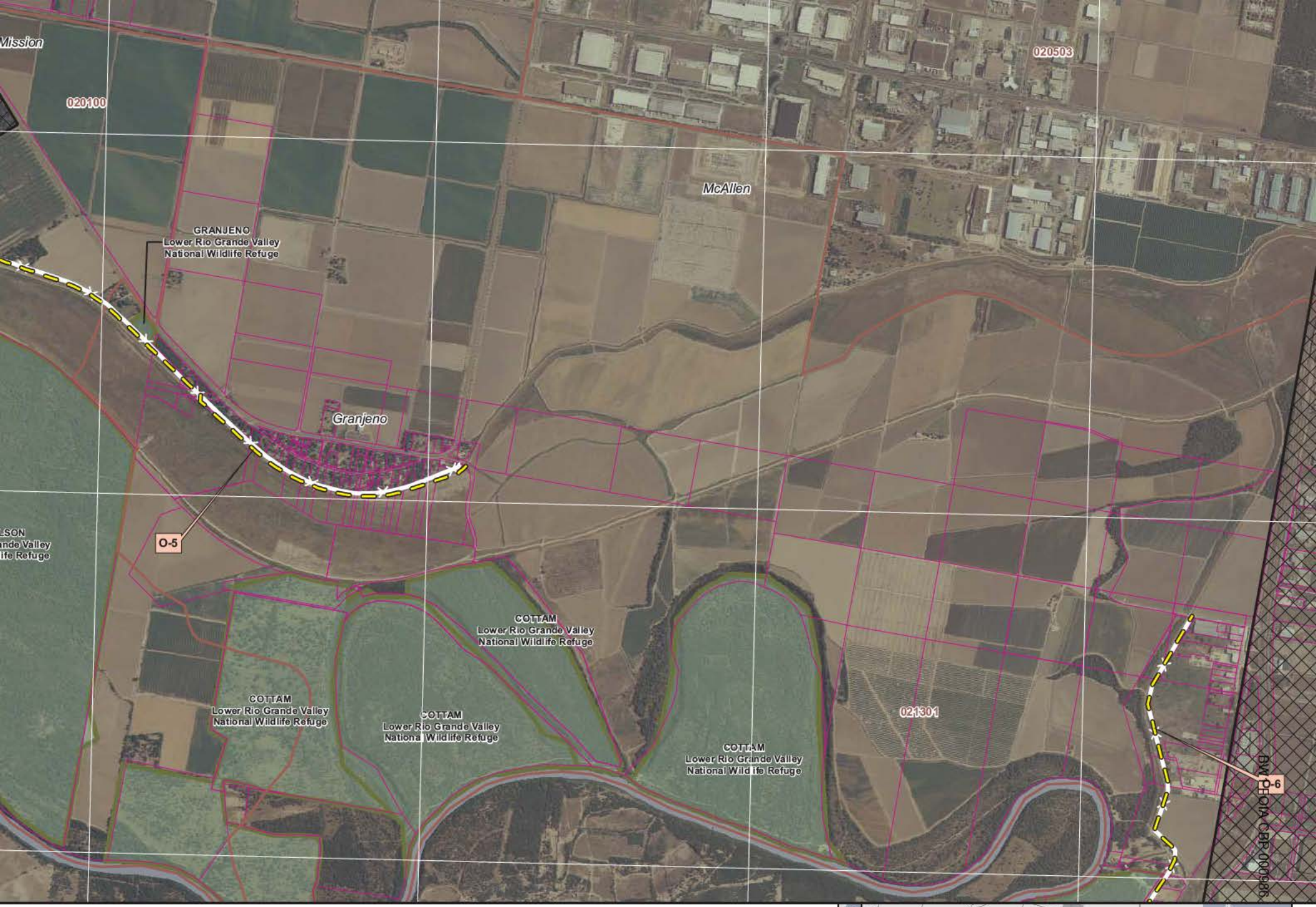

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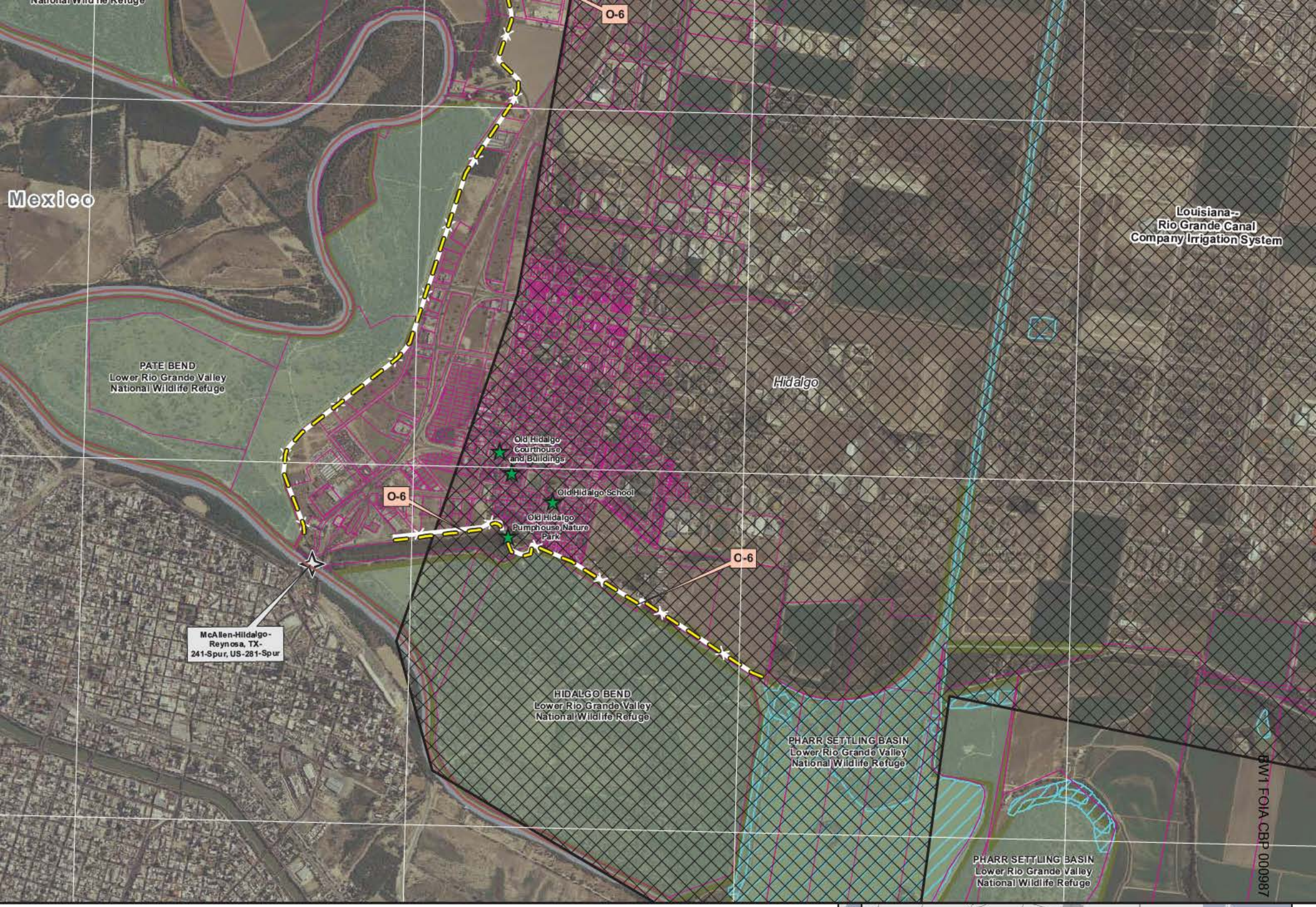

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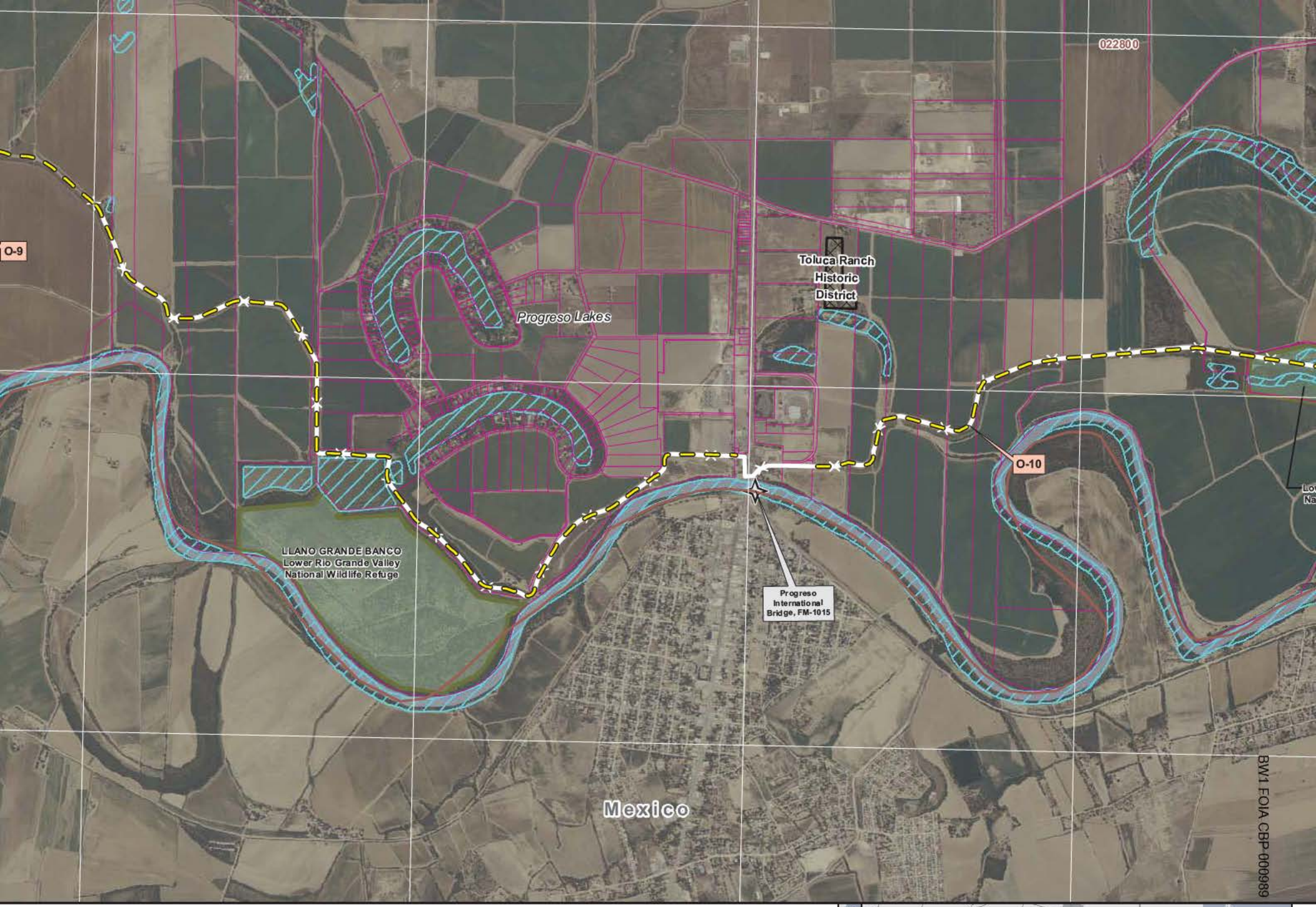

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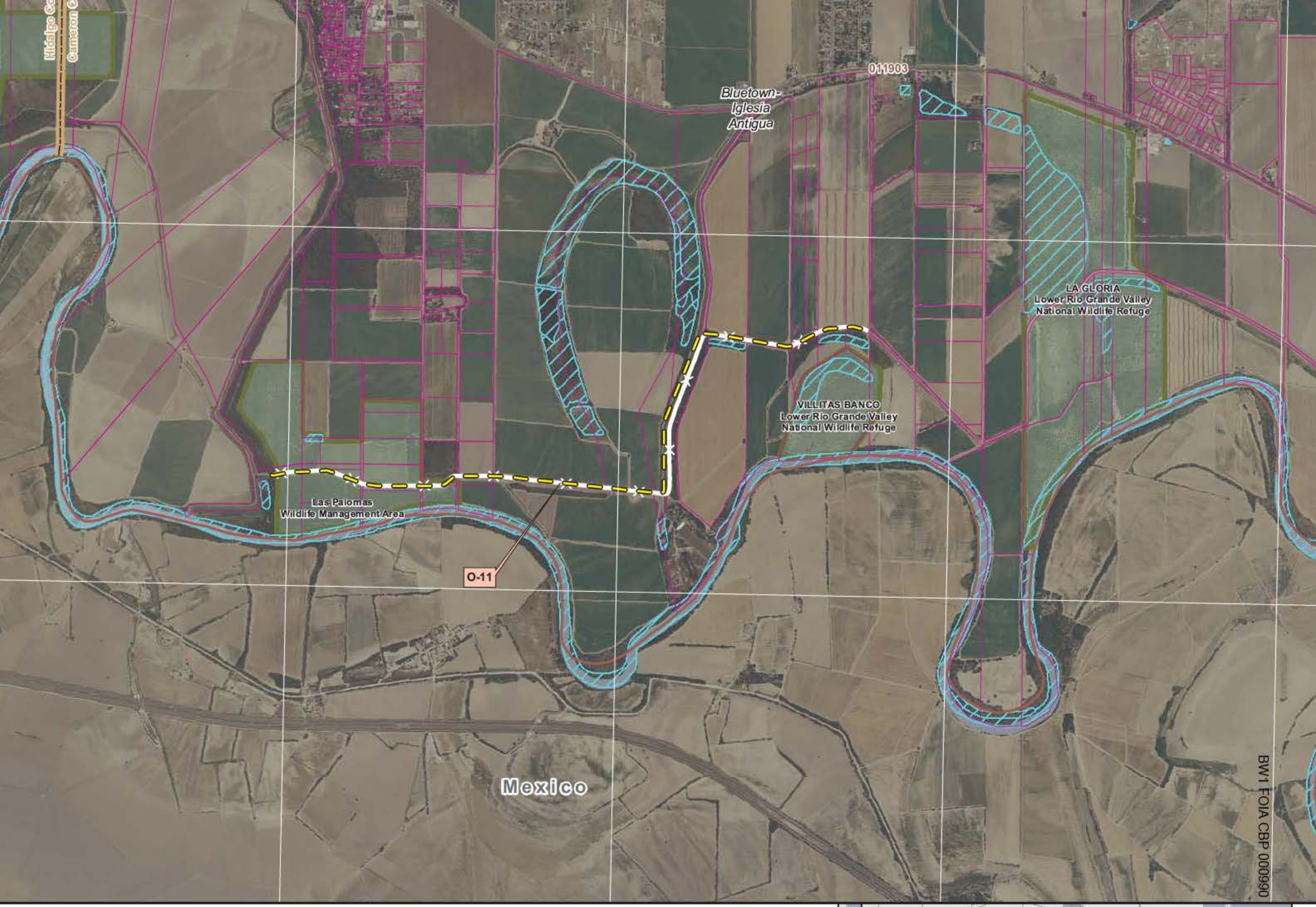

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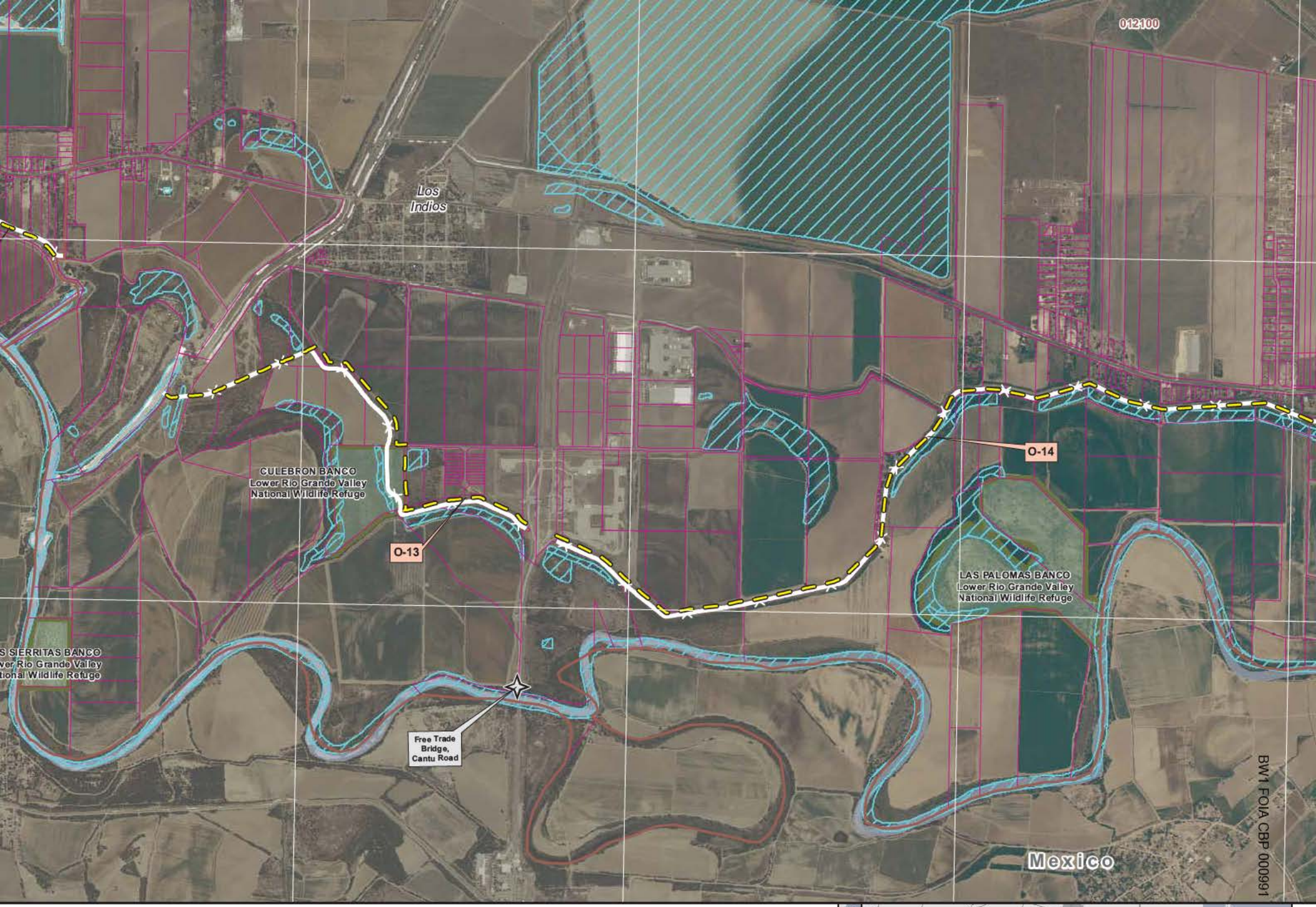

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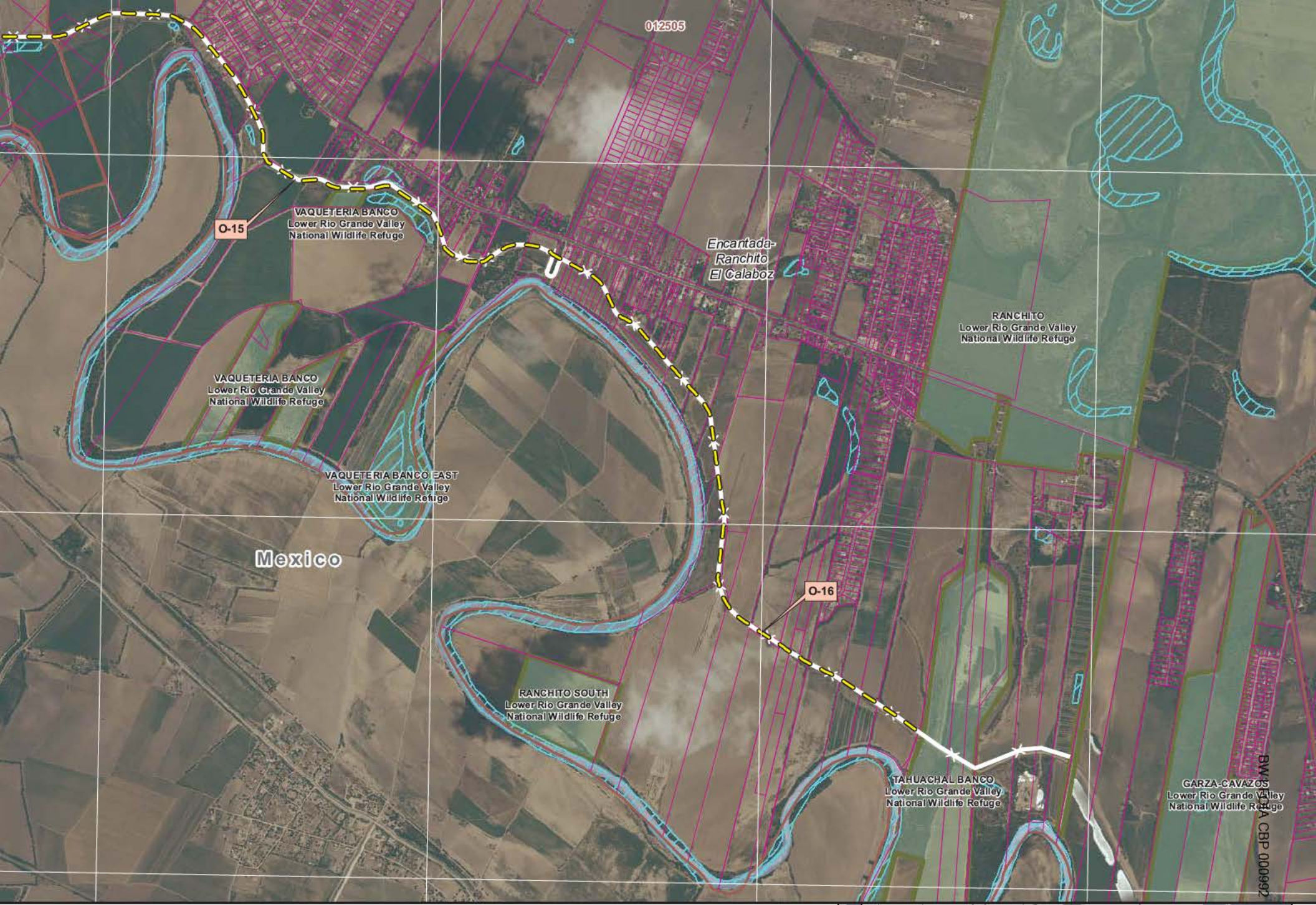

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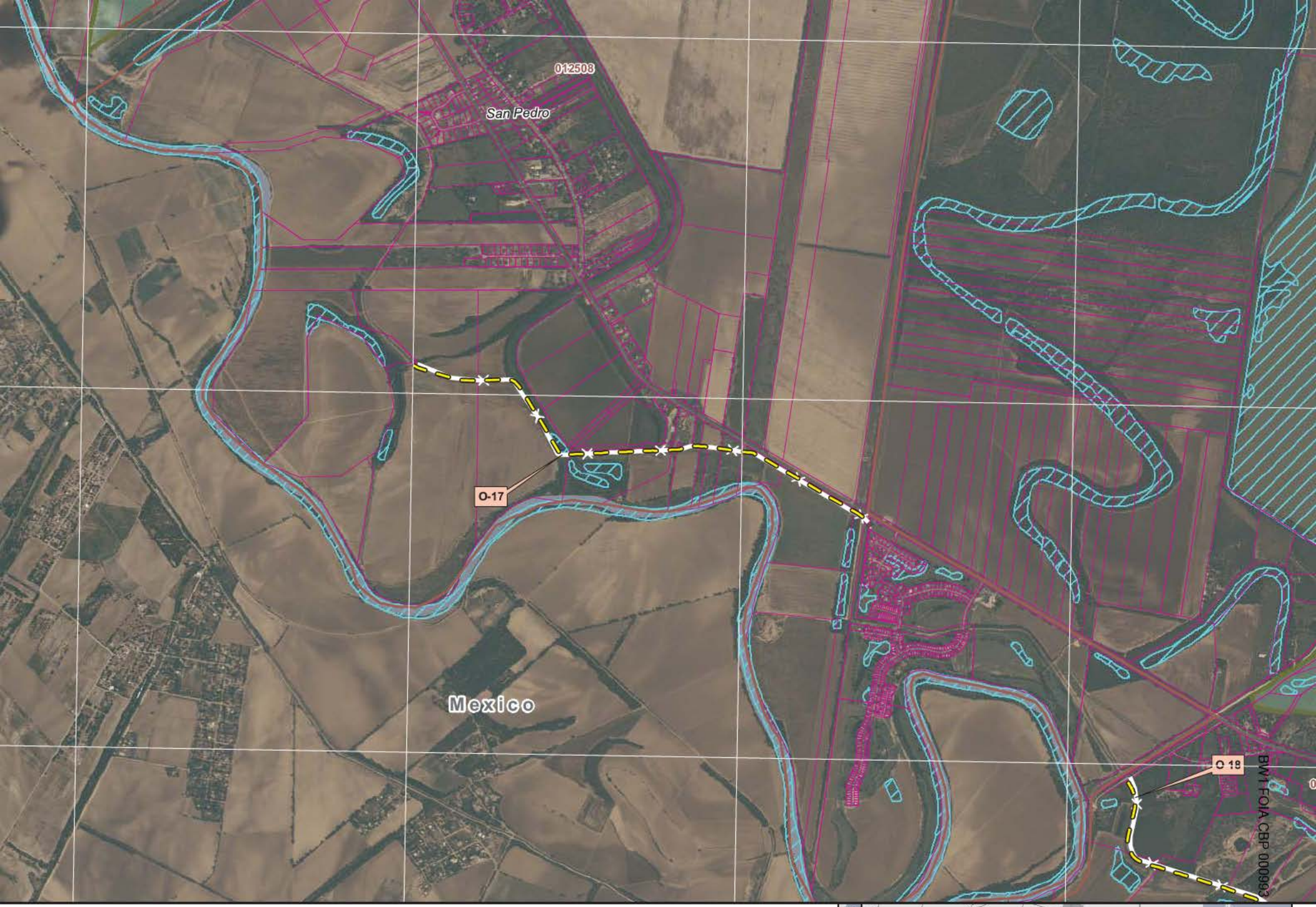

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Feet
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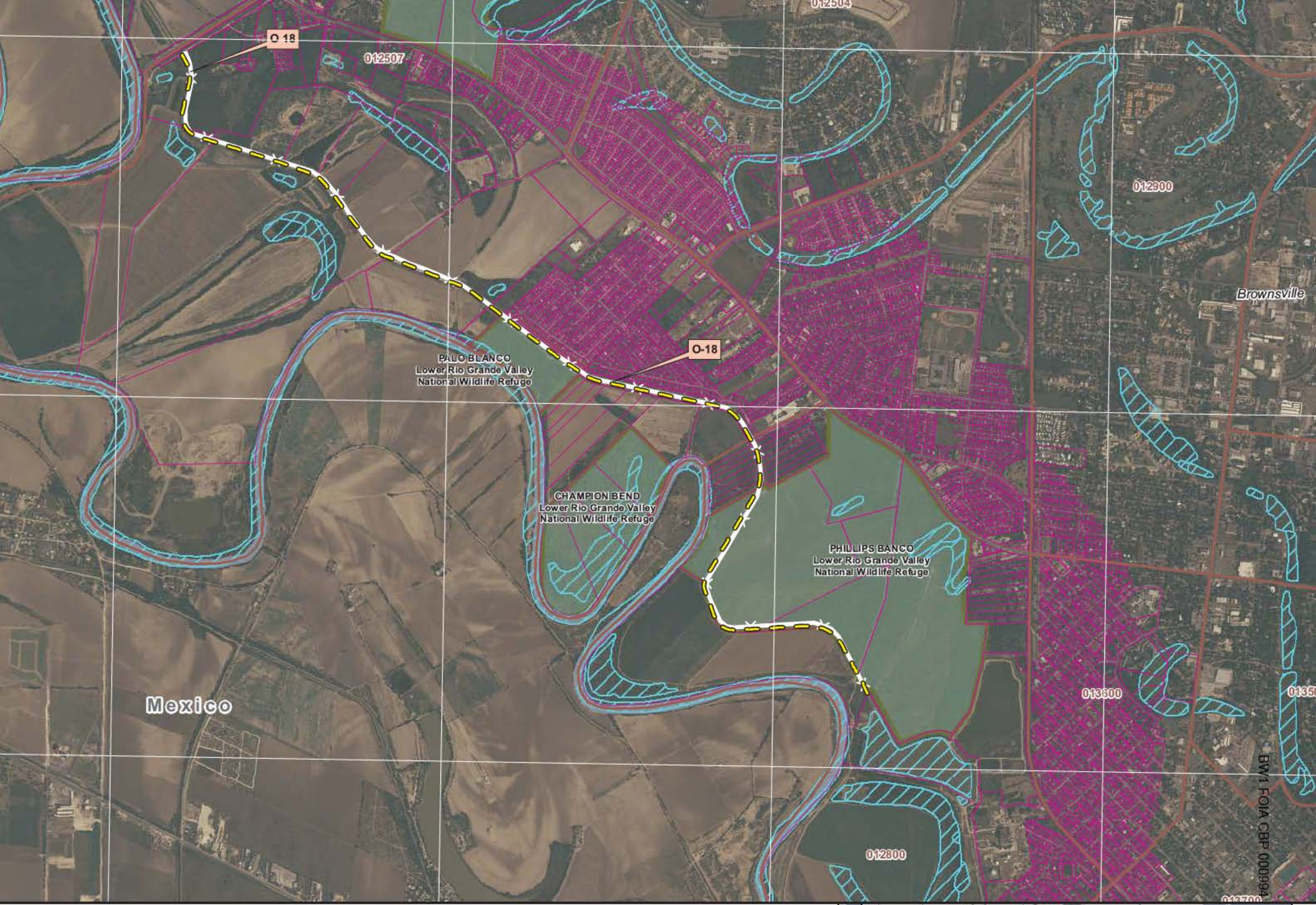

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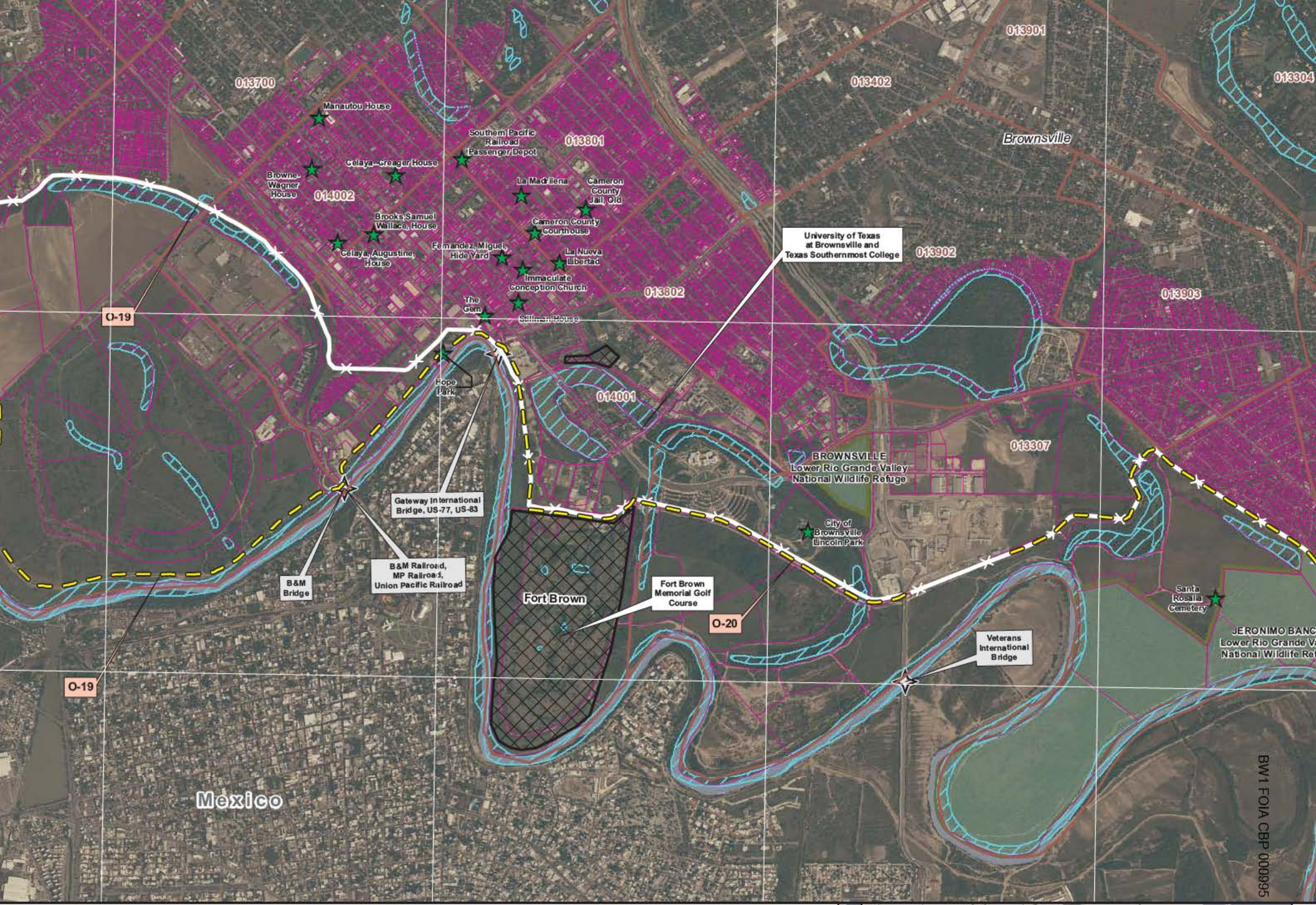

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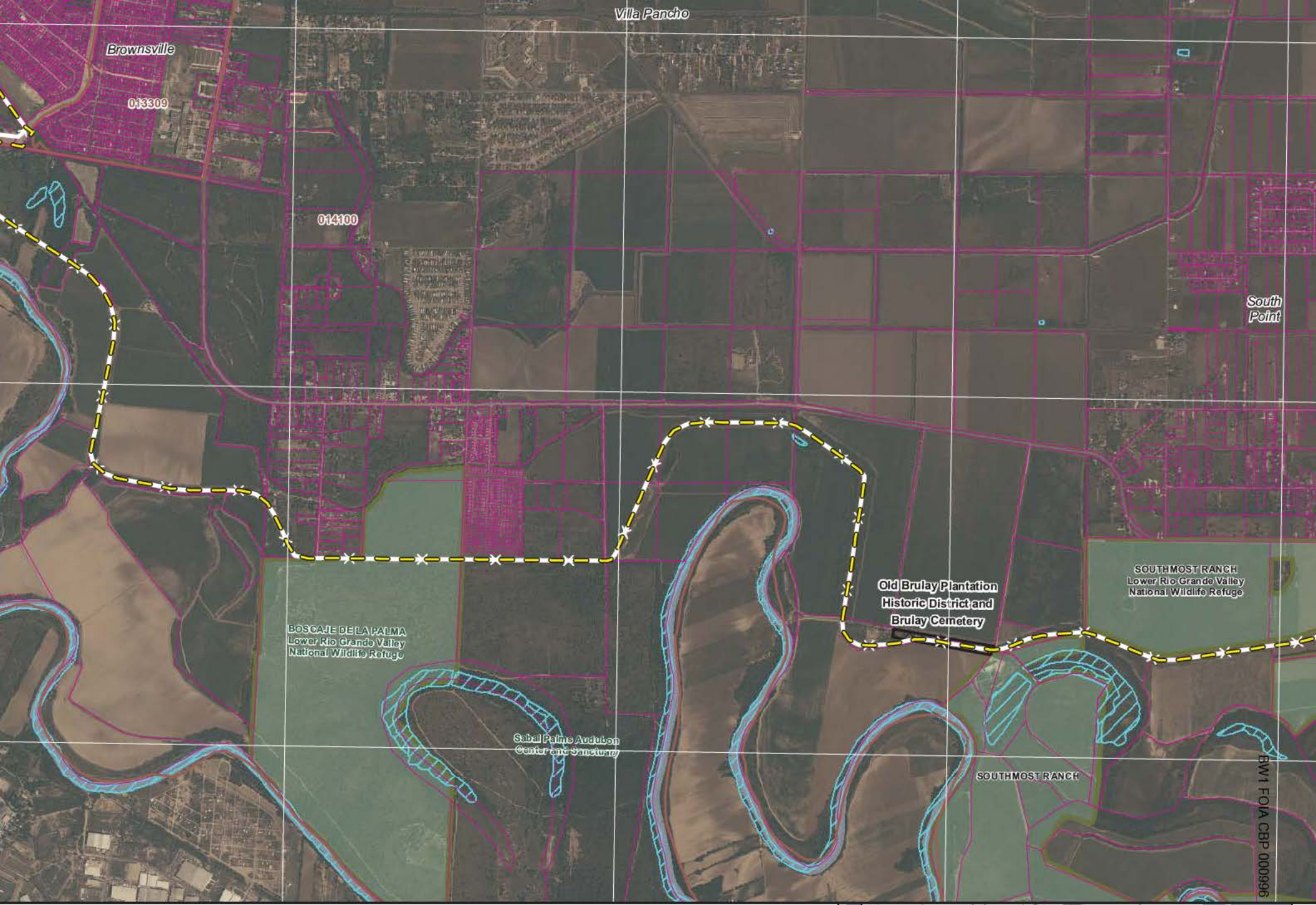

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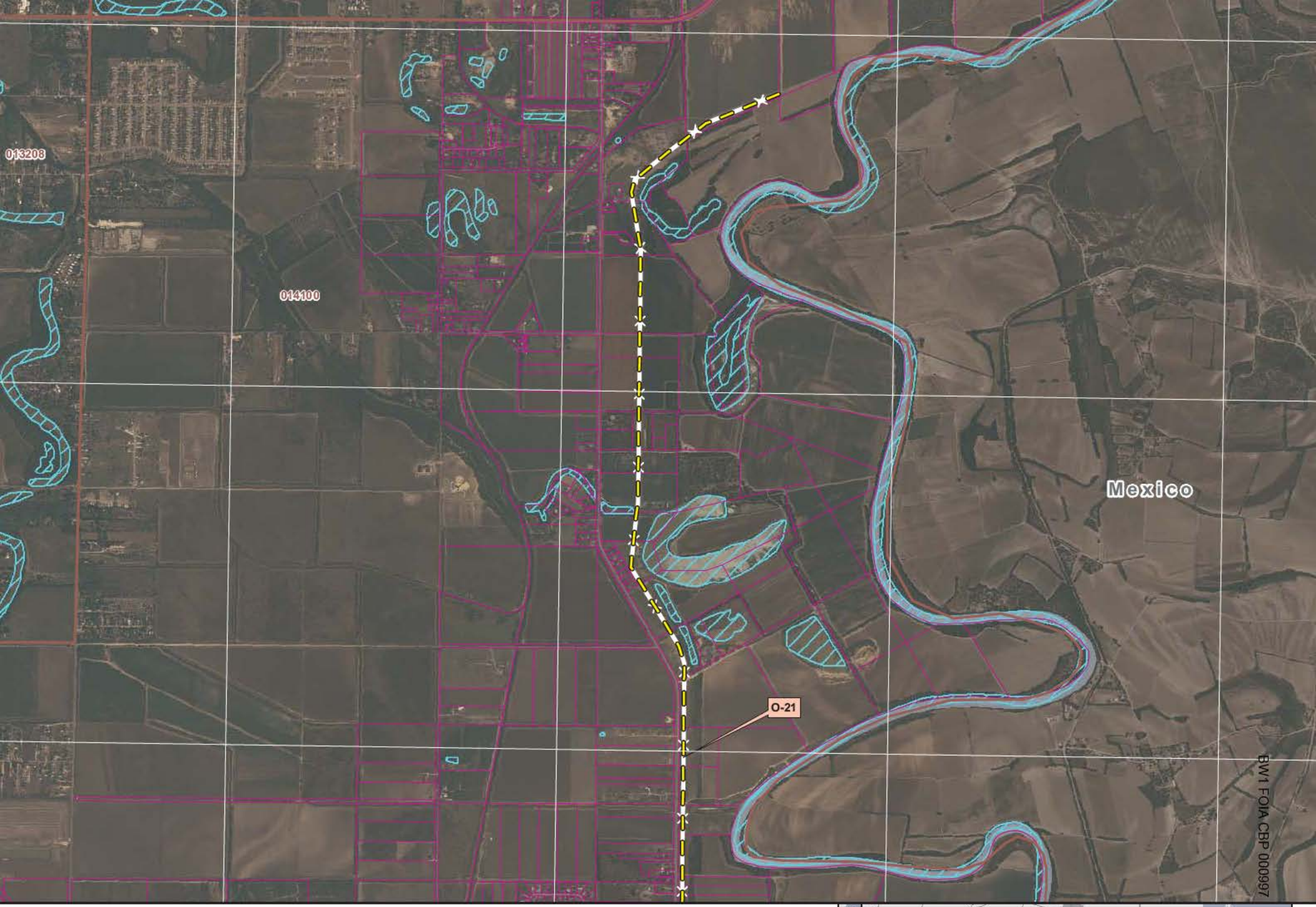

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Scale

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BW1 FOIA CBP 000997

APPENDIX G

Detailed Maps of the Proposed Fence Sections Showing Soils

clay loam, 0 to 1 percent slopes
y loam
am
Mm, Matamoros silty clay
Mu2, Maverick soils, eroded
Ra, Ramadero loam
Re, Reynosa silty clay loam
RgA, Rio Grande silt loam, 0 to 1 percent slopes
RgB, Rio Grande silt loam, 1 to 3 percent slopes
W, Water

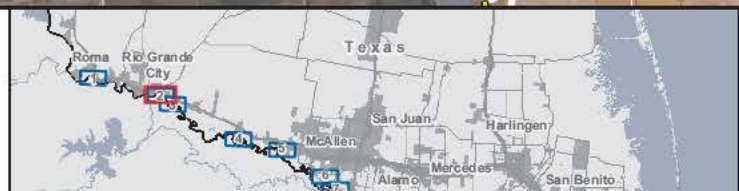
N

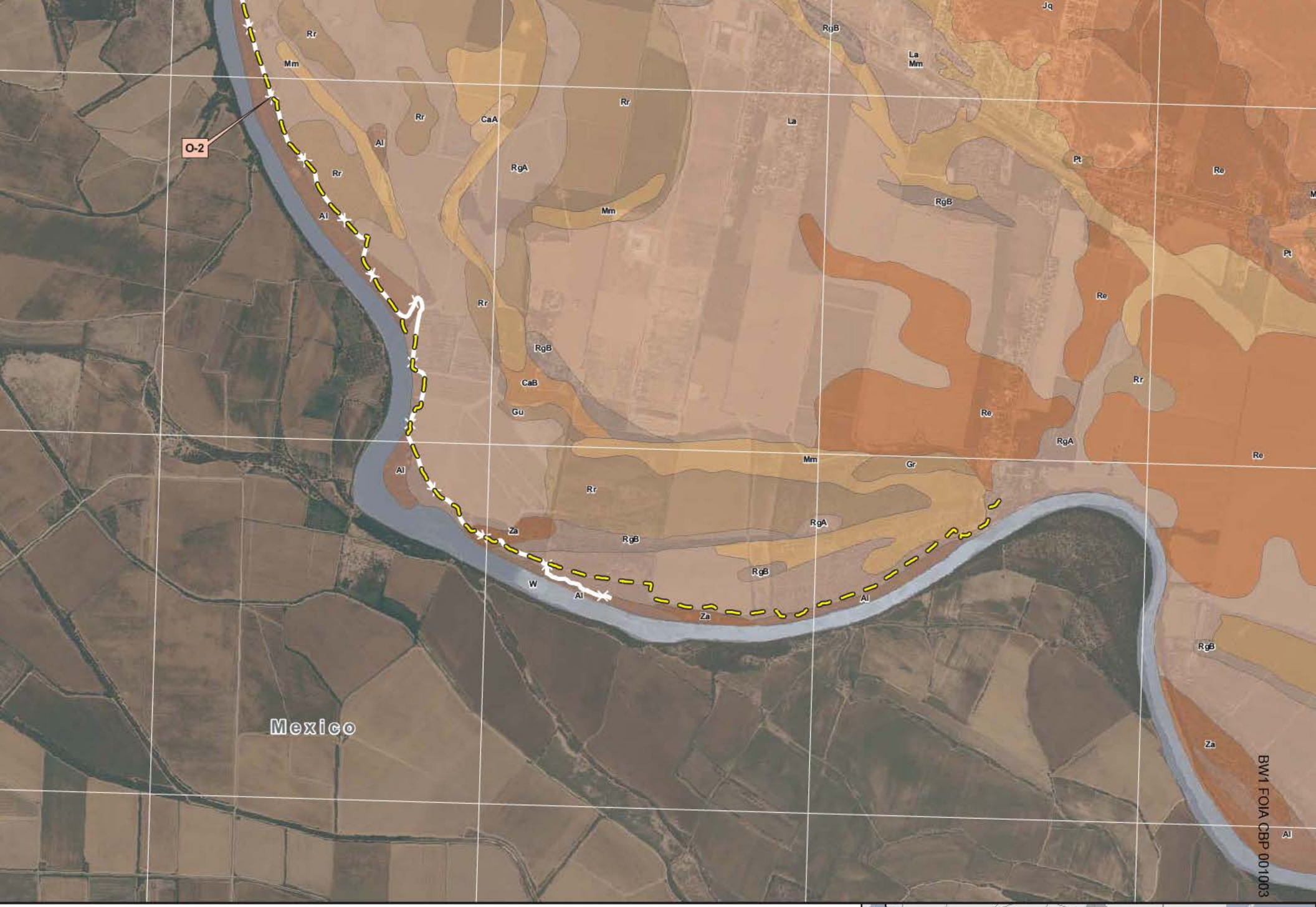
BW1 FOIA CBP 001001

Catarina soils
Copita fine sandy loam
Grulla clay
Grulla clay, depressional
Jimenez-Quemado association
Lagloria silt loam
McAllen fine sandy loam

Ra, Ramadero loam
Re, Reynosa silty clay loam
RgA, Rio Grande silt loam, 0 to 1 percent slopes
RgB, Rio Grande silt loam, 1 to 3 percent slopes
Rr, Rio Grande silty clay loam
Tr, Tiocano-Rio complex
W, Water

N

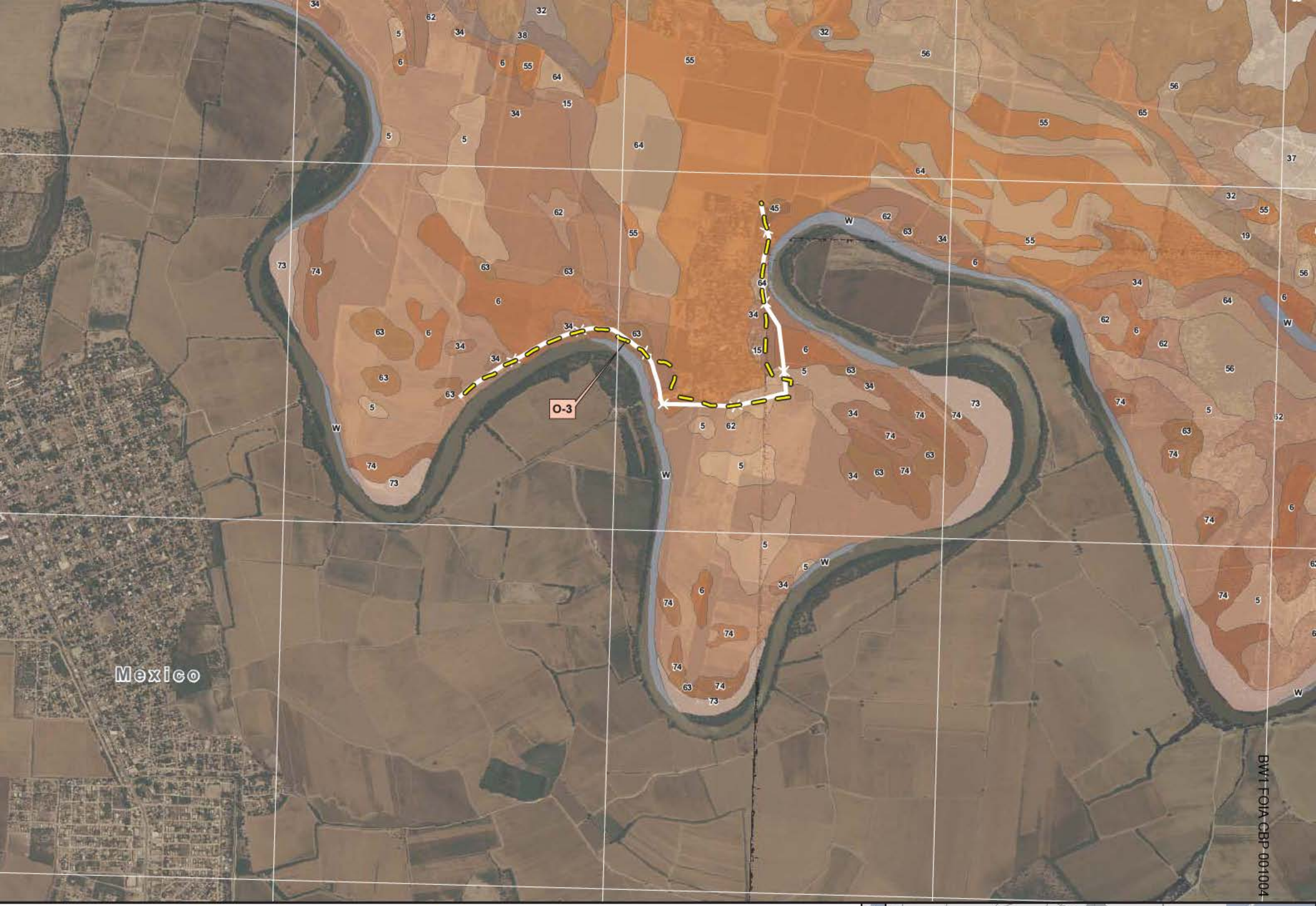




Camargo silty clay loam, 1 to 3 percent slopes
Copita fine sandy loam
, Dams
rulla clay
Grulla clay, depressional
imenez-Quemado association
agloria silt loam

Pt, Pits
Re, Reynosa silty clay loam
RgA, Rio Grande silt loam, 0 to 1 percent slopes
RgB, Rio Grande silt loam, 1 to 3 percent slopes
Rr, Rio Grande silty clay loam
W, Water
Za, Zalla loamy fine sand

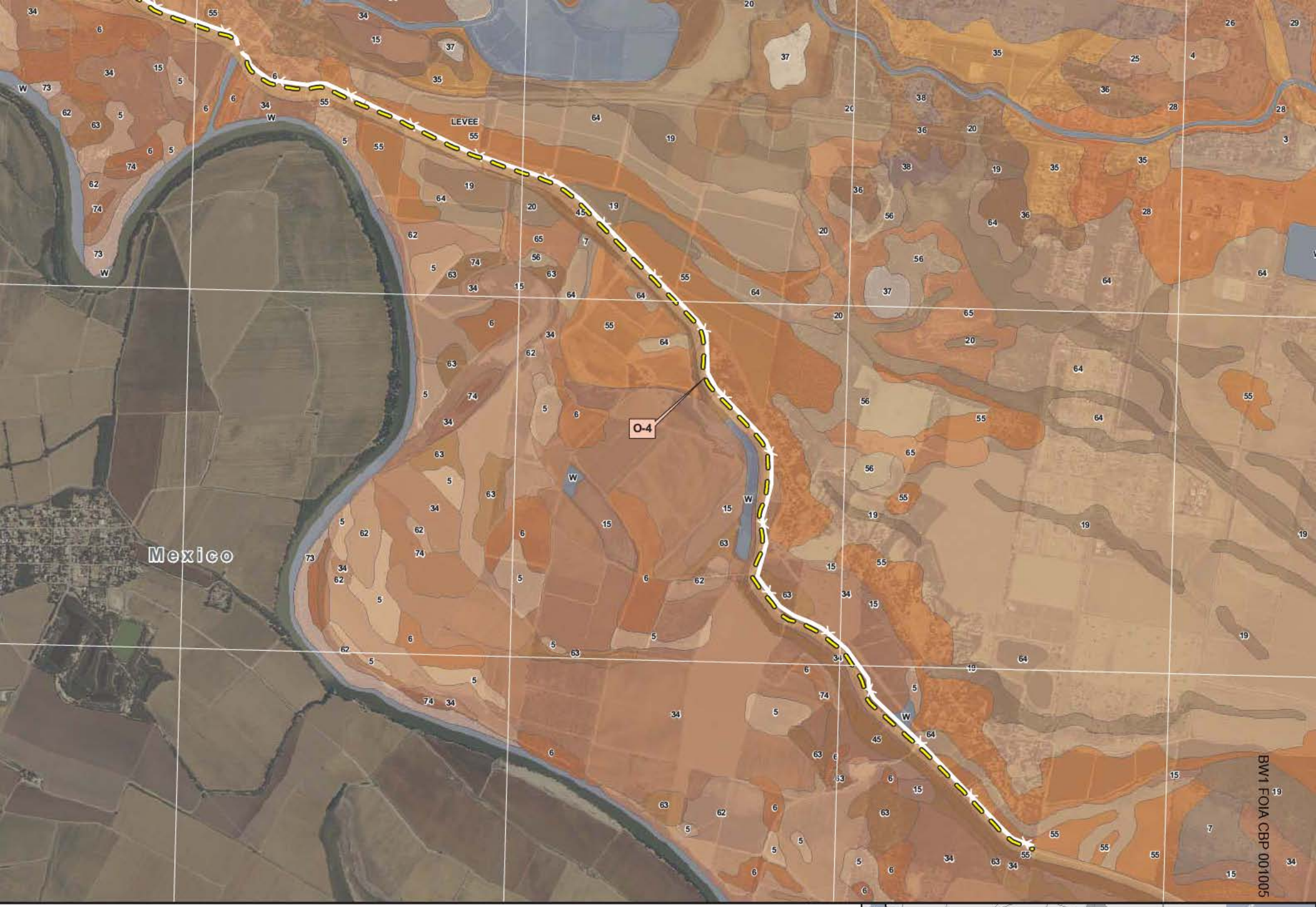
N



enez-Quemado complex, 1 to 8 percent slopes
amoros silty clay
Allen fine sandy loam, 0 to 1 percent slopes
Allen fine sandy loam, 1 to 3 percent slopes
Allen fine sandy loam, 3 t 5 percent slopes
Allen sandy clay loam, 0 to 1 percent slopes
56, Reynosa silty clay loam, saline, 0 to 1 percent sl
6, Camargo silty clay loam
60, Rio clay loam
62, Rio Grande silt loam
63, Rio Grande silty clay loam
64, Runn silty clay
CaB, Camargo silty clay loam, 1 to 3 percent slopes
Gu, Grulla clay, depressional
Jq, Jimenez-Quemado association
Mm, Matamoros silty clay
Re, Reynosa silty clay loam
RgA, Rio Grande silt loam, 0 to 1 percent slopes

N

BWT FOIA CBP 001004



Hidalgo fine sandy loam, 1 to 3 percent slopes
Hidalgo sandy clay loam, 0 to 1 percent slopes
Hidalgo sandy clay loam, 1 to 3 percent slopes
Hinnan fine sandy loam, 0 to 1 percent slopes
Jenez-Quemado complex, 1 to 8 percent slopes
Matamoros silty clay
4, Brennan fine sandy loam, 1 to 3 percent slopes
45, Pits, borrow
5, Camargo silt loam
50, Ramadero sandy clay loam
52, Raymondville clay loam, 0 to 1 percent slopes
53, Raymondville clay loam, saline, 0 to 1 percent slo
62, Rio Grande silt loam
63, Rio Grande silty clay loam
64, Runn silty clay
65, Runn silty clay, saline
7, Cameron silty clay
73, Zalla loamy fine sand, undulating

N

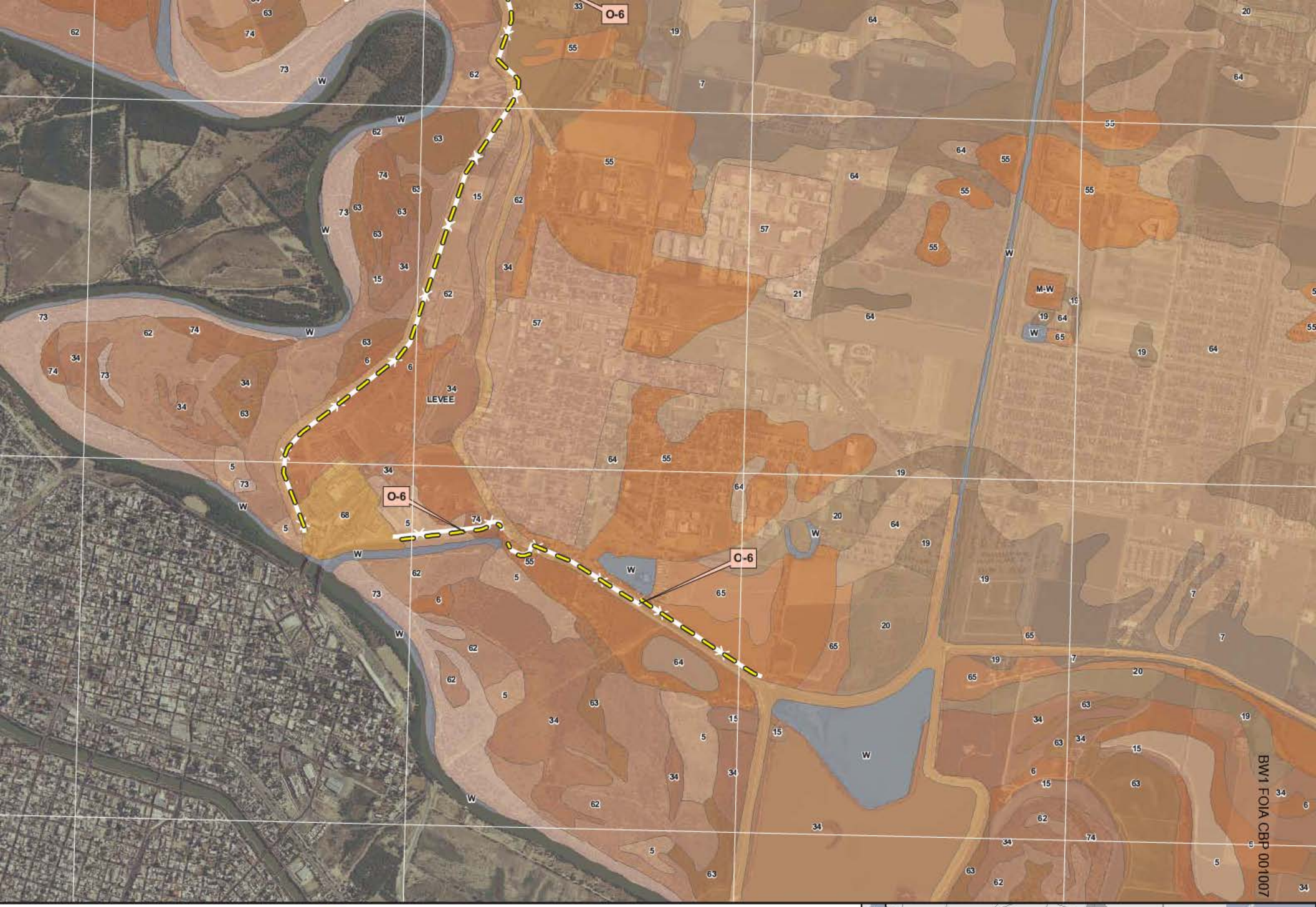
BW1 FOIA CBP 001005

aline
land complex
do complex, 1 to 8 percent slopes
loam
clay

5, Camargo silt loam
55, Reynosa silty clay loam, 0 to 1 percent slopes
56, Reynosa silty clay loam, saline, 0 to 1 percent sl
57, Reynosa-Urban land complex, 0 to 1 percent slopes
6, Camargo silty clay loam
62, Rio Grande silt loam
63, Rio Grande silty clay loam

7, Cameron silty clay
73, Zalla loamy fine sand, undulating
74, Zalla silt loam
LDF, Landfill
LEVEE, Levee
M-W, Miscellaneous water
W, Water

N



5, Camargo silt loam
55, Reynosa silty clay loam, 0 to 1 percent slopes
57, Reynosa-Urban land complex, 0 to 1 percent slopes
6, Camargo silty clay loam
62, Rio Grande silt loam
63, Rio Grande silty clay loam
68, Urban land
7, Cameron silty clay
73, Zalla loamy fine sand, undulating
74, Zalla silt loam
LEVEE, Levee
M-W, Miscellaneous water

N

BW1 FOIA CBP 001007

aline
nd complex, 0 to 3 percent slopes
loam
clay
to 5 percent slopes, gullied

6, Camargo silty clay loam
62, Rio Grande silt loam
63, Rio Grande silty clay loam
64, Runn silty clay
7, Cameron silty clay
73, Zalla loamy fine sand, undulating
74, Zalla silt loam

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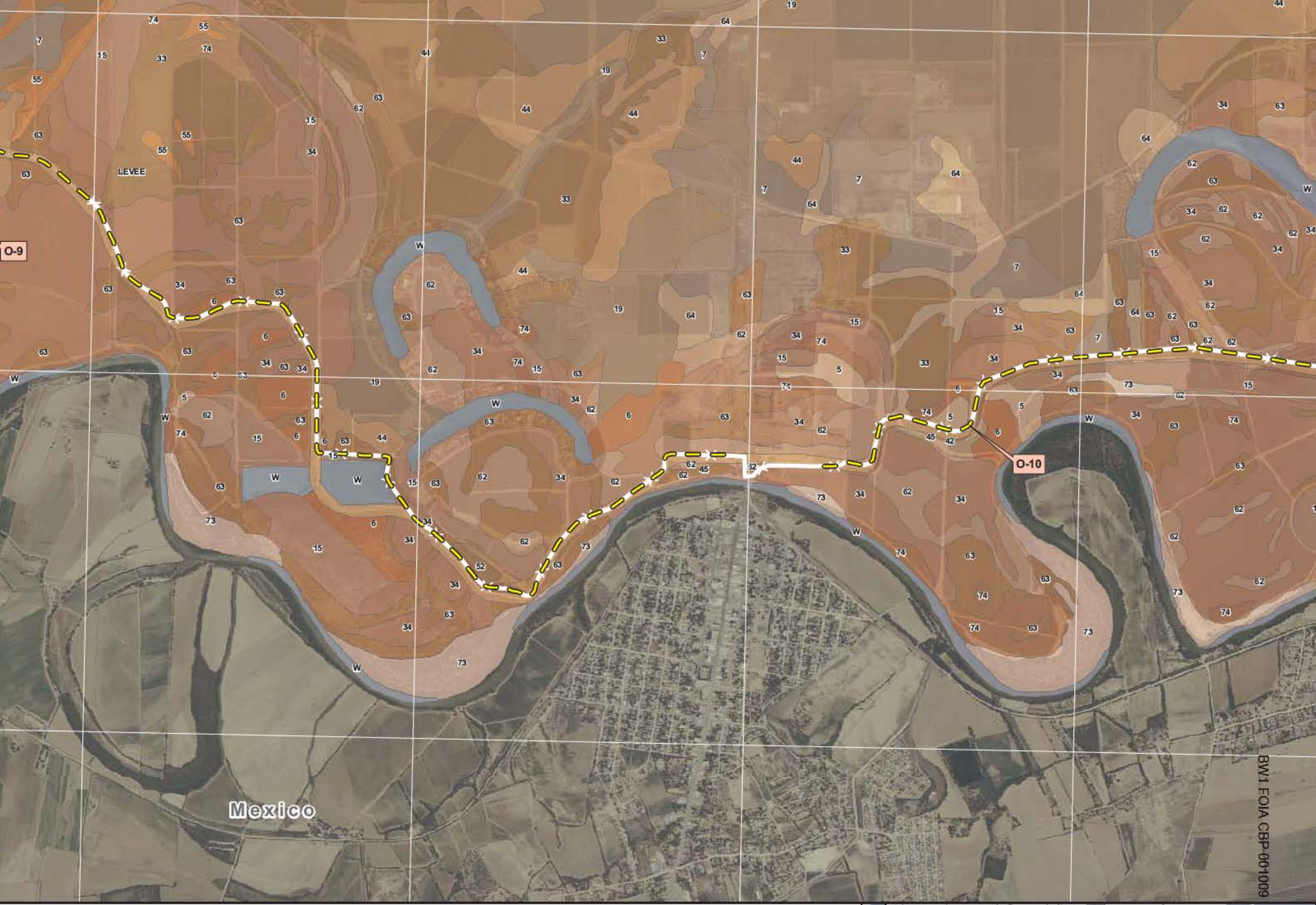


loam
clay
lay loam, 0 to 1 percent slopes
d, 0 to 3 percent slopes

6, Camargo silty clay loam
62, Rio Grande silt loam
63, Rio Grande silty clay loam
64, Runn silty clay
65, Runn silty clay, saline
7, Cameron silty clay
73, Zalla loamy fine sand, undulating

N

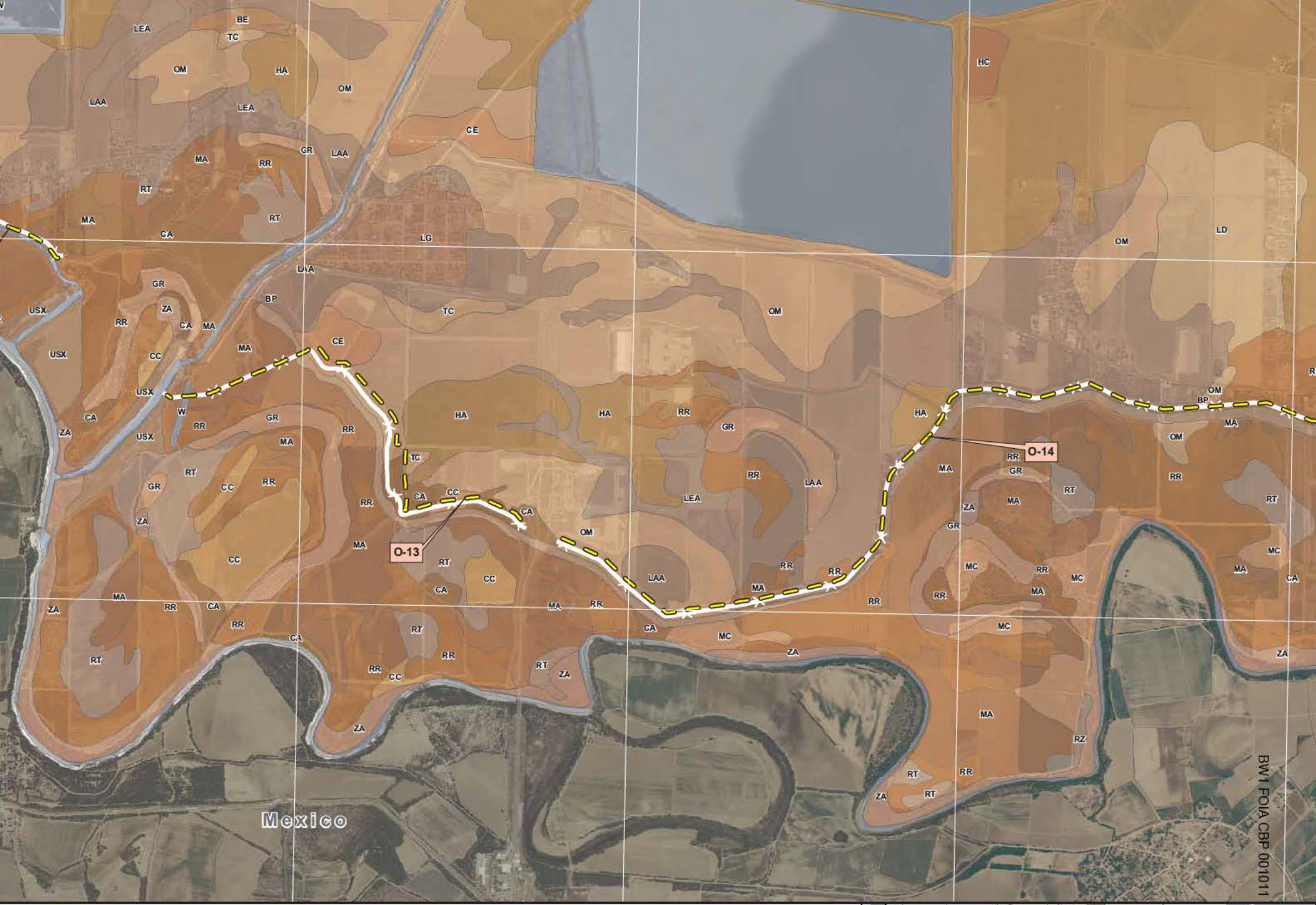
BW1 FOIA CBP-001009

y loam, 0 to 1 percent slopes
y loam
oam
clay loam
0 to 3 percent slopes

CA, Camargo silt loam
CC, Camargo silty clay loam
GA, Galveston fine sand, hummocky
GR, Grulla clay
HA, Harlingen clay
LAA, Laredo silty clay loam, 0 to 1 percent slopes
LC, Laredo silty clay loam, saline

MA, Matamoros silty clay
MC, Matamoros-Rio Grande complex
OM, Olmito silty clay
ON, Olmito-Urban land complex
RR, Rio Grande silt loam
RT, Rio Grande silty clay loam
RZ, Rio Grande-Zalla complex

N



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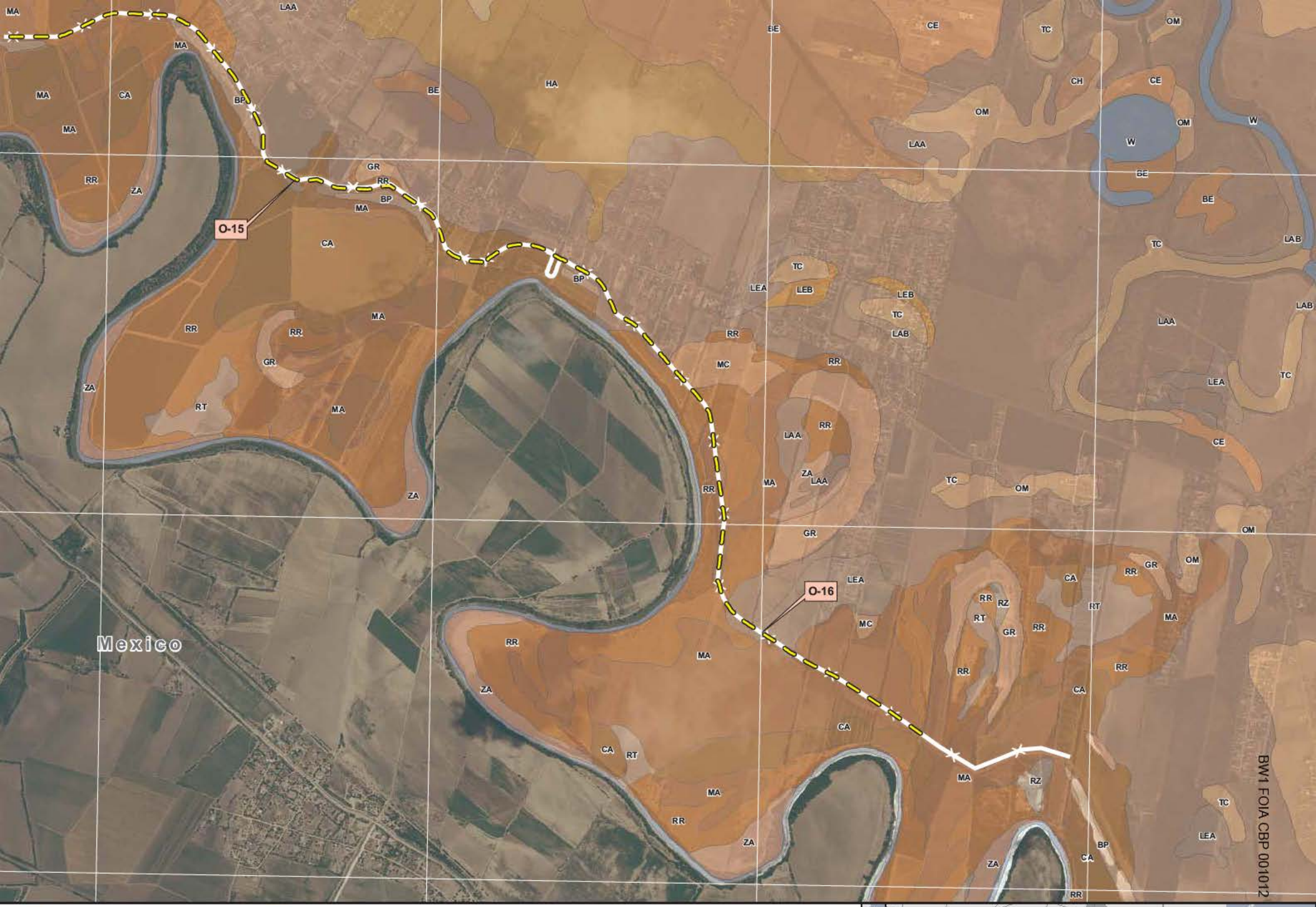
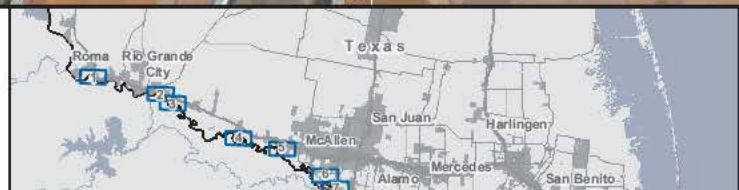


HC, Harlingen clay, saline
LAA, Laredo silty clay loam, 0 to 1 percent slopes
LAB, Laredo silty clay loam, 1 to 3 percent slopes
LC, Laredo silty clay loam, saline
LD, Laredo-Olmito complex
LEA, Laredo-Reynosa complex, 0 to 1 percent slopes
LEB, Laredo-Reynosa complex, 1 to 3 percent slopes
MC, Matamoros-Rio Grande complex
OM, Olmito silty clay
RR, Rio Grande silt loam
RT, Rio Grande silty clay loam
RZ, Rio Grande-Zalla complex
TC, Tiocano clay
W, Water

N



BW1 FOIA CBP 001012

lay loam
ay
y
saline
ay loam, 0 to 1 percent slopes

LEA, Laredo-Reynosa complex, 0 to 1 percent slopes
LM, Lomalta clay
MA, Matamoros silty clay
MC, Matamoros-Rio Grande complex
OM, Olmito silty clay
RR, Rio Grande silt loam
RT, Rio Grande silty clay loam

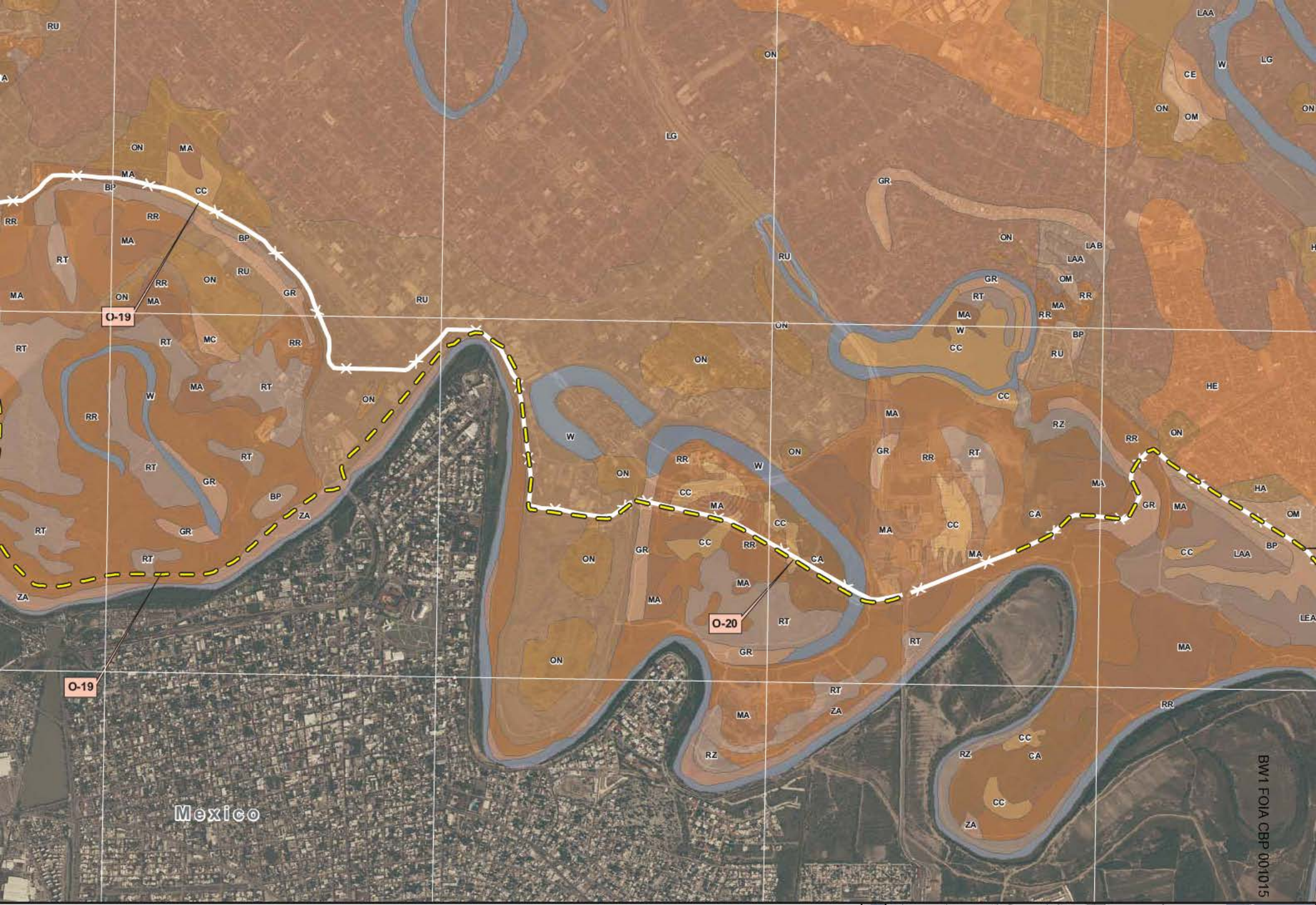
N

BW1 FOIA CBP 001013

BW1 FOIA CBP 001014

MA, Matamoros silty clay
MC, Matamoros-Rio Grande complex
OM, Olmito silty clay
ON, Olmito-Urban land complex
RR, Rio Grande silt loam
RT, Rio Grande silty clay loam
RU, Rio Grande-Urban land complex

N



LC, Laredo silty clay loam, saline
LD, Laredo-Olmito complex
LEA, Laredo-Reynosa complex, 0 to 1 percent slopes
LEB, Laredo-Reynosa complex 1 to 3 percent slopes
LG, Laredo-Urban land complex
LM, Lomalta clay
MA, Matamoros silty clay
ON, Olmito-Urban land complex
RR, Rio Grande silt loam
RT, Rio Grande silty clay loam
RU, Rio Grande-Urban land complex
RZ, Rio Grande-Zalla complex
TC, Tiocano clay
W, Water

N

LAA, Laredo silty clay loam, 0 to 1 percent slopes
LAB, Laredo silty clay loam, 1 to 3 percent slopes
LC, Laredo silty clay loam, saline
LD, Laredo-Olmito complex
LEA, Laredo-Reynosa complex, 0 to 1 percent slopes
LM, Lomalta clay
OM, Olmito silty clay
RR, Rio Grande silt loam
RT, Rio Grande silty clay loam
RZ, Rio Grande-Zalla complex
TC, Tiocano clay
W, Water

N

BW1 FOIA CBP 001016

BW1 FOIA CBP 001017

BW1 FOIA CBP 001019

APPENDIX H

Soils Properties for Starr, Hidalgo, and Cameron Counties

Table H-1. Properties of the Soil Map Units in Starr County

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Alluvial Land	Al	Silt loam	0-8 percent	Well drained	NA	NA	Occur on nearly level, active floodplains of the Rio Grande and its tributaries.
Catarina	Cn	Clay	0-5 percent	Moderately well drained	No	None	Occur on uplands. Very slowly permeable.
Copita	Cp	Fine sandy loam	0-3 percent	Well drained	No	None	Occur on uplands. Moderately permeable.
Jimenez-Quemado association	Jq	Very gravelly loam	3-8 percent	Well drained	No	None	Jimenez soils occur on gently sloping to steep uplands. Quemado soils occur on nearly level to moderately sloping uplands. Moderately permeable.
Lagloria	La	Silt loam	0-2 percent	Well drained	No	None	Occur on nearly level to gently sloping stream terraces. Moderately permeable.
Matamoros	Mm	Silty clay	0-1 percent	Moderately well drained	No	None	Occur on nearly level bottomlands. Slowly permeable.
Reynosa	Re	Silty clay loam	0-2 percent	Well drained	No	None	Occur on nearly level to gently sloping stream terraces. Moderately permeable.

BW1 FOIA CBP 001021

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Rio Grande	RgA	Silt loam	0-1 percent	Well drained	No	None	Occur on nearly level to gently sloping terraces of the Rio Grande. Moderately rapidly permeable.
Rio Grande	RgB	Silt loam	1-3 percent	Well drained	No	None	Occur on nearly level to gently sloping terraces of the Rio Grande. Moderately rapidly permeable.
Rio Grande	Rr	Silty clay loam	0-1 percent	Well drained	No	None	Occur on nearly level to gently sloping terraces of the Rio Grande. Moderately rapidly permeable.
Zalla	Za	Loamy fine sand	0-3 percent	Somewhat excessively drained	No	None	Occur on nearly level to gently sloping bottomlands. Rapidly permeable.

Source: NRCS 2007

Note: [a] No = Not listed as a hydric soil for Starr County, TX; Yes = Listed as a hydric soil for Starr County, TX; Partially = Listed as a partially hydric soil for Starr County, TX

BW1 FOIA CBP 001022

Table H-2. Properties of the Soil Map Units in Hidalgo County

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Arents, loamy	1	Sandy clay loam	0- 1 percent	Well drained	No	Prime, if irrigated	Occur on alluvial floodplains of the Rio Grande and its tributaries.
Camargo	5	Silt loam	0-1 percent	Well drained	No	Prime	Occur on nearly level, active floodplains of the Rio Grande and its tributaries. Moderately permeable.
Camargo	6	Silty clay loam	0-1 percent	Well drained	No	Prime	Occur on nearly level, active floodplains of the Rio Grande and its tributaries. Moderately permeable.
Cameron	7	Silty clay	0-1 percent	Moderately well drained	No	Prime	Occur on nearly level bottomlands. Moderately slowly permeable.
Grulla	15	Clay	0-1 percent	Somewhat poorly drained	Partially	None	Occur in oxbows and sloughs. Very slowly permeable.
Harlingen	19	Clay	0-1 percent	Moderately well drained	No	None	Occur on nearly level stream terraces. Very slowly permeable.
Laredo	33	Silty clay loam	0-1 percent	Well drained	No	Prime	Occur on nearly level to gently sloping deltas and Holocene stream terraces. Moderately permeable.

BW1 FOIA CBP 001023

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Matamoros	34	Silty clay	0-1 percent	Moderately well drained	No	Prime	Occur on nearly level bottomlands. Slowly permeable.
Olmito	44	Sandy clay	0-1 percent	Moderately well drained	No	Prime	Occur on nearly level stream terraces. Slowly permeable.
Pits, borrow	45	NA	1-30 percent	Well drained	No	None	NA
Raymondville	52	Clay loam	0-1 percent	Moderately well drained	No	Prime, if irrigated	Occur on nearly level to gently sloping uplands. Slowly permeable.
Reynosa	55	Silty clay loam	0-1 percent	Well drained	No	Prime	Occur on nearly level to gently sloping stream terraces. Moderately permeable.
Reynosa-Urban land complex	57	Silt loam	0-1 percent	Well drained	No	None	Reynosa soils occur on nearly level to gently sloping terraces of the Rio Grande. Urban land consists of disturbed soils of developed areas. Reynosa soils are moderately rapidly permeable.
Rio Grande	62	Silt loam	0-1 percent	Well drained	No	Prime	Occur on nearly level to gently sloping terraces of the Rio Grande. Moderately rapidly permeable.

BW1 FOIA CBP 001024

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Rio Grande	63	Silty clay loam	0-1 percent	Well drained	No	Prime	Occur on nearly level to gently sloping terraces of the Rio Grande. Moderately rapidly permeable.
Runn	64	Silty clay	0-1 percent	Moderately well drained	No	Prime	Occur on nearly level stream terraces. Slowly permeable.
Runn	65	Silty clay, saline	0-1 percent	Moderately well drained	No	None	Occur on nearly level stream terraces. Slowly permeable.
Urban land	68	NA	NA	NA	No	None	Urban land consists of disturbed soils of developed areas.
Zalla	74	Silt loam	0-1 percent	Somewhat excessively drained	No	None	Occur on nearly level to gently sloping bottomlands. Rapidly permeable.

Source: NRCS 2007

Note: [a] No = Not listed as a hydric soil for Hidalgo County, TX; Yes = Listed as a hydric soil for Hidalgo County, TX; Partially = Listed as a partially hydric soil for Hidalgo County, TX

BW1 FOIA CBP 001025

Table H-3. Properties of the Soil Map Units in Cameron County

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Borrow pits	BP	NA	NA	NA	No	None	NA
Camargo	CA	Silt loam	0-1 percent	Well drained	No	Prime	Occur on nearly level, active floodplains of the Rio Grande and its tributaries. Moderately permeable.
Camargo	CC	Silty clay loam	0-1 percent	Well drained	No	Prime	Occur on nearly level, active floodplains of the Rio Grande and its tributaries. Moderately permeable.
Cameron	CE	Silty clay	0-1 percent	Moderately well drained	No	Prime	Occur on nearly level bottomlands. Moderately slowly permeable.
Chargo	CH	Silty clay	0-1 percent	Moderately well drained	Partially	None	Occur on nearly level ancient stream terraces. Slowly permeable.
Grulla	GR	Clay	0-1 percent	Somewhat poorly drained	Partially	None	Occur in oxbows and sloughs. Very slowly permeable.
Harlingen	HA	Clay	0-1 percent	Moderately well drained	No	Prime, if irrigated	Occur on nearly level stream terraces. Very slowly permeable.
Laredo	LAA	Silty clay loam	0-1 percent	Well drained	No	Prime	Occur on nearly level to gently sloping deltas and Holocene stream terraces. Moderately permeable.

BW1 FOIA CBP 001026

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Laredo-Olmito complex	LD	Silty clay	0-1 percent	Moderatelywell drained	No	Prime, if irrigated	Laredo soils occur on nearly level to gently sloping deltas and Holocene stream terraces. Olmito soils occur on nearly level stream terraces. Laredo soils are moderately permeable, Olmito soils slowly permeable.
Laredo-Reynosa complex	LEA	Silty loam	0-1 percent	Well drained	No	Prime	Laredo soils occur on nearly level to gently sloping deltas and Holocene stream terraces. Reynosa soils occur on nearly level to gently sloping stream terraces. Both are moderately permeable.
Matamoros	MA	Silty clay	0-1 percent	Moderately well drained	No	Prime	Occuron nearly level bottomlands. Slowly permeable.
Matamoros-Rio Grande complex	MC	Silt loam	0-1 percent	Moderately well drained	No	Prime	Matamoros soils occur on nearly level bottomlands, Rio Grande soils occur on nearly level to gently sloping terraces of the Rio Grande. Matamoros soils are slowly permeable, Rio Grande moderately rapidly permeable.
Olmito	OM	Sandy clay	0-1 percent	Moderately well drained	No	Prime	Occur on nearly level stream terraces. Slowly permeable.
Olmito-Urban land complex	ON	Silty clay	0-1 percent	Moderately well drained	No	None	Olmito soils occur on nearly level stream terraces. Urban land consists of disturbed soils of developed areas. Olmito soils are slowly permeable.

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric[a]	Farmland Importance	Properties
Rio Grande	RR	Silt loam	0-1 percent	Well drained	No	Prime	Occur on nearly level to gently sloping terraces of the Rio Grande. Moderately rapidly permeable.
Rio Grande	RT	Silty clay loam	1-3 percent	Well drained	No	Prime	Occur on nearly level to gently sloping terraces of the Rio Grande. Moderately rapidly permeable.
Rio Grande-Urban land complex	RU	Very fine sandy loam	0-1 percent	Well drained	No	None	Rio Grande soils occur on nearly level to gently sloping terraces of the Rio Grande. Urban land consists of disturbed soils of developed areas. Rio Grande soils are moderately rapidly permeable.
Sejita	SE	Silty clay loam	0-1 percent	Poorly drained	Yes	None	Occur on nearly level low coastal terraces. Moderately slowly permeable.
Tiocano	TC	Clay	0-1 percent	Somewhat poorly drained	Partially	None	Occur in nearly level slight depressions. Very slowly permeable soils.
Ustifluvents	USX	Clay	0-25 percent	Somewhat poorly drained	Partially	None	NA
Zalla	ZA	Loamy fine sand	0-1 percent	Somewhat excessively drained	No	None	Occur on nearly level to gently sloping bottomlands. Rapidly permeable.

Source: NRCS 2007

Note: a No = Not listed as a hydric soil for Cameron County, TX; Yes = Listed as a hydric soil for Cameron County, TX; Partially = Listed as a partially hydric soil for Cameron County, TX

BW1 FOIA CBP 001028

APPENDIX I

Draft Biological Survey Report

DRAFT

BIOLOGICAL SURVEY REPORT

FOR

CONSTRUCTION, MAINTENANCE, AND OPERATION OF TACTICAL INFRASTRUCTURE RIO GRANDE VALLEY SECTOR, TEXAS

USBP RIO GRANDE VALLEY SECTIONS

U.S. DEPARTMENT OF HOMELAND SECURITY
CUSTOMS AND BORDER PROTECTION
U.S. BORDER PATROL
RIO GRANDE VALLEY SECTOR, TEXAS

Prepared by

Solutions Today for a Sustainable Tomorrow

NOVEMBER 2007

ABBREVIATIONS AND ACRONYMS

ºF	degrees Fahrenheit
BMP	Best Management Practice
BO	Biological Opinion
CBP	U.S. Customs and Border Protection
CFR	Code of Federal Regulations
CWA	Clean Water Act
DHS	U.S. Department of Homeland Security
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FE	Federally Endangered
IBWC	International Boundary and Water Commission
LRGVNWR	Lower Rio Grande Valley National Wildlife Refuge
MBTA	Migratory Bird Treaty Act
mph	miles per hour
NEPA	National Environmental Policy Act
NWR	National Wildlife Refuge
POE	Port of Entry
ROE	Right of entry
ROW	right-of-way
SE	State Endangered
SFA	Secure Fence Act
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

DRAFT BIOLOGICAL SURVEY REPORT FOR PROPOSED CONSTRUCTION AND OPERATION OF TACTICAL INFRASTRUCTURE USBP RIO GRANDE VALLEY SECTIONS

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1. Introduction

This Biological Survey Report synthesizes information collected from a variety of sources to describe the biological resources within the proposed project corridor, the potential impacts of the proposed project on those biological resources, and recommendations for avoidance or reduction of those impacts. Information was gathered from publicly available literature, data provided by relevant land management agencies, review of aerial photography and U.S. Geological Survey (USGS) topographic maps, data from the State of Texas, NatureServe, and initial field surveys conducted on October 1 through October 7, 2007.

This Report was developed to support National Environmental Policy Act (NEPA) and Endangered Species Act (ESA) requirements for analysis of potential impacts on biological resources resulting from the construction, operation, and maintenance of the proposed tactical infrastructure. This Report was developed as an independent document but will be included as an appendix in the Environmental Impact Statement developed for this project.

2. Project Description

U.S. Customs and Border Protection (CBP) proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence and associated, access roads, patrol roads, and lights along the U.S./Mexico international border in the U.S. Border Patrol (USBP) Rio Grande Valley Sector, Texas. The proposed locations of tactical infrastructure are based on a USBP Rio Grande Valley Sector assessment of local operational requirements where it would assist USBP agents in reducing cross-border violator activities. Proposed tactical infrastructure would be constructed in 21 discrete sections along the international border within the USBP Rio Grande Valley Sector in Starr, Hidalgo, and Cameron counties, Texas (see **Table 2-1)**. The proposed individual tactical infrastructure sections range from approximately 1 mile in length to more than 13 miles in length.

Table 2-1. Tactical Infrastructure Sections, Rio Grande Valley Sector

Fence Section Number	Border Patrol Station	General Location	Approx. Mileage (Route B) (mi)
O-1	Rio Grande City	Near Roma Port of Entry	3.75
O-2	Rio Grande City	Near RGC Port of Entry	8.74
O-3	McAllen	Los Ebanos Port of Entry	1.0 (estimated)
O-4	McAllen	From Penitas to Abram	4.35
O-5	McAllen	Future Anzalduas Port of Entry	1.76
O-6	McAllen	Hidalgo Port of Entry	3.85
O-7	Weslaco	Proposed Donna Port of Entry	0.90
O-8	Weslaco	Retamal Dam	3.25
O-9	Weslaco	West Progreso Port of Entry	3.87
O-10	Weslaco	East Progreso Port of Entry	2.33
O-11	Harlingen	Joe's Bar-Nemo Road	2.31
O-12	Harlingen	Weaver's Mountain	0.92
O-13	Harlingen	W Los Indios Port of Entry	1.58
O-14	Harlingen	E Los Indios Port of Entry	3.59
O-15	Harlingen	Triangle - La Paloma	1.93
O-16	Harlingen	Ho Chi Minh - Estero	2.33
O-17	Brownsville	Proposed Carmen Road Freight Train Bridge	1.61
O-18	Brownsville	Proposed Flor De Mayo POE to Garden Park	3.58
O-19	Brownsville	B&M Port of Entry to Los Tomates	3.37
O-20	Brownsville	Los Tomates to Veterans International Bridge	0.93
O-21	Fort Brown	Veterans International Bridge to Sea Shell Inn	12.99
		Total	**69.84**

3. Survey Methods and Limitations

To provide flexibility in placement of tactical infrastructure within the proposed project corridor, and to ensure consideration of potential impacts due to construction and to use, surveys were conducted in an area extending 150 feet on the north side (i.e., side away from the Rio Grande) of the 21 proposed individual tactical infrastructure sections and extending at least 0.5 miles past the proposed ends of each section. The areas thus defined are referred to hereafter as the "survey corridor."

Intuitive controlled investigations of the survey corridor were conducted by James Von Loh (Senior Ecologist, e²M), Valerie Whalon (Biologist, e²M), Tom Hayes (Senior Ecologist, e²M), and Nancy Hays (Senior Ecologist, e²M), and Gena Janssen of Janssen Biological (subcontractor to e²M and U.S. Fish and Wildlife Service [USFWS] approved botanist for the Rio Grande Valley). The October 2007 surveys covered as much of the proposed project corridor known as of 2 October 2007, as well as the local CBP agents' understanding of the proposed project corridor at the time of the survey. The proposed project corridor identified as Route B was surveyed. Surveyors walked the entire length of the proposed project corridor for each tactical infrastructure section, and examined in more detail areas containing unique species compositions or habitat that might be conducive to sensitive species. Plot data (GPS coordinates, photographs, and plant community composition) were recorded at regular intervals along the corridor and where plant communities presented substantial shifts in species composition. These data will be used to generate vegetation classifications and maps to support delineation of habitat types, analysis of potential sensitive species occurrences, and analysis of potential project impacts on biological resources. These maps will be included in the Final Report. Although no protocol surveys were conducted, surveyors did specifically look for evidence indicating the presence of state- and Federal-listed species (see **Table 3-1**), and habitats that might support them. Descriptions of the federally listed species are provided in **Appendix A**.

Table 3-1. Federal and State Threatened and Endangered Species in Texas, by County

Common Name	Scientific Name	County	Federal Status	State Status
FISH				
Blackfin goby	*Gobionellus atripinnis*	C		**T**
Opossum pipefish	*Microphis brachyurus*	C		**T**
Rio Grande silvery minnow	*Hybognathus amarus*	S, H, C		**E**
River goby	*Awaous banana*	H, C		**T**

Common Name	Scientific Name	County	Federal Status	State Status
AMPHIBIANS				
Black spotted newt	*Notophthalmus meridionalis*	S, H, C		**T**
Mexican burrowing toad	*Rhinophrynus dorsalis*	S		**T**
Mexican treefrog	*Smilisca baudinii*	S, H, C		**T**
Sheep frog	*Hypopachus variolosus*	S, H, C		**T**
South Texas siren (large form)	*Siren sp 1*	S, H, C		**T**
White-lipped frog	*Leptodactylus fragilis*	S, H, C		**T**
REPTILES				
Black-striped snake	*Coniophanes imperialis*	H, C		**T**
Green sea turtle	*Chelonia mydas*	C	**E**	**T**
Hawksbill sea turtle	*Eretmochelys imbricata*	C	**E**	**E**
Kemp's Ridley sea turtle	*Lepidochelys kempii*	C	**E**	**E**
Leatherback sea turtle	*Dermochelys coriacea*	C	**E**	**E**
Loggerhead sea turtle	*Caretta caretta*	C	**T**	**T**
Indigo snake	*Drymarchon corais*	S, H, C		**T**
Northern cat-eyed snake	*Leptodeira septentrionalis septentrionalis*	S, H, C		**T**
Reticulate collared lizard	*Crotaphytus reticulatus*	S, H		**T**
Speckled racer	*Drymobius margaritiferus*	H, C		**T**
Texas horned lizard	*Phrynosoma cornutum*	S, H, C		**T**
Texas scarlet snake	*Cemophora coccinea lineri*	C		**T**
Texas tortoise	*Gopherus berlandieri*	S, H		**T**
BIRDS				
American peregrine falcon	*Falco peregrinus anatum*	S, H, C		**E**
Arctic peregrine falcon	*Falco peregrinus tundrius*	S, H, C		**T**
Brown pelican	*Pelecanus occidentalis*	C	**E**	**E**
Cactus ferruginous pygmy-owl	*Glaucidium brasilianum cactorum*	S, H, C		**T**
Common black-hawk	*Buteogallus anthracinus*	S, H, C		**T**
Eskimo curlew	*Numenius borealis*	C		**E**
Gray hawk	*Asturina nitida*	S, H, C		**T**
Least tern	*Sterna antillarum*	S, H, C	**E**	**E**
Mexican hooded oriole	*Icterus cucullatus cucullatus*	S		**T**
Northern Aplomado falcon	*Falco femoralis septentrionalis*	H, C	**E**	**E**
Northern beardless-tyrannulet	*Camptostoma imberbe*	S, H, C		**T**
Peregrine falcon	*Falco peregrinus*	S, H, C		**E, T**

Common Name	Scientific Name	County	Federal Status	State Status
BIRDS (Continued)				
Piping plover	*Charadrius melodus*	H, C	**T**	**T**
Reddish egret	*Egretta rufescens*	H, C		**T**
Rose-throated becard	*Pachyramphus aglaiae*	S, H, C		**T**
Sooty tern	*Sterna fuscata*	C		**T**
Texas Botteri's sparrow	*Aimophila botterii texana*	H, C		**T**
Tropical parula	*Parula pitiayumi*	S, H, C		**T**
White-faced ibis	*Plegadis chihi*	H, C		**T**
White-tailed hawk	*Buteo albicaudatus*	S, H, C		**T**
Whooping crane	*Grus Americana*	S, H, C	**E**	**E**
Wood stork	*Mycteria americana*	S, C		**T**
Zone-tailed hawk	*Buteo albonotatus*	S, C		**T**
MAMMALS				
Coues' rice rat	*Oryzomys couesi*	S, H, C		**T**
Gulf Coast jaguarundi	*Herpailurus (=Felis) yaguarondi*	S, H, C	**E**	**E**
Ocelot	*Leopardus (=Felis) pardalis*	S, H, C	**E**	**E**
Southern yellow bat	*Lasiurus ega*	H, C		**T**
White-nosed coati	*Nasua narica*	S, H, C		**T**
PLANTS				
Ashy dogweed	*Thymophylla tephroleuca*	S	**E**	**E**
Johnston's frankenia	*Frankenia johnstonii*	S	**E**	**E**
South Texas ambrosia	*Ambrosia cheiranthifolia*	C	**E**	**E**
Star cactus	*Astrophytum asterias*	S, H,C	**E**	**E**
Texas ayenia	*Ayenia limitaris*	H,C	**E**	**E**
Walker's manioc	*Manihot walkerae*	S, H	**E**	**E**
Zapata bladderpod	*Lesquerella thamnophila*	S	**E**	**E**

1 Sources: TPWD 2007, USFWS 2007
2 Notes:
3 S: Starr County, Texas
4 H: Hidalgo County, Texas
5 C: Cameron County, Texas
6 E = endangered; T = Threatened
7

4. Environmental Setting

The project area climate is semiarid-subtropical/subhumid within the Modified Marine climatic type, e.g., summers are long and hot and winters are short, dry, and mild (Larkin and Bomar 1983, Bailey 1995). The marine climate results from the predominant onshore flow of tropical maritime air from the Gulf of Mexico. Onshore air flow is modified by a decrease in moisture content from east to west and by intermittent seasonal intrusions of continental air.

Average temperatures in Brownsville range from a low of 50 degrees Fahrenheit [F] in January to a low of 76 F in July, and a high of 64 F in December to a high of 97 F in August. Annual low and high temperatures for Brownsville range from 12 F to 63 F and 93 F to 107 F, respectively. The average annual precipitation of the Rio Grande Delta recorded in Brownsville ranges from 22 to 30 inches (Brownsville recorded 21.68 inches for 2006), and the distribution of rainfall is irregular. Wind speeds are stable ranging from 10.4 miles per hour (mph) to 17.3 mph during the year. A long growing season is experienced for the proposed project region, from 314 to 341 days. The evaporation rate during the summer season is high, about twice the amount of precipitation.

The vegetation of the Rio Grande Delta of southern Texas has generally been classified under the Dry Domain, Tropical/Subtropical Steppe Division of Bailey (1995). The project area is more finely classified as the Southwestern Plateau and Plains Dry Steppe and Shrub Province. The Texas Parks and Wildlife Department (TPWD 2007) provides discussion and describes vegetation geography to biotic provinces and natural regions using topographic features, climate, vegetation types, and terrestrial vertebrates. This system places the project area in the Tamaulipan Biotic Province, South Texas Brush Country (Rio Grande Basin) Natural Region, and the Level III Ecoregions of the Southern Texas Plains and Western Gulf Coastal Plain.

Occurring within the Lower Rio Grande Valley (technically a delta) of southern Texas and northern Mexico, Tamaulipan Brushland represents a unique ecosystem (USFWS 1988). The characteristic natural vegetation is dense and thorny, and plant species distribution can be correlated with geologic formations. The Rio Grande floodplain supports tall, dense riparian forest, woodland, shrubland, and herbaceous vegetation while the xeric upland areas support mostly spiny shrubs, short-stature trees, and dense nonnative grasslands. Between the 1920s and 1980s more than 95 percent of the native brushland and 90 percent of the riparian vegetation had been converted to agriculture and urban land use (USFWS 1988). In 1988, it was estimated that 98 percent of the lush, subtropical region of the Rio Grande Delta had been cleared of native vegetation in the United States and a large but unknown percentage cleared in Mexico.

5. Biological Resources

5.1 Vegetation Classification

The USFWS (1988) recognized 11 biotic communities in the Lower Rio Grande Valley using a combination of plant species dominance, wildlife use, topography, hydrology, and geology. There are seven biotic communities that could be associated with the project region: (1) Chihuahuan Thorn Forest, (2) Upper Valley Flood Forest, (3) Barretal, (4) Upland Thornscrub, (5) Mid-Valley Riparian Woodland, (6) Sabal Palm Forest, and (7) Mid-Delta Thorn Forest. Chihuahuan Thorn Forest could occur near the western terminus of proposed Section O-1. Proposed SectionsO-1 and O-2 lie within the Upper Valley Flood Forest biotic community and adjacent to the Barretal. Proposed Sections O-3 and O-4 occur within the Upper Valley Flood Forest and Upland Thornscrub biotic communities. Proposed SectionsO-4 through O-20 are primarily within the Mid-Valley Riparian Woodland biotic community, with some vegetative influence from the Mid-Delta Thorn Forest which occurs to the north. The Sabal Palm Forest biotic community occurs within proposed Section O-21.

NatureServe (2007) has defined ecological systems to represent recurring groups of biological communities that are found in similar physical environments and are influenced by similar dynamic ecological processes such as fire or flooding. Ecological systems represent classification units that are readily identifiable by conservation and resource managers in the field. The ensuing vegetation description for the project area was prepared in the framework of ecological systems that include (1) Tamaulipan Calcareous Thornscrub (CES301.986), (2) Tamaulipan Mesquite Upland Scrub (CES301.984); (3) Tamaulipan Mixed Deciduous Thornscrub (CES301.983), (4) Tamaulipan Savanna Grassland (CES301.985), (5) Tamaulipan Arroyo Shrubland (CES301.992), (6) Tamaulipan Floodplain (CES301.990), (7) Tamaulipan Palm Grove Riparian Forest (CES 301.991), and (8) North American Arid West Emergent Marsh (CES300.729).

Classification of existing vegetation within this corridor was achieved by accessing nearly the entire corridor as proposed, sampling observation points, and relating them to the NatureServe Explorer classification database (2007). At the coarsest level, the eight above-named ecological systems were determined and local vegetation types placed into the national system. A finer level of classification equaling or approximating the vegetation alliance level of the National Vegetation Classification System (NatureServe 2007) was used to prepare the plant community discussions under each ecological system. Unclassifiable vegetation stands and patches sampled within the proposed corridor typically consisted of nonnative species including Chinaberry (*Koelreuteria* sp.) Woodland, Athel Tamarisk (*Tamarix aphylla*) Woodland, Castor Bean (*Ricinus communis*)/Buffelgrass (*Pennisetum ciliare*) Shrubland, Mediterranean Lovegrass (*Eragrostis* sp.) – Rough Pigweed (*Amaranthus*

retroflexus) Herbaceous Vegetation, Johnsongrass (*Sorghum halapense*) Herbaceous Vegetation; Windmill Grass (*Chloris* spp.) Herbaceous Vegetation; Silver Bluestem (*Bothriochloa laguroides*) – Buffelgrass (*Pennisetum ciliare*) Herbaceous Vegetation; and Quelite Cenizo (*Atriplex matamorensis*) – Buffelgrass (*Pennisetum ciliare*) Herbaceous Vegetation.

Habitats observed, sampled, and photographed within the project corridor range from upland thorn-scrub on the western end of Section O-1, upper and mid-valley riparian forest and woodland communities throughout the proposed middle sections, and sabal palm and mid-delta thorn forests within Section O-21. Much of the vegetation cover along the sections consists of nonnative grassland species that are themselves dominant or they often support an overstory of honey mesquite, retama, or huisache shrubs or small trees. Agricultural fields occur along much of the corridor as proposed and include sugar cane, sorghum, Johnsongrass, sunflowers, cotton, row crop vegetables particularly onions, citrus trees (grapefruit and orange), or fields that were fallow at the time of site visit. Urban development and private property with single homes occurs adjacent to several proposed sections.

A brief description of each plant community observed within the proposed sections is provided herein; they are distinguished using the NatureServe Vegetation Alliance level of classification or an approximation. To the extent possible, each community is illustrated and supported by representative ground photographs and foliar cover information for dominant species. Some vegetation patches and stands are introduced nonnative species and do not readily fit into a recognized vegetation alliance or ecological system designed for native vegetation; they are discussed at the end of this section.

5.1.1 Tamaulipan Floodplain Ecological System (CES301.990)

Texas Ebony Riparian Forest and Woodland

Texas ebony occurred within the project corridor as trees and shrubs providing sparse to low cover in other plant communities and as individual large trees. Stands dominated by Texas ebony were not encountered, per se. Particularly large, mature Texas ebony trees that are approximately 20–25 meters tall occur within floodplain habitat in Section O-2 where they occupy the outer edge (see **Figure 5-1**). The large trees have emerged from an understory of the nonnative perennial grass, buffelgrass, and can exceed 100 years of age (Patterson 2007).

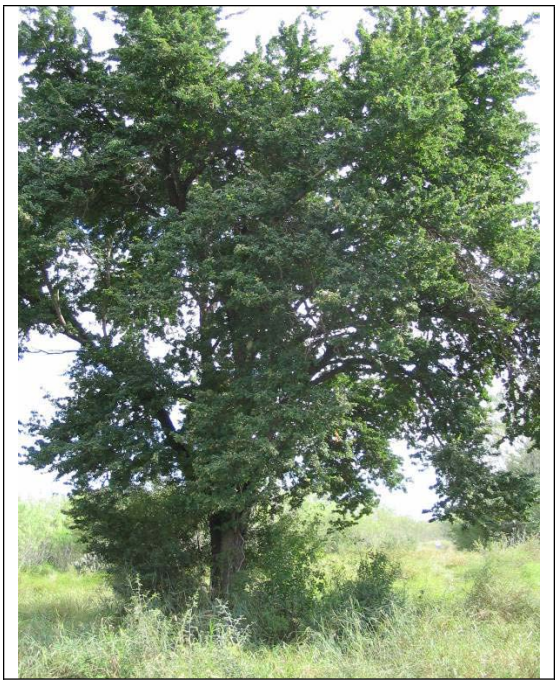

Figure 5-1. Representative Photograph of Mature Texas Ebony Tree

Sugarberry Riparian Forest and Woodland

Sugarberry forest and woodland stands have become established on the outer floodplain and along oxbows of the Rio Grande and were sampled in Sections O-2, O-3, O-8, O-10, O-11, O-12, and O-14 (see **Figure 5-2**). Canopy cover for the mature sugarberry trees (15–30 meters tall) ranges from 30-75 percent. Honey mesquite trees are commonly present in the canopy layer and provide 5–20 percent cover. In one stand a subcanopy layer of granjeno, huisache, and honey mesquite, from 5–10 meters tall, provided approximately 20 percent cover. The herbaceous layer provides low to dense cover, from 5–75 percent cover and includes switchgrass, Bermuda grass, and buffelgrass.

Figure 5-2. Representative Photographs of Sugarberry Habitat

Honey Mesquite Riparian Forest

Honey mesquite forests characterized by large trees from 10-30m tall occurred on the Rio Grande floodplain margins and were sampled in Sections O-1, O-2, O-6, O-8, and O-21. In the canopy layer, honey mesquite cover ranged from 20–60 percent (see **Figure 5-3**). Associated canopy tree species included sugarberry, retama, and granjeno that provided low cover, from 5–15 percentcover. A subcanopy layer was typically present, provided 10–25 percent cover, and included snake eyes, huisache, retama, granjeno, brasil, Texas ebony, and colima. The tall and short shrub layers (1-5m tall) were occasionally present, provided from 5–55 percent cover, and included Texas prickly pear, snake eyes, cenizo, granjeno, and honey mesquite saplings. The herbaceous layer provided low to dense cover, from 15–85 percent cover, ranged from 0.5–2 meters tall, and included buffelgrass, switchgrass, and a variety of forbs.

Figure 5-3. Representative Photographs of Honey Mesquite Forest Habitat

Mule's Fat Shrubland

Mule's fat occurs as stands and patches of riparian tall shrubs from 4–10 meters tall where near-to-surface ground water or occasional standing water is present within the project region as proposed. The densest stands with Mule's fat tall shrub foliar cover of up to 55 percent were recorded in Section O-3 within the Los Ebanos Unit of the Lower Rio Grande Valley National Wildlife Refuge and in Section O-13 (see **Figure 5-4**). Stands can be monotypic in the tall shrub layer, or low cover, less than 10 percent cover of granjeno, tepeguaje, sugarberry

saplings, or black willow can occur. The herbaceous layer provides moderate to high cover, from 30-90 percent cover, ranges from 0.5–2 meters tall, and includes switchgrass, windmill grass, Johnsongrass, and buffelgrass.

Figure 5-4. Representative Photographs of Mule's Fat Habitat

Black Willow Woodland and Shrubland

Black willow tall shrubs or small trees, from 5–10 meters in height, form narrow bands or linear stands on saturated soil around permanent water bodies including the Rio Grande, canals, drainage ditches, and ponds (see **Figure 5-5**). Representative stands were sampled in Sections O-3, O-8, O-13, O-14, and O-20. Black willow typically provides from 10–60 percent cover in the canopy or tall shrub layer along with low to moderate cover, less than 10 percent by granjeno, honey mesquite, and retama. The herbaceous layer provides moderate to high cover, from 15-95 percent cover, ranges from 1–10 meters tall, and includes giant reed, switchgrass, narrowleaf cattail, smartweed, and buffelgrass.

Giant Reed Herbaceous Vegetation

Giant reed or Carrizo forms 5–10 meters tall, linear, dense stands (from 40–95 percent cover) on saturated soils of ditch and canal banks, standing water in ditches, and other sites with near-to-surface ground water. Some stands have apparently become established as a result of irrigation runoff draining from sugar cane and other irrigated agricultural fields. The banks of the Rio Grande support

dense stands that exceed 8 meters in height (see **Figure 5-6**). Switchgrass is a common associate in giant reed stands providing from 15–50 percent cover and black willow trees to 10 meters tall provided approximately 25 percent cover in one stand. Representative data were recorded from stands that occur in Sections O-2, O-9, and O-14.

Figure 5-5. Representative Photographs of Black Willow Habitat

Figure 5-6. Representative Photographs of Giant Reed Habitat

Common Reed Herbaceous Vegetation

Common reed was rarely observed within the project region, persisting as narrow strips along canal banks that rarely exceed 25 square meters (m^2) in area covered (see **Figure 5-7**). Larger stands were observed outside the project corridor, as proposed, and along the banks of the Rio Grande and its associated oxbows.

Figure 5-7. Representative Photographs of Common Reed Habitat

5.1.2 Tamaulipan Palm Grove Riparian Forest Ecological System (CES301.991)

Sabal Palm Forest and Woodland

Sabal palms are distributed predominantly in Section O-21 as scattered individuals, small groups or linear clumps, and patches and stands where they persist as seedlings, tall shrubs and as trees up to 20 meters tall (see **Figure 5-8**). Only a few sabal palm trees were observed in other proposed project sections. The USFWS has established the Boscaje de la Palma tract in the southernmost bend of the Rio Grande near Brownsville to preserve sabal palm forest and woodland habitat (USFWS 1988). The sabal palm was common enough in this region, extending to near the Gulf of Mexico at the time of Spanish exploration, that the Rio Grande was first named the Rio de las Palmas. In sampled stands the sabal palm ranged from 4–10 meters tall and provided from 15–30 percent cover. Low cover, less than 10 percent, was also provided by honey mesquite, tepehuaje, anacua, and Texas ebony trees and tall shrubs. In the herbaceous layer, the liana ivy treebine or hierba del buey provides up to 50 percent cover and switchgrass, up to 2 meters tall, provides from 20–55 percent cover.

Figure 5-8. Representative Photographs of Sabal Palm Forest and Woodland Habitat

5.1.3 Tamaulipan Mesquite Upland Scrub Ecological System (CES301.984)

Granjeno Woodland and Shrubland

Granjeno or spiny hackberry forms stands of moderate-stature trees to 15 meters tall or is a dominant understory component in the subcanopy or tall shrub layers, ranging from 3–5 meters tall. Representative stands were sampled in proposed Sections O-5, O-10, and O-17 where granjeno cover ranged from 30–75 percent (see **Figure 5-9**). Associated canopy trees provide low cover, up to 20 percent, and include honey mesquite, huisache, and retama. The herbaceous layer provides low to dense cover, from 5–50 percent, and includes the 2–8 meters tall switchgrass, giant reed, and Johnsongrass.

Figure 5-9. Representative Photographs of Granjeno Habitat

Honey Mesquite Woodland

Honey mesquite woodlands with small trees from 5–10 meters tall were sampled in Sections O-1, O-2, O-3, O-4, O-8, O-10, and O-18. In the canopy layer, honey mesquite cover ranged from 15–55 percent (see **Figure 5-10**). Associated canopy tree species, when present, included snake eyes, granjeno, retama, huisache, and Texas ebony that provided low to moderately dense cover, from 5–40 percent. The tall and short shrub layers provided low cover, up to 15 percent, and included snake eyes, Texas prickly pear, blackbrush, cenizo, kidney wood, mule's fat, junco, goatbrush, granjeno, tasajillo, and honey mesquite saplings. The herbaceous layer contributes low to high cover, from 5–90 percent, and is dominated by buffelgrass and switchgrass. Revegetation efforts at Los Ebanos National Wildlife Refuge (NWR) were represented by this type following 5 to 6 years of growth.

Figure 5-10. Representative Photographs of Honey Mesquite Woodland Habitat

5.1.4 Tamaulipan Mixed Deciduous Thornscrub Ecological System (CES301.983)

Huisache Woodland

Huisache typically occurs in the canopy, subcanopy, or as tall shrubs as a component of other plant communities (see **Figure 5-11**). However, two short-stature huisache woodland stands were observed in Section O-21 that could not be sampled due to lack of rights of entry. Huisache trees in the observed stands were of uniform height (approximately 4–5 meters tall) and were moderately dense providing approximately 30–45 percent cover. The understory was dominated by moderately dense stands of the nonnative buffelgrass.

Figure 5-11. Representative Photograph of Huisache Woodland Habitat

Honey Mesquite Shrubland

Honey mesquite is distributed throughout the approximately 70-mile study corridor and occurs as tall shrubs becoming recently reestablished in nonnative grasslands, short woodlands where reestablishment in nonnative grasslands has occurred over several years, and as tall forests of mature trees at the edge of the Rio Grande floodplain. Honey mesquite tall shrubs sampled in Section O-1 range from 2–5 meters in height and typically provide from 5–25 percent cover (see **Figure 5-12**). Associated tall and short shrubs include Texas prickly pear, tasajillo, blackbrush, cenizo, Spanish dagger, and brasil, which together provide up to 10 percent cover. The herbaceous layer is typically dominated by buffelgrass, which provides up to 60 percent cover.

5.1.5 Tamaulipan Arroyo Shrubland Ecological System (CES301.992)

Several arroyos or deep drainages that are intermittently flooded occur primarily within Sections O-1 and O-2 (see **Figure 5-13**). Construction is not proposed within deep arroyos therefore they were not rigorously sampled. On inspection they support a mixture of tree and shrub species that consists of honey locust, huisache, and granjeno in the tree and tall shrub layers. The tall and short shrub layers are typified by blackbrush or chaparro, Texas prickly pear, brasil, tasajillo, cenizo, lotebush, and junco.

Figure 5-12. Representative Photographs of Honey Mesquite Shrubland Habitat

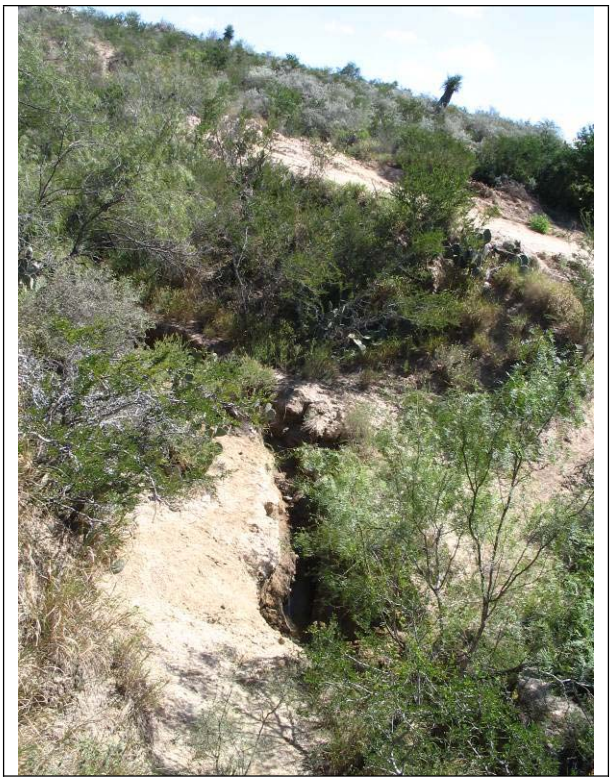

Figure 5-13. Representative Photograph of Arroyos in Section O-1 and O-2

5.1.6 Tamaulipan Calcareous Thornscrub Ecological System (CES301.986)

Cenizo – Blackbrush Shrubland

The western portion of Section O-1 traverses a short distance of gravel-covered ridges and hill slopes that support this species rich, predominantly shrub and succulent community. The gravel is small, to 10 centimeters in diameter, is glazed with desert varnish, and provides nearly 100 percent armoring of the soil surface. Additional soil armoring is provided by clam shells in some locations and a few bedrock outcrops occur immediately south of Section O-1. One stand of cenizo – blackbrush shrubland approximately 200 meters long is at the terminus of Section O-1 and has been recently root-plowed, leaving less than 20 percent cover by native shrub species while resulting in approximately 50–70 percent cover by the nonnative buffelgrass (see **Figure 5-14**). The short and tall shrub layers provide from 20–30 percent cover in this community and are characterized by cenizo, blackbrush, honey mesquite, Texas prickly pear, tasajillo, kidney wood, coyotillo, junco, and Spanish dagger. The herbaceous layer contributes sparse cover, less than 5 percent cover, in this vegetation type.

Figure 5-14. Representative Photographs of Cenizo – Blackbrush Habitat (Lower two photos represent area that has been root-plowed - fenceline contrast and buffelgrass invasion)

5.1.7 Tamaulipan Savanna Grassland Ecological System (CES301.985)

Retama Shrubland

Retama has reinvaded nonnative grassland habitat to form shrublands and short-stature woodlands with low to dense cover, from 10–40 percent cover as recorded for Sections O-6, O-13, and O-18 (see **Figure 5-15**). Granjeno tall shrubs provided 10 percent cover in one stand and mule's fat provided 5 percent cover in another. The herbaceous layer is usually monotypic and can be dominated by buffelgrass, windmill grass, or switchgrass, which provide low to dense cover from 15–100 percent.

Tepeguahe Woodland

A single stand of tepeguahe woodland from 10–15 meters tall was documented in Section O-18 (see **Figure 5-16**). Tepeguahe trees on the flat plain beyond the fenceline provided approximately 80 percent cover with low cover, less than 10

percent, provided by retama and huisache in the canopy layer. Near the adjacent levee, toeslope tepeguahe trees provided 30 percent cover, while the herbaceous layer was dominated by 1–2 meters tall switchgrass, which provided approximately 60 percent cover.

Figure 5-15. Representative Photographs of Retama Habitat

Figure 5-16. Representative Photograph of Tepeguahe Habitat

5.1.8 North American Arid West Emergent Marsh Ecological System (CES300.729)

Alkali Sacaton Herbaceous Vegetation

Two relatively large stands of alkali sacaton were observed and a representative stand sampled in Section O-4 (see **Figure 5-17**). Although the hydrology supporting this herbaceous wetland type is unknown, the stands occupy shallow depressions that likely capture runoff from the surrounding landscape during precipitation events. The stands are nearly monotypic with 0.5–1 meters tall alkali sacaton bunchgrass providing up to 75 percent cover and Bermuda grass, a nonnative, providing sparse cover, less than 5 percent.

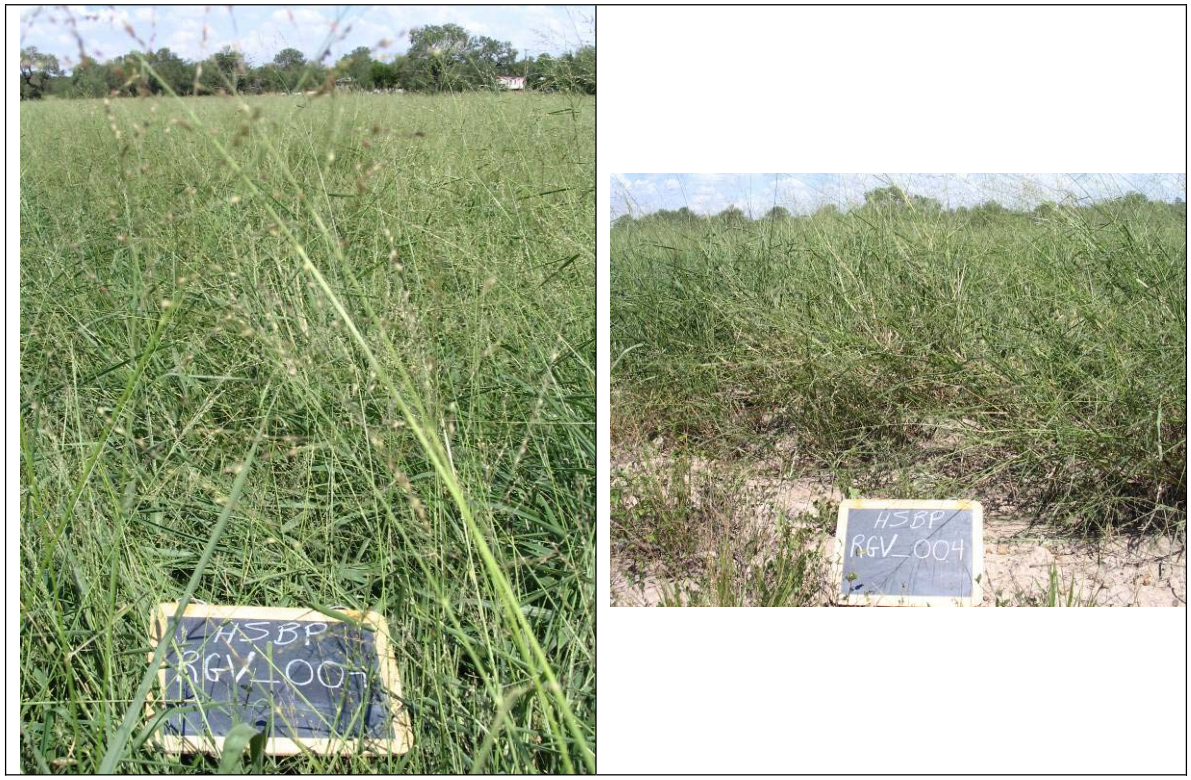

Figure 5-17. Representative Photograph of Alkali Sacaton Habitat

Narrowleaf Cattail

Patches and small linear stands of narrowleaf cattail occur along perennial water bodies, particularly on pond shorelines, where the soils are saturated most of the year or where shallow water to 1-meter deep persists (see **Figure 5-18**). Where established, as in proposed Section O-8, narrowleaf cattail stands are monotypic, range from 2-4 meters tall, form bands approximately 10 meters wide, and provide from 60–90 percent cover.

Figure 5-18. Representative Photograph of Broadleaf Cattail Habitat

Smartweed Herbaceous Vegetation

Smartweed is rare within the proposed corridor and dominates the bottom of one canal or large irrigation ditch within Section O-14 (see **Figure 5-19**). The stand is narrow and linear, up to 5 meters wide and smartweed forbs provide approximately 20 percent cover. The canal bottom is saturated with occasional pools of standing water. Adjacent banks support 1–3 meters tall Johnsongrass and switchgrass, primarily. In some locations along the canal or irrigation ditch, an overstory canopy of black willow provides up to 60 percent cover, which is described more fully under the black willow discussion.

Figure 5-19. Representative Photograph of Smartweed Habitat

Duckweed Herbaceous Vegetation

One small pond in Section O-9 supported approximately 90 percent cover by the floating aquatic plant species duckweed (see **Figure 5-20**). This pond also supported a band of narrowleaf cattail on saturated soil around its margin in addition to black willow tall shrubs.

Figure 5-20. Representative Photograph of Duckweed Habitat

5.1.9 Non-Native Woodland, Shrubland and Herbaceous Vegetation Alliances and Associations

Athel Tamarisk Woodland

A small stand of six very large and old Athel tamarisk trees occurs within Section O-2, amid a broader honey mesquite forest and woodland stand (see **Figure 5-21**). These trees are approximately 20 meters tall, are multiple branched from low on the trunk, and have very large basal diameters. A few scattered, large Athel tamarisk trees occur elsewhere in this stand and several were observed on the banks of the Rio Grande associated with other proposed sections. This vegetation type occurs within the Tamaulipan Floodplain ecological system of NatureServe (2007).

Figure 5-21. Representative Photograph of Athel Tamarisk Stand

Chinaberry Woodland

One stand of Chinaberry, a non-native ornamental tall shrub or small tree, was documented in Section O-16 (see **Figure 5-22**). In this stand, Chinaberry canopy trees ranged from 6–8 meters tall and provided approximately 60 percent cover along with low cover by the canopy trees honey mesquite (5 percent cover), huisache (5 percent), and retama (15 percent). Buffelgrass and switchgrass provide moderate to high herbaceous cover for this stand, 50 percent and 5 percent cover respectively.

Figure 5-22. Representative Photograph of Chinaberry Habitat

Castor Bean / Buffelgrass Shrubland

One abandoned homestead in Section O-9 supported a tall shrubland, up to 5 meters tall, of castor bean, honey mesquite, and mule's fat, which together provide 22 percent cover (see **Figure 5-23**). The commonly–occurring, nonnative buffelgrass contributed 20 percent cover within this stand.

Figure 5-23. Representative Photograph of Castor Bean / Buffelgrass Habitat

Buffelgrass Semi-Natural Herbaceous Vegetation\

Buffelgrass, a nonnative forage and erosion–control grass introduced from Africa, is the most common vegetation type and ground cover in the project region (see **Figure 5-24**). Buffelgrass ranges from 0.5–1.5 meters tall and provides from 25–100 percent cover on levee banks, canal banks, toe slopes, flats, old fields, and pastures to the exclusion of other species. Where native shrubs and trees have been introduced or have otherwise become established, buffelgrass dominates the understory often providing 90–100 percent cover. In some herbaceous stands within the project region, bufflegrass shares dominance with switchgrass, Johnsongrass, and windmill grass forming mixed stands or a type of ecotone. This vegetation type occurs within all the Tamaulipan ecological systems described by NatureServe for this region (2007).

Figure 5-24. Representative Photographs of Buffelgrass Habitat

Switchgrass Herbaceous Vegetation

Switchgrass is common throughout the project corridor on sites that are more mesic (see **Figure 5-25**). Switchgrass is a native bunchgrass likely introduced to the project region for livestock forage and erosion control. Switchgrass ranges from 1–2 meters tall and provides from 40–95 percent cover on levee banks, canal banks, toe slopes, flats, and pastures sometimes to the exclusion of other species. Where native shrubs and trees have been introduced (as on NWRs) or have otherwise become established, switchgrass can dominate the understory providing 25–75 percent cover. In some herbaceous stands within the project region, switchgrass shares dominance with buffelgrass, primarily forming mixed stands or a type of ecotone. This vegetation type occurs within all the Tamaulipan ecological systems described by NatureServe (2007) for this region.

Figure 5-25. Representative Photographs of Switchgrass Habitat

Silver Bluestem – Buffelgrass Herbaceous Vegetation

A large patch of silver bluestem and bufflegrass was sampled on the level embankment within Section O-5 (see **Figure 5-26**). Silver bluestem provided 50 percent cover and buffelgrass provided 15 percent cover. A few shrubs of *Acacia* sp. provide low cover, up to 4 percent.

Figure 5-26. Representative Photograph of Silver Bluestem – Buffelgrass Habitat

Johnsongrass Semi-Natural Herbaceous Vegetation

Johnsongrass is grown as a pasture grass and to produce cured grass hay for livestock forage. Individual plants and small patches are scattered within most of the proposed sections and a few larger stands were observed, possibly as remnant stands from past farming efforts. Nearly monotypic stands occur in Sections O-11, O-13, and O-14 with Johnsongrass, up to 2 meters tall, providing 80–90 percent cover (see **Figure 5-27**). In one stand, switchgrass provides up to 5 meters cover and a few castor bean shrubs provide approximately 2 meters cover. These large stands are irrigated during the growing season or receive sufficient runoff following precipitation events to survive.

Bermuda Grass Semi-Natural Herbaceous Vegetation

Small patches and larger stands of Bermuda grass have become established on levee banks, in ditches adjacent to canal banks, and in agricultural fields that have been allowed to go fallow for more than one–year (see **Figure 5-28**). Typical stands of this nonnative rhizomatous grass were sampled along proposed Sections O-8 and O-15 where Bermuda grass ranged in cover from 15–45 percent. Along O-15, heavy and apparently continual grazing by cattle drives the dominance of Bermuda grass. Associated herbaceous species that individually provide 10 percent cover or less include buffelgrass, switchgrass, windmill grass, sandbur, and morning-glory. In one stand the tall shrub huisache provided 5 percent cover.

Figure 5-27. Representative Photograph of Johnsongrass Habitat

Figure 5-28. Representative Photographs of Bermuda Grass Habitat

Windmill Grass Herbaceous Vegetation

Representative patches and stands of windmill grass were sampled in Sections O-12, O-13, O-19, and O-20 (see **Figure 5-29**). In some places windmill grass has become the dominant grass forming nearly pure stands on levee banks, however extensive, monotypic stands occupy fields that were historically cultivated. Windmill grass is dense and typically provides 90-95 percent cover. Associated tall shrubs, from 2-5 meters tall, include mule's fat, huisache, and

retama that together provide from 1-25 percent cover in windmill grass stands and result in a shrub herbaceous classification.

Figure 5-29. Representative Photographs of Windmill Grass Herbaceous Vegetation

Mediterranean Lovegrass – Rough Pigweed Semi-Natural Herbaceous Vegetation

A fallow agricultural field in Section O-2 supported a large stand of Mediterranean lovegrass and the tall, coarse forb, rough pigweed (see **Figure 5-30**). The nonnative grasses Mediterranean lovegrass and Bermuda grass provided approximately 45 percent and 8 percent cover, respectively, and the forbs rough pigweed and annual sunflower provided approximately 15 percent and 2 percent cover, respectively. This vegetation type would be removed by plowing or tilling if the field is prepared for planting at a future date.

Figure 5-30. Representative Photograph of Lovegrass – Rough Pigweed Habitat

Quelite Cenizo – Buffelgrass Semi-Natural Herbaceous Vegetation

One large patch of quelite cenizo forbs has become established within a buffelgrass matrix on the embankment between the levee road and the adjacent

paved highway of Section O-4 near Penitas. Quelite cenizo, providing up to 65 percent cover, dominates a short reach of this section and extends from the levee road to the pavement edge (see **Figure 5-31**). This stand occupies approximately 1 acre, supports the nonnative grasses buffelgrass (10 percent cover) and Johnsongrass (2 percent cover), and includes a few shrubs of honey mesquite that provide sparse cover, up to 5 percent.

Figure 5-31. Representative Photograph of Quelite Cenizo - Buffelgrass Habitat

5.2 Plant Species Identified

A complete plant list of all species identified during the field surveys, including its wetland status and the fence section in which it was identified is provided in **Table 5-1**.

Table 5-1. Complete Plant List of all Species Identified

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Abutilon abutiloides / Ber and er Abut on	---		X																				1
Abutilon fruticosum / Pe otazo	---										X		X	X									3
Abutilon trisulcatum / Amant o	---	X			X		X	X	X	X	X	X	X	X	X	X	X	X					14
Acacia farnesiana / Hu sache	---	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	19
Acacia rigidula / Chaparro Pr eto	---	X		X	X																		3
Acacia schaffneri / Hu sach o, Tw sted Acac a	---					X																	1
Acacia wrightii / Catc aw	---	X	X																				2
Acalypha monostachya / Round Copper eaf			X																				1
Acleisanthes obtusa / Ber and er Trumpets		X																					1
Agave americana / Century P ant	---	X																					1
Allionia incarnata / Tra ng A on a	---	X																					1
Aloysia gratissima / Wh tebrush	---	X	X																				2
Aloysia macrostachya / Sweet Stem	---	X																					1
Amaranthus sp. / Amaranth	---						X	X	X	X	X			X									6

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Amaranthus palmeri / Pa mer P gweed	FACU	X	X																				2
Amaranthus retroflexus / Rough P gweed	FACU-		X																				1
Ambrosia sp. / Ragweed	---					X																	1
Ambrosia psilostachya / Western Ragweed	FACU-	X	X																				2
Ampelopsis arborea / Pepperv ne	FAC								X	X	X	X		X	X		X						7
Anisocactus sheeri / F sh-hook Cactus	---	X																					1
Anredera vesicaria / Mader a V ne	---	X																					1
Antigonon leptopus / Queen's Wreath	---																						
Aristida adscencionis / S xweeks Threeawn	---	X																					1
Arundo donax / G ant Reed, Carr zo	FAC+			X						X	X		X	X	X			X			X	X	9
Aster spinosus (Leucosyris spinosa) / Mex can Dev - weed	FACW-					X		X						X	X	X							5
Aster subulatus / Pra r e Aster	OBL		X																				1
Atriplex matamorensis / Que te Cen zo, Matamoros Sa tbush	---				X																		1
Baccharis neglecta / Jara Du ce, Rooseve t Weed	FAC		X	X						X	X	X		X									6
Baccharis salicifolia / Jara, Mu e's Fat	FACW			X						X	X	X		X									5

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Baccharis texana / Bacchar s	---																					X	2
Bahia absinthifolia / Ha ry Seed Bah a	---	X																					1
Bastardia viscosa / Mex can Bastard a	---	X	X																			X	3
Billieturnera helleri / Copper S da	---	X																					1
Boerhaavia sp. / Boerhaav a	---	X																					1
Bothriochloa laguroides / S ver B uestem	---					X																	1
Calyptocarpus vialis / Stragg er Da sy	FAC	X																					1
Capsicum annuum / Ch p qu n	---	X	X																				2
Cardiospermum dissectum / Ba oon V ne	---	X	X																				2
Castela erecta / Amargosa, Goatbush	---			X																			1
Castela texana / Amargosa	---	X																					1
Celosia nitida / A bahaca	---	X																					1
Celtis laevigata / Pa o b anco, Texas Sugarberry	FAC	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X	18
Celtis laevigata var. *reticulata* / Pa o B anco, Net eaf Hackberry	UPL				X	X	X						X	X	X		X	X					8
Celtis pallida / Granjeno, Sp ny Hackberry	---	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	19

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Cenchrus ciliaris / Buffe grass	---	X																				X	2
Cenchrus insertus / Sandbur	---	X											X	X	X	X		X					6
Cenchrus spinifex / Common Sandbur	---		X																				1
Cercidium texanum / Pa overde	---	X																					1
Cestrum sp. / Jessam ne	---	X																					1
Cevallia sinuata / St ng ng St ck eaf	---	X																					1
Chamaesyce sp. / Mat Spurge	---					X			X			X			X	X							5
Chenopodium berlandieri / Goosefoot	---	X	X																				2
Chloris cucullata / Hooded W ndm grass	---		X																				1
Chloris sp. / W ndm Grass	---														X		X						2
Chromoleana odorata / Cruc ta	---	X																					1
Cissus incisa (Cissus trifoliata) / H erba de Buey, Ivy Treeb ne, Possum Grape	FACU-	X	X			X		X	X		X	X		X	X		X	X	X			X	13
Citharexylum berlandieri / Ber and er's F dd ewood	---																				X		1
Citharexylum brachyantherum / M ss on F dd ewood	---	X																					1

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Clematis drummondii / Barbas de Ch vato, O d Man's Beard	---	X	X	X	X	X	X		X		X	X		X	X	X		X					14
Cocculus diversifolius / Sna V ne	---	X																	X			X	3
Colubrina texensis / Hog P um	---	X																					1
Commelina erecta / Day F ower	---	X	X																			X	3
Condalia hookeri / Bras , B uewood Conda a	---	X	X	X	X		X		X		X												7
Convolvulus equitans / Texas B ndweed	---		X							X	X										X		4
Conyza canadensis / Horse Weed	UPL		X																				1
Cordia boisseri / Anacahu ta, Mex can O ve	---	X		X	X																		3
Coryphantha macromeris / Dump ng Cactus	---	X																					1
Coryphantha robertii / Runyon's Escobar a	---	X																					1
Croton incanus / Vara B anca	---	X																					1
Croton leucophyllus / Two-co or Croton	---		X																				1
Croton lindheimerianus / Three-seed Croton	---	X																					1
Croton sp. / Croton	---	X		X	X				X														4
Cynanchum barbigerum / M kweed V ne	---	X	X																				2

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Cynodon dactylon / Pato de Ga o, Bermuda Grass	FACU+			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				15
Cyperus tenuis / F at Sedge	---								X														1
Dactyloctenium aegyptium / Durban Crowfootgrass	---	X																					1
Dalea pogonathera / Bearded Da ea	---	X																					1
Datura inoxia / Ind an App e	---	X																					1
Desmanthus obtusus / B untpod Bund ef ower	---	X																					1
Diospyros texana / Texas Pers mmon	---	X																					1
Ditaxis humilis / Low W d Mercury	---	X																					1
Dyssodia tenuiloba / T ny T m Dogweed	---	X																					1
Echinocactus texensis / Manca Caba o, Horse Cr pp er	---			X																			1
Echinocereus berlandieri / Ber and er's A coche	---			X																			1
Echinocereus enneacanthus / P taya, Strawberry Cactus	---	X		X																			2
Echinocereus rechinbachii / Ra nbow Cactus	---	X																					1
Ehretia anacua / Anacua	---	X	X	X	X	X			X	X		X	X		X		X	X	X			X	14
Ephedra antisyphilitica / C apweed	---	X																					1

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Eragrostis barrelieri / Med terranean Lovegrass	---		X									X		X	X	X	X						6
Erioneuron pilosum / Ha ry tr dens	---	X																					1
Eupatorium odoratum (Chromoleana odorata) / Cruc ta, Chr stmas Bush	---								X		X	X		X									4
Euphorbia albomarginata / Wh temarg n Euphorb a	---	X																					1
Euphorbia laredana / Laredo Euphorb a	---	X																					1
Euphorbia serpens / H erba de a Go ondr na	---		X																				1
Evolvulus alsinoides / Ojo de V bora	---	X																					1
Eysenhardtia texana / Vara Du ce, Texas K dneywood	---	X		X																			2
Ferocactus setispinus / R o Grande Va ey Barre Cactus	---	X																					1
Florestina tripteris / St cky Pa afox a	---	X	X																				2
Forestiera angustifolia / E bow Bush	---	X																					1
Fraxinus berlandieriana / Mex can Ash	FAC	X	X		X																		3
Guajacum angustifolium / Guayacan, Soap-bush, Ironwood	---	X	X	X																			3
Gaura sp. / Gaura	---														X								1

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Gaura parviflora / L zard Ta	NI																		X				1
Gutierrezia texana var. *glutinosa* / Broomweed	---	X																			X		1
Havardia pallens / Tenaza	---																				X	X	2
Heimia salicifolia / Hach na	FACW+	X	X																				2
Helianthus annuus / Annua Sunf ower	FAC	X	X		X		X	X			X				X			X			X		9
Heliotropium angiospermum / He otrope	UPL	X	X						X		X				X			X	X			X	8
Heliotropium confertifolium / Crowded He otrope	---	X																					1
Herrissantia crispa / Netve ned Her ssant a	---	X																					1
Heterotheca subaxillaris / Camphor Weed	---	X	X																				2
Hibiscus maritanus / Tu pan de Monte	---	X																					1
Ibervillea lindheimerii / G obe Berry	---			X							X												2
Ipomoea amnicola / Morn ng G ory	FACW-	X	X																				2
Ipomoea carnea / Tree Morn ng G ory	---																			X	X		2
Ipomoea rupicola / C ff Morn ng G ory	---		X																				1
Ipomoea sinuata (Merremia sinuata) / A amo V ne	---					X			X		X	X		X	X	X	X	X			X		10

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Ipomoea trichocarpa / Sharppod Morn ng G ory	FAC											X		X	X								1
Isocoma coronopifolia / Common Go denweed	---	X																					1
Jatropha dioica / Leather Stem	---	X																					1
Jefea brevifolia / Shorthorn Zexmen a	---	X																					1
Justicia pilosella / Ha ry Tubetongue	---	X																					1
Kallstroemia californica / Texas Tack	---	X																					1
Karwinskia humboldtiana / Coyot o	---	X	X	X					X														4
Koeberlinia spinosa / Junco, A thorn	---			X																			1
Krameria ramosissima / Ca derona	---	X																					1
Lantana achyranthifolia / Desert Lantana	---		X																				1
Lantana camara / Lantana	FACU											X		X	X								3
Lantana urticoides / Texas Lantana	---	X	X																X				3
Leucaena leucocephala / Poponac	FACU	X																					1
Leucaena pulverulenta / Tepeguaje, Lead Tree	---		X	X	X	X	X	X		X		X		X	X			X	X				12
Leucophyllum frutescens / Cen zo, Purp e Sage	---	X	X	X																			3
Leucosyris spinosa / Sp ny Aster	FACW-		X																		X		2

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Lippia alba / Brushy L pp a	FAC*																		X				1
Lippia graveolens / Mex can Oregano	---	X																					1
Lycium berlandieri / Wo fberry	---	X																					1
Malvastrum americanum / Ma va Loca	---							X															1
Malvastrum coromandelianum / Three-obed Fa se Ma ow	---	X	X					X		X	X	X	X	X	X	X	X	X					12
Malaviscus arboreus var. *drummondii* / Turk's Cap	---											X		X									2
Mammillaria heyderi / B zn ga de Ch tos, N pp e Cactus, L tt e Ch s	---	X		X	X																		3
Manfreda sileri / Manfreda	---			X																			1
Marsilea macropoda / Water-c over	OBL																	X					1
Maurandya antirrhiniflora / Snapdragon V ne	---		X																				1
Melampodium cinereum / B ackfoot Da sy	---	X																					1
Melia azedarach / Para so, Ch naberry-tree	---	X					X		X	X	X	X	X	X	X		X						10
Melochia pyramidata / Pyram d F ower	FAC-		X																				1
Mentzelia lindheimeri / L nhe mer Mentze a	---	X																					1
Mikania scandens / C mb ng Hempweed	FACW+								X														1

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Mimosa malacophylla / Rasp a	---	X												X		X							1
Mimosa pigra var. *berlandieri* / Zarza	FAC														X								1
Mimosa stringillosa / Powderpuff	---															X							1
Mimosa texana / Texas M mosa	---	X																				X	2
Mirabilis jalapa / Four-o'c ock	---	X	X																				2
Morus alba / Mu berry	FACU*	X	X																		X		3
Nicotiana glauca / Tree Tobacco	FAC	X																					1
Nyctaginia capitata / Nyctag n a	---	X																					1
Opuntia engelmannii / Nopa , Texas Pr ck y Pear	---	X	X	X	X	X	X	X	X	X	X	X		X		X							13
Opuntia leptocaulis / Tasaj o, Chr stmas Cactus	---	X	X	X	X																		4
Opuntia schottii / C ave na, Dog Cho a	---	X		X	X																		3
Oxalis dichondrifolia / Agr to	---	X																					1
Oxalis drummondii / Wood Sorre	---														X	X							2
Palafoxia texana / Texas Pa afox a	---	X	X																				2
Palafoxia texana var. *ambigua* / Pa afox a	---		X			X												X					3

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Panicum virginatum / Sw tchgrass	---			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					15
Parkinsonia aculeata / Retama	FACW-	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X			X		16
Parkinsonia texana / Pa overde, Texas Pa overde	---			X	X																		2
Parthenium confertum / Fa se Ragweed	---	X	X					X	X	X	X	X	X	X	X	X	X	X	X		X		15
Passiflora foetida / Pass on F ower	NI	X	X																				2
Pennisetum ciliare (Cenchrus ciliaris) / Buffe grass	---	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					16
Phaulothamnus spinescens / Snake Eyes	---	X	X																				2
Phoradendron tomentosum / M st etoe	---	X	X	X																			3
Phragmites australis / Common Reed	FACW																						0
Phyla nodiflora / Frog Fru t	FACW															X							1
Phyllanthus polygonoides / Knotweed	---	X																					1
Physalis cinerascens / Ground Cherry	---	X	X								X				X			X				X	7
Pithecellobium ebano (Chloroleucon ebano, Ebanopsis ebano) / Ebano, Texas Ebony	---	X	X	X	X		X	X	X				X		X		X		X		X	X	13
Polanisia dodecandra ssp. *riograndensis* / C ammyweed	FACU	X	X																				2

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Polygala glandulosa / G andu ar M kwort	---	X																					1
Polygonum pensylvanicum / Smartweed	FACW-								X					X	X								3
Populus deltoides / Eastern Cottonwood	FAC													X									1
Portulaca pilosa / Ch sme	---	X																					1
Prosopis glandulosa / Mesqu te, Honey Mesqu te	---	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X			X	17
Prosopis reptans / Torn o, Screw-bean Mesqu te	FAC+	X																					1
Ratibida columnaris / Mex can Hat	---																					X	1
Rhynchosia minima / Least Snoutbean	---											X						X					2
Ricinus communis / Castor Bean	FACU	X	X	X				X	X	X		X		X	X	X	X				X		12
Rivina humilis / Cora to, P geonberry	---	X							X														2
Rubus trivialis / Dewberry	FAC											X											1
Ruellia runyonii / W d Petun a	---														X								1
Ruellia spp. / Rue a	---	X																					1
Sabal sp. / Pa metto	---										X												1
Sabal mexicana / Mex can Pa metto, Saba Pa m	---																					X	1
Salix nigra / Sauz, B ack W ow	FACW+	X		X					X					X	X			X	X			X	8
Salsola australis / Russ an-th st e	FACU	X	X				X	X	X	X	X												7

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Sanvitalia ocymoides / Sanv ta a	---														X		X						2
Sarcostema cynanchoides / C mb ng M kweed	---	X	X																X				3
Schaefferia cunefolia / Desert Yaupon	---	X																					1
Schinus terebinthinus / Braz an Pepper	---																			X			1
Senna bauhinoides / Two-eaved Senna	---	X																					1
Serjania brachycarpa / Serjan a	---	X																					1
Setaria ramisetum / Br st egrass	---		X																				1
Setaria scheelei / Southwest Br st egrass	---		X																				11
Setaria texana / Texas Br st egrass	---		X																				1
Sida abutifolia / Spread ng S da	---		X																				1
Sida spinosa / Pr ck y S da	UPL				X	X	X	X	X	X	X	X	X	X	X		X						12
Sideroxylon celastrinum / Coma	---	X		X	X		X		X														5
Solanum elaeagnifolium / Tromp o, S ver eaf N ghtshade	---	X		X				X	X	X	X	X	X	X	X	X	X	X				X	14
Solanum rostratum / Ma a Mujer	---	X																					1
Solidago canadensis / Ta Go denrod	FACU+																				X		1

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Sorghum halepense / Johnsongrass	FACU			X				X	X	X	X	X	X	X	X	X	X	X					12
Sporobolus airoides / A ka Sacaton	FAC				X																		1
Sporobolus pyramidatus / Whor ed Dropseed	FAC				X	X																	2
Suaeda sp. / Suaeda	FACW				X			X															2
Talinum angustissimum / F ame F ower	---	X																					1
Tamarix aphylla / Athe Tamar sk, Sa tcedar	FACW		X							X													2
Teucrium cubense / Germander	FAC+		X																				1
Tetraclea coulteri / St nk Weed	---	X																					1
Thamnosma texana / Dutchman's Breetches	---	X																					1
Theolocactus bicolor / G ory of Texas	---	X																					1
Thelocactus setispinus / F shhook Cactus	---	X			X																		2
Thymophylla sp. / Dogweed	---					X																	1
Tidestromia lanuginosa / *Espanta Vaqueros*	---	X	X																				2
Tiquilia canescens / Oreja de Perro	---	X																					1
Tribulus terrestris / Goathead	---		X																				1
Trichloris pluriflora / Fa se Rhodegrass	---		X																				1

Scientific Name / Common Name	Wetland Indictor Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19	O-20	O-21	Total # of fence sections in which species occurs
Tridens muticus / S m Tr dens	---	X																					1
Turnera diffusa / Dam ana	---	X																					1
Typha domingensis / Tu e, Narrow- eaf Catta	OBL								X					X					X			X	4
Verbena canescens / Verva n	---																						
Verbena halei / S ender Verba n	---		X																				1
Verbesina encelioides / Cowpen Da sy	FAC		X							X	X						X	X					5
Verbesina microptera / Cap tana, Frostweed	---														X						X	X	3
Viguiera stenoloba var. *chihuahuensis* / Ske eton- eaf Go deneye	---			X																			1
Waltheria indica / H erba de So dado	---		X					X	X	X	X	X	X	X	X	X	X	X	X				13
Wilcoxia poselgeri / Rat- ta Cactus	---	X																					1
Yucca treculeana / Pa ma P ta, Span sh Dagger	---	X													X								2
Zanthoxylum fagara / Co ma	---	X	X				X		X		X	X	X						X				8
Ziziphus obtusifolia / C epe, Lotebush	---	X	X	X	X				X														5
Total # of FACW- to OBL species per section		4	6	3	2	2	1	3	4	3	2	1	1	5	4	2	1	1	2	0	2	2	
Total # of species per fence section		143	79	43	34	24	22	25	40	29	37	33	23	40	45	23	27	30	21	2	15	23	

5.3 Proposed Fence Section Characteristics and Description of Habitat Quality

A general description of the habitat quality and the characteristics of each section are provided below.

SECTION O-1

County: Starr
Potential Listed
Plant Occurrence: *Thymophylla tephroleuca* (Ashy dogweed) (FE, SE)
Frankenia johnstonii (Johnston's frankenia) (FE, SE)
Astrophytum asterias (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Lesquerella thamnophila (Zapata bladderpod) (FE, SE)
Listed Plants Observed: None
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section covers approximately 3.75 miles in the area of the Roma, Texas POE. The western portion of Section O-1 traverses a short distance of gravel-covered ridges and hill slopes that support cenizo – blackbrush shrubland, a species rich, predominantly shrub and succulent community. Several arroyos or deep drainages that are intermittently flooded occur within the Section O-1. Construction is not proposed within deep arroyos therefore they were not rigorously sampled. On inspection they support a mixture of tree and shrub species that consists of honey locust, huisache, and granjeno in the tree and tall shrub layers. The tall and short shrub layers are typified by blackbrush or chaparro, Texas prickly pear, brasil, tasajillo, cenizo, lotebush, and junco. Section O-1 lies within the Upper Valley Flood Forest biotic community and adjacent to the Barretal.

Ashy dogweed was searched for in Section O-1, but was not found. Ashy dogwood occurs in shallow to deep sand with a dominance of native grasses. The soils of the floodplain sections of Section O-1 are mostly silty clay loams.

Johnston's Frankenia occurs in saline gypsum soils. In Starr County it is often associated with outcrops of fossil oyster shells. Fossil oyster shells outcropped with the sandstone bluffs and in the eroded arroyos of Section O-1 in Roma. Johnston's Frankenia was searched for in the proposed ROW but not found.

Star cactus occurs in Starr County on gravel-covered saline soils in association with saladillo (*Varilla texana*; Asteraceae), *Billieturnera helleri* (Malvaceae), and with 12 or more species of cacti. In Section O-1, star cactus was searched for in a gravel-covered outcrop. *Billieturnera helleri,* an indicator of saline soils was found growing with a number of species of cacti. Absent was saladillo. Star

cactus was not found in the proposed ROW. Zapata bladderpod was not found in the sandstone outcrops in Section O-1.

Walker's manioc occurs in Starr County in association with caliche in blackbrush-cenizo and barretal (*Helietta parvifolia*) associations. Caliche outcrops were not observed in the proposed ROW visited.

SECTION O-2

County: Starr
Potential Listed
Plant Occurrence: *Thymophylla tephroleuca* (Ashy dogweed) (FE, SE)
Frankenia johnstonii (Johnston's frankenia) (FE, SE)
Astrophytum asterias (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Lesquerella thamnophila (Zapata bladderpod) (FE, SE)
Listed Plants Observed: None
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section covers approximately 8.74 miles near the Rio Grande City, Texas POE. Several arroyos or deep drainages that are intermittently flooded occur within the Section O-2. Construction is not proposed within deep arroyos therefore they were not rigorously sampled. On inspection they support a mixture of tree and shrub species that consists of honey locust, huisache, and granjeno in the tree and tall shrub layers. The tall and short shrub layers are typified by blackbrush or chaparro, Texas prickly pear, brasil, tasajillo, cenizo, lotebush, and junco. Section O-2 lies within the Upper Valley Flood Forest biotic community and adjacent to the Barretal.

Ashy dogwood occurs in shallow to deep sand with a dominance of native grasses A sandy area supports a woodland of mesquite-prickly pear cactus in this Section, probably a secondary succession from abandoned crop and pastureland. Ashy dogwood was not observed in the proposed ROW. No rare species were observed in this section, and the habitat for the potential occurrence of other rare species was not found.

SECTION O-3

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Listed Plants Observed: None
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section consisted of two U. S. Fish and Wildlife Service (USFWS) Los Ebanos tracts, an International Boundary and Water Commission (IBWC) easement, some residential areas surrounded by mesquite-buffelgrass pastures, and a very small (<1 acre) brush tract owned by the Mennonite Brothers Church. According to USFWS staff, both USFWS tracts were previously agricultural fields that had been re-vegetated around 2002-2003. The re-vegetation efforts were, for the most part, not successful, and the tracts consisted of mostly disturbance colonizers such as Roosevelt weed, seep willow, lead tree, and mesquite, with an herbaceous layer dominated by switchgrass and buffelgrass. The IBWC tract was also previously disturbed and contained the same species composition. The Mennonite Brothers Church tract obviously had goats in and out of there for years, but there was an interesting assemblage of brush such as goat-bush, blackbrush, bluewood condalia, coyotillo, allthorn, guayacan, and lotebush, along with seven species of cacti and an abundance of *Manfreda*. This brush tract was not the best quality brush and no rare or listed plants were observed. This Section occurs within the Upper Valley Flood Forest and Upland Thornscrub biotic communities.

SECTION O-4

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This Section occurs within the Upper Valley Flood Forest and Upland Thornscrub biotic communities, as well as within the Mid-Valley Riparian Woodland biotic community. This section consisted of a very small (~an acre or less) portion of t he Texas Parks and Wildlife Department's (TPWD) Penitas tracts, many agricultural fields (some plowed and empty, some with sugar cane), other disturbed tracts in various stages of re-growth, and residential areas. The TPWD tract had a woody fenceline consisting mostly of mesquite, with an abundant number of cacti (fishhook, dog cholla, nipple cactus, tasajillo, and prickly pear) that had colonized below at the base of the tree line. Just beyond the fenceline into the TPWD property was a cleared pipeline right-of-way. All remaining areas of the section were either agricultural fields or disturbed sites that did not contain anything biologically significant with respect to rare plants.

SECTION O-5

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)

Manihot walkerae (Walker's manioc) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: Possible (only within the USFWS Granjeno tract)
If So, Habitat Quality: Low

Section Habitat Description: This Section is located primarily within the Mid-Valley Riparian Woodland biotic community. This section contained the edge of the USFWS Granjeno tract. Although we did not have permission to access across the property fenceline, the woody species along the boundary consisted of mesquite, hackberry, sugarberry, anaqua, huisache, and lead tree, with Bermuda grass and switchgrass as the dominant herbaceous cover. The remainder of Section 5 consisted of residential areas, some agricultural fields, and some small disturbed tracts. There was no rare plant potential habitat identified.

SECTION O-6

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: There are no tracts owned by the USFWS or TPWD within Section O-6. Within this section there is a tremendous amount of urban, industrial, and residential areas within the project boundary. There was also a small amount of agricultural fields (mostly fallow), and other highly disturbed parcels. There was no rare plant potential habitat identified.

SECTION O-7

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: Although this section borders a USFWS tract, the proposed project is to the north of their property and will not directly impact it. This section is entirely agricultural. Some fields are plowed and empty, some fallow, and others have sugar cane and sunflowers. There is no rare plant habitat within this section.

SECTION O-8

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section is composed primarily of agricultural fields (fallow, sugar cane, sunflowers, and empty plowed areas). There is also one disturbed brushy re-growth area, one tiny boundary of a TPWD tract (Las Palomas), and one USFWS tract (La Coma) that the project traverses. The Las Palomas tract boundary is dense with trees and brush consisting of retama, mesquite, spiny hackberry, lime pricklyash, bluewood condalia, sugarberry, hackberry, anaqua, ebony and chinaberry. The understory created by this dense brush is very dark and is mostly bare ground with a few pigeonberries noted. Where the sun can penetrate, switchgrass is dominant. Targeted rare plants were surveyed for within Las Palomas, but none were identified. The USFWS La Coma tract within the project boundary is yet another disturbed property with little to no rare plant potential. The understory is a dense, high stand of buffelgrass and switchgrass with scattered mesquite, huisache, and retama. There is also spiny hackberry, coma, coyotillo, anaqua, lotebush and prickly pear. Targeted rare plants were surveyed for within La Coma, but none were found.

SECTION O-9

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: Possible
If So, Habitat Quality: Medium

Section Habitat Description: Section O-9 has many agricultural fields (fallow, corn, sugar cane, and plowed bare). There is a small section of residential use near the Resacas, and a huge, deep ravine lined with towering sugarberries just to the south.

SECTION O-10

County: Hildago
Potential Listed
Plant Occurrence: *Astrophytum asterias* (Star Cactus) (FE, SE)
Manihot walkerae (Walker's manioc) (FE, SE)

Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: Possible
If So, Habitat Quality: Low

Section Habitat Description: Section O-10 is primarily agricultural fields (sugar cane, fallow, and plowed empty) with canals and stands of giant reed throughout. There is one USFWS tract that is traversed by the project along this section. (Tract name possibly called Rosario Banco). This tract is a previously disturbed area undergoing re-growth. On the eastern portion of the tract the buffelgrass and switchgrass are so thick and high within, that it almost difficult to walk through. Scattered trees and shrubs on this tract are mesquite, spiny hackberry, retama, sugarberry, chinaberry, lime pricklyash, and bluewood condalia. At the western side of this tract, the woody vegetation becomes more dense and the understory is mostly bare ground. (Note: A Mexican tree frog was spotted on a sugarberry leaf within this tract.)

SECTION O-11

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: Section O-11 traverses quite a large section of the TPWD Anaqua Wildlife Management Area (WMA). The woody species consist mostly of lead tree, hackberry, sugarberry, huisache, chinaberry, spiny hackberry, anaqua, and lime pricklyash. The understory has many escaped lantanas and turk's cap, along with many tangled vines such as least snoutbean, dewberry, ivy treebine, and peppervine. There was no suitable habitat for listed plants within this WMA. Listed plants were surveyed for, but were not found. The remainder of this section was fallow agricultural fields.

SECTION O-12

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section contained a large sugar cane field, a large disturbed brush tract with very little diversity (mostly switchgrass and huisache), and the City of Harlingen Canal. The southern portion of the canal was lined with a thin band of tall trees, primarily anaqua, chinaberry, hackberry, sugarberry, ebony, mesquite, huisache and retama.

SECTION O-13

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section contains mostly agricultural fields (sorghum and fallow). The southern portion is nearby to a USFWS tract (name unknown), but will not impact that property directly. There was no listed plant habitat within this section.

SECTION O-14

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section is paralleled by a canal for the entire extent. No rare plants were observed in this highly disturbed section. No suitable habitat was observed in this section.

SECTION O-15

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section consisted of agricultural fields (mostly sugar cane or clear) and residential areas. There was no rare plant habitat within this section.

SECTION O-16

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: This section consisted of mostly agricultural fields and residential neighborhoods. There was one very small woody area, but it was highly disturbed and contained no listed plant habitat.

SECTION O-17

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: Section O-17 was situated next to agricultural fields, along a canal edge, and nearby residential or multi-use property (an area of abandoned vehicles). There was one small brushy tract with low diversity (mostly switchgrass understory with a mesquite, retama, spiny hackberry overstory). Within this tract there was a tiny mesic depression with water-clover along the edge. All areas of this section were disturbed in some way, and there was no listed plant habitat observed.

SECTION O-18

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: A single stand of tepeguahe woodland from 10-15m tall was documented in Section O-18. Retama has reinvaded non-native grassland habitat to form shrublands and short-stature woodlands in Section O-18.

SECTION O-19

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: In some places of Section O-19, windmill grass has become the dominant grass forming nearly pure stands on levee banks, however extensive, monotypic stands occupy fields that were historically cultivated.

SECTION O-20

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) (FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: No
If So, Habitat Quality: NA

Section Habitat Description: In some places of Section O-20, windmill grass has become the dominant grass forming nearly pure stands on levee banks, however extensive, monotypic stands occupy fields that were historically cultivated.

SECTION O-21

County: Cameron
Potential Listed
Plant Occurrence: *Ambrosia cheiranthifolia* (South Texas ambrosia) FE, SE)
Ayenia limitaris (Texas ayenia) (FE, SE)
Suitable Listed Plant Habitat Present: Yes
If So, Habitat Quality: Good

Section Habitat Description: Sabal palms are distributed predominantly in proposed Section O-21 as scattered individuals, small groups or linear clumps, and patches and stands where they persist as seedlings, tall shrubs and as trees up to 20 meters tall. Only a few sabal palm trees were observed in other proposed project sections. The USFWS has established the Boscaje de la Palma tract in the southernmost bend of the Rio Grande near Brownsville to preserve sabal palm forest and woodland habitat (USFWS 1988). The sabal palm was common enough in this region, extending to near the Gulf of Mexico at the time of Spanish exploration that the Rio Grande was first named the Rio de las Palmas. In addition, two short-stature huisache woodland stands were observed in Section O-21.

5.4 Wetlands and WOUS

Wetland delineations have not yet been conducted. The most current information available to identify wetlands in Route B is the NWI (USFWS 2007). No NWI coverage is currently available for Sections O-1, O-2, O-3, O-5, O-6, O-7, and O-8. Approximately 7.3 acres of wetlands are within the remaining sections of the proposed project corridor of Route B (see **Table 5-2)**.

Table 5-2. NWI Identified Wetlands that Occur within the Proposed Project Corridor

Section	Wetland Type	Acreage
O-4	Freshwater Pond	0.2
O-9	Freshwater Pond	negligible
	Freshwater Emergent Wetland	0.8
O-10	Freshwater Emergent Wetland	0.7
	Lake	0.1
O-11	Freshwater Forested/Shrub Wetland	negligible
O-13	Riverine	0.2
	Freshwater Emergent Wetland	0.3
	Freshwater Emergent Wetland	0.2
	Freshwater Emergent Wetland	0.8
O-15	Freshwater Emergent Wetland	0.8
O-17	Freshwater Emergent Wetland	0.8
O-19	Riverine	0.5
O-20	Freshwater Emergent Wetland	0.9
	Freshwater Forested/Shrub Wetland	negligible
O-21	Freshwater Emergent Wetland	0.8
	Freshwater Pond	0.2

Source: USFWS 2007 – NEED CORRECT CITATION FOR NWI

Note: Wetland acreage is based on NWI data. No NWI coverage is currently available for Sections O-1, O-2, O-3, O-5, O-6, O-7, O-8.

5.5 Wildlife Observed

Table 5-3 below lists wildlife observed during the field surveys. The table can provide a general indication of species richness in each section. Based on the number of species observed, Sections O-1, O-2, and O-14 presented the greatest wildlife diversity in terms of species richness.

Table 5-3. Wildlife Observed During Natural Resources Surveys Conducted October 1 to 7, 2007

Scientific Name	Status	Section Numbers																		
		O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19
	C								x											
ttatus	C								x											
s	C																	x		
	C																			
rynus dorsalis	Potent a Hab tat		x																	
udinii	State Threatened Spec es										x									
erodactylus cystignathoides	C								x	x										
erlandieri	C								x						x					
abialis	Potent a Hab tat								x											
rifer cyanogenys	C	x						x												
elis laredoensis	C	x	x	x						x		x		x	x			x		
exlineatus viridis	C	x										x		x						
mys gorzugi	C						x													
a cornutum	State Threatened Spec es		x																	
one spinifera emoryi	C														x					
mericana	C																		x	
	C														x					
s	C	x											x				x	x		x
	C														x					
	C														x					
	C	x	x	x	x	x			x										x	
	C	x		x																
drocygna autumnalis	C														x				x	
exicanus	C														x	x				
anus	C														x					
nocephalus	C		x																x	
us	C									x										
	C	x																		
us tyrannulus	C				x															
s ater	C										x		x				x			
runneicapillus	C	x																		
	C															x				
leucus	C	x																		
a passerina	C		x	x	x	x	x		x	x	x					x	x	x		x
ii	C	x	x	x	x	x	x		x	x	x		x	x	x		x	x	x	x
way	C	x																		
crocorax auritus	C														x					
gna	C		x																	

BW1 FCIA CBE 001092

Scientific Name	Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19
s	C								x											
nerpes aurifrons	C	x	x		x	x			x	x	x	x	x		x				x	x
	C									x		x				x			x	
	C	x				x									x	x			x	
atus	C		x	x							x				x		x			
alifornianus	C	x																		
oleuca	C									x										
exicanus	C	x	x	x		x	x	x	x	x	x				x		x		x	x
	C									x					x					
	C	x	x																	
cirostris	C	x	x			x			x	x					x					
us	C			x																
	C								x											
nus	C	x	x	x	x	x							x	x	x	x		x		
us	C	x	x												x		x			
	C	x		x					x						x			x	x	
tipennis	C	x		x																
	C															x				
cianus	C		x																	
ericanus	C															x				
us scolopaceus	C																		x	
ongirostre	C	x	x																	
a	C	x	x	x	x	x	x			x	x			x	x		x	x	x	x
inalis	C	x	x		x	x						x	x	x	x					
	C		x	x					x		x		x						x	
	C				x					x										
glottos	C	x	x		x	x		x	x	x	x	x	x		x	x		x	x	x
diceps	C																		x	
	C												x							
nica	C																		x	
is	C			x					x											
noeniceus	C	x	x						x		x				x	x			x	
	C	x																		x
s forficatus	C	x	x		x		x			x				x	x	x		x		x
	C	x	x	x	x	x	x		x	x										
us rubinus	C									x										
	C																		x	
ccyzus americanus occidentalis	Cand date Spec es									x										
	C														x	x				
ica	C		x					x												
	C		x																	
ri tajacu	C	x	x		x										x					
eoargenteus	C														x					
	C		x																	

EW1 FOIA CBP 001093

Scientific Name	Status	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9	O-10	O-11	O-12	O-13	O-14	O-15	O-16	O-17	O-18	O-19
	C	x	x	x																
bonii	C	x																		
danus	C												x							
ontomys fulvescens	C	x													x					
mys compactus	C	x																		
dus	C			x																
ophilus mexicanus	C		x												x					x
novemcinctus	C		x	x									x							
	C							x												x
	Tota #Spec es Per Sect on:	26	22	14	12	12	6	5	14	16	10	4	9	5	23	12	8	8	18	9

BW1 FOIA CBP 001094

6. Avoidance and Minimization Measures

A part of the coordination between USBP and USFWS, best management practices are under development for the construction, operation, and maintenance of the proposed tactical infrastructure. The best management practices are designed to avoid and minimize impacts to biotic resources, specifically threatened and endangered resources. These measures will be presented in the Final Report.

7. Permits, Technical Studies and Notifications

In compliance with state and federal regulations, the following should be investigated or conducted to assess the potential that regulatory requirements have been met. It should be noted that additional permits, studies, or notifications may be required which are not listed herein.

Permits			
Permit Type	**Issuing Agency**	**Reason**	**Legislation**
404 Permit	USACE	Wetland and WOUS delineation	Section 404 of the Clean Water Act authorizes the USACE to issue permits regulating the discharge of dredged or fill material into the waters of the United States, including wetlands. General permits are often issued by USACE for categories of activities that are similar in nature and would have only minimal individual or cumulative adverse environmental effects. A general permit can also be issued on a programmatic basis ("programmatic general permit") to avoid duplication of permits for state, local or other Federal agency programs.
401 Water Quality Certification	Texas Commission on Environmental Quality (TCEQ)	Wetland and WOUS delineation	Section 401(a)(1) of the Clean Water Act (CWA) specifies that any applicant for a Federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act (SWRCB 2007).

Permits			
Permit Type	**Issuing Agency**	**Reason**	**Legislation**
Section 7 (ESA) consultation	USFWS	Allow the proposed action to proceed while avoiding impacts to listed species.	Section 7 of the ESA directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the Service, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to the management of Federal lands as well as other Federal actions that may affect listed species, such as Federal approval of private activities through the issuance of Federal funding, permits, licenses, or other actions.
Migratory Bird Treaty Act (MBTA) coordination (Migratory Bird Depredation Permit)	USFWS	Fence constructed during breeding season.	The MBTA established a Federal prohibition, unless permitted by regulations, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird,. . . or any part, nest, or egg of any such bird. The Migraotry Bird Depredation Permit is USFWS Form 3-200-13.
Special Use Permits for access to National Wildlife Refuge areas	USFWS	As requested by LRGNWR managers.	N/A

Permits			
Permit Type	**Issuing Agency**	**Reason**	**Legislation**
Take Permit	State of Texas, Texas Parks and Wildlife Department	Texas Endangered Speceis Act compliance.	Animals: Laws and regulations pertaining to endangered or threatened animal species are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code and Sections 65.171 - 65.176 of Title 31 of the Texas Administrative Code (T.A.C.). Plants: Laws and regulations pertaining to endangered or threatened plant species are contained in Chapter 88 of the TPW Code and Sections 69.01 - 69.9 of the T.A.C.

Notification	
Agency	**Contact Information**
USFWS – Regional	Larisa Ford, PhD, MPA Fish & Wildlife Biologist, Ecological Services United States Fish & Wildlife Service Texas A&M University at Corpus Christi 6300 Ocean Drive, USFWS -Unit 5837 Corpus Christi, TX 78412-5837 361-994-9005 361-994-8262 (fax)
USFWS – Refuge	Bryan Winton Refuge Manager Lower Rio Grande Valley National Wildlife Refuge (956) 784-7521 (956) 874-4304 cell
Texas Department of Parks and Wildlife	No contact available at this time.

Additional Studies	
Agency	**Study**
USACE	Wetland Delineation and Determination

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9. References

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BIOLOGICAL SURVEY
APPENDIX A

DESCRIPTION OF FEDERALLY LISTED SPECIES

Brown pelican (*Pelecanus occidentalis*)

Cameron County

The brown pelican was listed as endangered on October 13, 1970.

Distribution: The brown pelican's historical range included the Atlantic and Gulf coasts from South Carolina to Florida and west to Texas. Currently, the brown pelican occurs throughout its historic range but in greatly reduced numbers. Within Texas, numbers dropped drastically from an estimated 5,000 birds in 1918 to less than 100 individuals and only 10 breeding pairs in 1974. According to a 2003 survey, there were 8 colonies and 3,895 active nests in Texas. Today, brown pelicans are found along the Texas coast from Chambers County on the upper coast to Cameron County on the lower coast. Most of the breeding birds nest on Pelican Island in Corpus Christi Bay and Sundown Island near Port O'Connor.

Natural History:

Habitat: The brown pelican is a coastal bird that is rarely seen inland or far out at sea. They feed in shallow estuarine waters usually less than 40 miles from shore. Pelicans use sand spits, offshore sand bars, and islets for roosting and loafing.

Breeding: Egg laying times vary with the location of the brown pelican. In Texas, brown pelican populations nest irregularly usually beginning in late fall and extending through June. The clutch size average 2-3 and incubation lasts 28-30 days. The young pelicans leave the nests around 35 days after hatching, fledge around 63 days after hatching, and fly around 71-88 days after hatching. Reproductive success is highly variable and susceptible to disturbance by humans, starvation of young, and/or flooding of nests. In Texas, brown pelicans build their nests on small isolated coastal islands that are safe from predators such as raccoons and coyotes.

Diet: The brown pelican is a piscivore that primarily feeds upon menhaden and mullet in Texas. They spot the fish from above and the dive beak-first into the water to scoop up the fish.

Threats: The brown pelican has undergone several sharp population declines in Texas. The first decline occurred in the 1920-30's when local fishermen would kill the birds because of incorrect assumptions that the brown pelican competed with humans for fish. The second sharp decline occurred in the 1960's and 1970's when the brown pelican would eat menhaden loaded with DDT and Endrin. This caused a severe decline in brown pelican reproductive success. Currently, human encroachment and development of the Texas coast provides the most significant threat to brown pelican populations.

Green sea turtle (*Chelonia mydas*)

Cameron County

The green sea turtle was listed as endangered on July 28, 1978.

Distribution: The green sea turtles are found in tropical waters of the Atlantic, Pacific, and Indian Oceans. Their main nesting grounds are found on Aves Island in Costa Rica and Surinam. They have rarely been observed nesting in Texas including a single female recently observed in Kenedy County, Texas. Juveniles exist in offshore areas from Texas to Massachusetts (NatureServe 2007).

Natural History:

Habitat: Hatchlings restrict themselves to floating in masses of sea plants in the convergence zone while juveniles roam into temperate waters. Adults stay in the coral reefs and rocky outcrops near feeding pastures in tropical waters (NatureServe 2007).

Breeding: The green sea turtle nests from March-October in the Gulf of Mexico region with the peak between May and June. The female lays 1-8 clutches of 90-140 eggs. The incubation period is 1.5-3 monthgs and the hatchlings emerge between early June and late December (NatureServe 2007).

Diet: The green sea turtle feeds in shallow waters with abundant submerged vegetation. The adults are herbivorous and eat seagrass, macroalgae, and other marine plants while the juveniles are more invertivorous and prey on mollusks, sponges, crustaceans, and jellyfish (NatureServe 2007).

Threats: The major threats to green sea turtle populations are degradation of nesting habitat, collection of nesting females and eggs for human consumption, mortality in fishing gear, and contact with pollution (NatureServe 2007).

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: October 17, 2007).

Gulf Coast jaguarundi (*Herpailurus yagouaroundi cacomitli*)

Cameron, Hidalgo, and Starr Counties

The Gulf Coast jaguarundi was listed as endangered on June 14, 1976.

Distribution: Because of the secretive nature of the jaguarundi, little is known about its exact distribution within Texas. The only documented sighting of a jaguarundi in Texas was a road killed specimen found in Cameroun County. Possible counties where the jaguarundi may exist include Cameron, Duval, Hidalgo, Jim Wells, Kenedy, Kleberg, Live Oak, Nueces, San Patricio, Starr, Willacy, and Zapata. Jaguarundi still roam Central and South America in greater numbers than seen in the United States (USFWS 1990).

Natural History:

Habitat: The habitat of the jaguarundi is similar to the ocelot and is found within the Tamaulipan Biotic Province which includes several variations of sub-tropical thornscrub brush. Potential habitat includes four different areas of the Lower Rio Grande Valley: Mesquite-Granjeno Parks, Mesquite-Blackbrush Brush, Live oak Woods/Parks, and Rio Grande Riparian. Jaguarundi prefer dense thornscrub habitats with greater than 95% canopy cover . Their minimal home range is about 40 ha (USFWS 1990).

Breeding: The jaguarundi mates in November or December and gestation lasts 9-10 weeks. There may be two litters of 1-4 (average 2) young per year. In Mexico, the young are born between March and August. Little is known of the breeding habits within the United States.

Diet: The jaguarundi is active at night and preys primarily on birds, small rodents, and rabbits.

Threats: The largest threat to jaguarundi populations in the United States is habitat loss and fragmentation in southern Texas. The jaguarundi requires a large hunting area and appropriate habitat is being lost to development and agriculture. This creates islands of habitat where the jaguarundi cannot migrate from area to area leaving them vulnerable.

U.S. Fish and Wildlife Service. 1990. Listed Cats of Texas and Arizona Recovery Plan (With Emphasis on the Ocelot). U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 131 pp.

Hawksbill sea turtle (*Eretmochelys imbricata*)

Cameron County

Distribution: The hawksbill sea turtle occurs in tropical and sub-tropical seas of the Atlantic, Pacific, and Indian Oceans. It is widely distributed in the Caribbean Sea and western Atlantic Ocean. The sea turtle utilizes the northern Gulf of Mexico (especially near Texas) for some of its life history stages (NMFS and USFWS 1993).

Natural History:

Habitat: Hawksbill habitat use depends on their life stage. Posthatchling hawksbills occupy the pelagic environment, hiding from predators in the weedlines. Juveniles then enter coastal waters with coral reefs a preferred habitat for foraging for juveniles, sub-adults, and adults (NMFS and USFWS 1993).

Breeding: The hawksbill chooses low- and high-energy beaches in tropical oceans of the world for nests. The hawksbill has a 6 month nesting season with the peak season depending on location. The courtship and mating occur earlier and either during the migratory route or off the nesting beach. They nest an average of 4.5 times per season and not every attempt is successful. Clutch size averages 140 eggs with some variation (NMFS and USFWS 1993).

Diet: The diet of posthatchling hawksbills is largely unknown. Eggs of pelagic fish and pelagic species of *Sargassum* have been found in their gut contents. Adults feed primarily on sponges (NMFS and USFWS 1993).

Threats: Threats to hawksbill populations are split into those that affect their nesting sites and those that affect their feeding sites in the ocean. Nesting sites are threatened by poaching, beach erosion, erosion control measures, sand mining, and use of off-road vehicles on beaches. Threats to their marine environment include entanglement in nets, ingestion of marine debris, and the loss and/or degradation of coral reefs (NMFS and USFWS 1993).

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1993. Recovery Plan for Hawksbill Turtles in the U.S. Caribbean Sea, Atlantic Ocean, and Gulf of Mexico. National Marine Fisheries Service, St. Petersburg, Florida.

Kemp's ridley sea turtle (*Lepidochelys kempii*)

Cameron County

Kemp's ridley sea turtle was listed as endangered on December 2, 1970.

Distribution: Kemp's ridley sea turtle has a restricted breeding range with one nesting beach that receives the majority of the nesting females. This beach is located near Rancho Nuevo in southern Tamaulipas, Mexico. The ridley sea turtle has the most restricted nesting distribution of any sea turtle. An attempt has been made to create another nesting site on San Padre Island, Texas. Adults are essentially restricted to the Gulf of Mexico while juveniles also inhabit the U.S. Atlantic coast (USFWS and NMFS 1992).

Natural History:

Habitat: The sea turtles usually remain in the Gulf of Mexico. Young sea turtles frequent bays, coastal lagoons, and river mouths while the adults are found near the Mississippi River mouth and the Campeche Banks (USFWS and NMFS 1992).

Breeding: Courtship and mating areas of the ridley sea turtle are not well known. Nesting occurs from April into July and is restricted to the beaches of the western Gulf of Mexico, primarily the state of Tamaulipas, Mexico. The clutch averages 101 eggs and the incubation period is 45-58 days.

Diet: Posthatchling ridley sea turtles likely feed on the available sargassum and associated infauna and other epipelagic species found in the Gulf of Mexico. Juveniles and adults appear to be shallow water, benthic feeders whose diet is composed primarily of crabs with a preference for portunid crabs (USFWS and NMFS 1992).

Threats: Before the ridley's sea turtle was protected, eggs were removed from the Rancho Nuevo nesting beach from the 1940's to early 1960's. Another threat to ridley sea turtle populations is the trawling industry within the Gulf of Mexico which caught turtles in their trawls and decimated ridley sea turtle populations (USFWS and NMFS 1992).

U. S. Fish and Wildlife Service and National Marine Fisheries Service. 1992. Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). National Marine Fisheries Service, St. Petersburg, Florida.

Leatherback sea turtle (*Dermochelys coriacea*)

Cameron County

The leatherback sea turtle was listed as endangered on June 2, 1970.

Distribution: The leatherback sea turtle is a circumglobal species that forages in temperate waters. It nests on the beaches of the Atlantic, Indian, and Pacific Oceans in tropical and sub-tropical latitudes. Historically, there were nesting sites along the coast of Texas, but none have been reported recently (NatureServe 2007).

Natural History:

Habitat: The leatherback usually occupies habitats along the continental shelf and pelagic environments. It also is found in seas, gulfs, bays, and estuaries (NMFS and USFWS 1998)

Breeding: The female lays over 10 clutches of 50-170 eggs at 1-2 week intervals. The female nests at night from March-August and the incubation period is 8-10 days. There are no known nesting sites in the United States. The greatest number of leatherback sea turtles nest on the Pacific coast of Mexico, mostly in the states of Michoacá, Guerrero, and Oaxaca (NMFS and USFWS 1998).

Diet: The leatherback's diet consists of medusa, siphonophores, and salpae in temperate and boreal latitudes with jellyfish as their primary prey (NatureServe 2007).

Threats: The greatest threat to the leatherback sea turtle is disruption to their nesting sites, especially those along the Pacific coast of Mexico. Increased human presence and construction and the corresponding habitat loss or degradation occurs along many coastal Pacific areas. Harvest of sea turtles and/or eggs for food is still a threat. Incidental take by fisheries also poses a great threat to the leatherback sea turtle (NMFS and USFWS 1998).

National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle (*Dermochelys coriacea*).
National Marine Fisheries Service, Silver Spring, MD.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: October 17, 2007).

Loggerhead sea turtle (*Caretta caretta*)

Cameron County

The loggerhead sea turtle was listed as endangered on July 28, 1978.

Distribution: The loggerhead sea turtle occupies the warmer parts of the Atlantic,
Pacific, and Indian oceans and range into temperate zones to feed in the summer. Major nesting sites include the southeastern U.S., Mexico, Oman, and South Africa. A few nests have been spotted on the barrier islands along the Texas coast. The waters of the Gulf of Mexico are used for feeding during non-breeding times (NatureServe 2007).

Natural History:

Habitat: The loggerhead sea turtle occupies the open seas up to 500 miles from the shore primarily over the continental shelf, in bays, estuaries, lagoons, creeks, and the mouths of rivers. Nesting occurs on open, sandy beaches above high-tide mark (NatureServe 2007).

Breeding: In the southeastern United States, mating occurs in late March to early June with the female laying 1-9 clutches of 45-200 eggs from late April to early September. Incubation takes 7-11 weeks with the hatchlings emerging from the nests after a few days (NatureServe 2007).

Diet: The loggerhead sea turtle feeds on a variety of invertebrates including crustaceans, mollusks, sponges, cnidaria, and echinoderms. They also eat plants and fish. Adults forage on the bottom while the young feed on prey concentrated at the surface (NatureServe 2007).

Threats: The loggerhead turtle is threatened by collection of adult turtles and eggs for food, drowning by entanglement in shrimp trawls, and by habitat degradation from beach development (NatureServe 2007).

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: October 17, 2007).

Northern aplomado falcon (*Falco femoralis septentrionalis*)

Cameron and Hidalgo Counties

The northern aplomado falcon was designated as a federally endangered species on March 27, 1986.

Distribution: The geographic distribution of the northern aplomado falcon includes most of South America from Tierra del Fuego to Ecuador and from sea level to 3000m in the Andes. The falcon also inhabits areas in most of Latin America. The historic range includes areas of Texas, New Mexico, and Arizona. In Texas, they are still observed in south Texas and the Trans-Pacos region (USFWS 1990).

Natural History:

Habitat: In populations found in the United States, northern aplomado falcons inhabited yucca-covered sand ridges in coastal prairies, riparian woodlands in open grasslands, and in desert grasslands with scattered mesquite (*Hilaria belangeri*) and yucca. They do not construct their own stick platform nests and must use abandoned nests of other species including the Swainson's hawk (*Buteo swainsoni*), crested caracara (*Caracara cheriway*), and the Chihuahuan raven (*Corvus cryptoleucus*) (USFWS 1990).

Breeding: Most clutches are laid during April and May with a clutch size of 2-3 eggs. The incubation period is 31-32 days. The nestlings fled at 32-40 days and are dependent on their parents for an additional four weeks after fledging (USFWS 1990).

Diet: Northern aplomado falcons prey on a variety of small birds, insects, rodents, and reptiles. Preferred bird species include doves, cuckoos, woodpeckers, blackbirds, flycatchers, thrushes, and other fringillids that feed in trees. Common insect species include grasshoppers, beetles, dragonflies, cicadas, crickets, butterflies, moths, wasps, and bees (USFWS 1990).

Threats: Populations in the United States experienced a severe decline due to loss of habitat from over-grazing and encroachment of agricultural lands on traditional northern aplomado falcon habitat. The use of DDT during the 1970's also caused a decline in populations due to the inability for falcons to produce viable eggs. Overall, the greatest threat to populations in the United States is habitat loss through development (USFWS 1990).

U.S. Fish and Wildlife Service. 1990. Northern aplomado falcon recovery plan. U.S. Fish and Wildlife Service. Albuquerque, New Mexico. 56pp.

***Ocelot (Leopardus (=Felis) pardalis*)**

Cameron, Hidalgo, and Starr Counties

The ocelot was listed as endangered on March 28, 1972.

Distribution: The ocelot is found from northern Mexico into the southern extremes of Texas and Arizona to northern Argentina, Paraguay, and Uruguay. Little is known of the exact distribution of the ocelot in Texas. Ocelots recorded by trapping or photo documentation include several areas within five counties: Cameron, Willacy, Kenedy, Jim Wells, and Hidalgo. Areas that have been identified as having potential ocelot habitat include Cameron, Duval, Hidalgo, Jim Wells, Kenedy, Kleberg, Live Oak, Nueces, San Patricio, Starr, Willacy, and Zapata (USFWS 1990).

Natural History:

Habitat: The habitat of the ocelot and is found within the Tamaulipan Biotic Province which includes several variations of sub-tropical thornscrub brush. Potential habitat includes four different areas of the Lower Rio Grande Valley: Mesquite-Granjeno Parks, Mesquite-Blackbrush Brush, Live oak Woods/Parks, and Rio Grande Riparian. Ocelot prefer dense thornscrub habitats with greater than 95% canopy cover. Their average home range is about 15 km^2 (USFWS 1990).

Breeding: In Texas, the ocelot breeds in late summer with gestation lasting about 70 days. Births occur in fall and winter and the litter size is 2-4. Dens are found in caves, hollow trees, thickets, or the spaces between closed buttress roots of large trees (NatureServe). Juveniles appear to travel with their mother even after lactation had ceased and one study found two young females up to 2 years old with home ranges that significantly overlapped their mother's home range (USFWS 1990).

Diet: The ocelot is active at night and preys primarily on birds, small rodents, and rabbits, but may also include reptiles, fish and invertebrates. Other potential prey species include other rodents, opossum, raccoon, javelina, white-tailed deer, skunks, nine-banded armadillo, feral swine, poultry, quail, doves, chachalaca, numerous passerine birds and waterfowl, snakes, and lizards.

Threats: Habitat loss and fragmentation especially along the Rio Grande pose a critical threat to the long term survival of the ocelot. Efforts need to be taken to preserve key habitat and biological corridors necessary for ocelot survival (USFWS 1990).

U.S. Fish and Wildlife Service. 1990. Listed Cats of Texas and Arizona Recovery Plan (With Emphasis on the Ocelot). U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 131 pp.

Piping plover (*Charadrius melodus*)

Cameron County

The piping plover was listed as endangered on July 10, 1986.

Distribution: The piping plover is a migratory bird that breeds on coastal beaches from Newfoundland to North Carolina and winters along the Atlantic Coast from North Carolina south, along the Gulf Coast including the coast of Texas, and in the Caribbean (USFWS 1996).

Natural History:

Habitat: Piping plovers choose the accreting ends of barrier islands, sandy peninsulas, and coastal inlets for their winter grounds. In the winter, they prefer sandflats adjacent to inlets or passes, sandy mudflats along prograding spits, and overwash areas for foraging (USFWS 1996).

Breeding: Piping plover nests are located above the high tide line on coastal beaches, sandflats, foredunes, and washover areas cut into or between dunes. Eggs are laid from mid-April to late July and clutch size is usually 4 eggs. Incubation time averages 27-30 days and the chicks fledge in 25-35 days. Piping plovers migrate to their breeding grounds in late February through early April and return to their winter grounds from late July to September (USFWS 1996).

Diet: The piping plover feeds on inverterbrates including marine worms, fly larvae, beetles, crustaceans, and mollusks. They feed along the intertidal portions of ocean beaches, and the shorelines of coastal ponds, lagoons, or salt marshes (USFWS 1996).

Threats: The piping plover's winter grounds have been threatened by recreational activities (both motorized and pedestrian), inlet and shoreline stabilization, dredging of inlets, beach maintenance and renourishment, and pollution (USFWS 1996).

U.S. Fish and Wildlife Service. 1996. Piping Plover *(Charadnus melodus),* Atlantic Coast Population, Revised Recovery Plan. Hadley, Massachusetts. 258 pp.

South Texas ambrosia (*Ambrosia cheiranthifolia*)

Cameron County

The south Texas ambrosia was listed as endangered on September 23, 1994.

Distribution: The South Texas ambrosia is an endemic species to southern Texas and northern Mexico that historically occupied areas of Cameron, Jim Wells, Kleberg, and Nueces Counties in Texas, and the state of Tamaulipas in Mexico. Only three populations are known to exist at the moment including two populations in Nueces County and one in Kleberg County.

Natural History:

Morphology: The south Texas ambrosia is a perennial herb that is a member of the aster family. It is erect with a silvery to grayish-green appearance that is 10-30 cm tall. It has simple, opposite leave on the bottom that transition to alternate near the inflorescence. The flowers are dioecious with the staminate flowers on terminal races and the pistillate flowers in small clusters along the leaf axils.

Habitat: The south Texas ambrosia grows on open clay-loam to sandy-loam prairies and savannas. Associated native grasses include Texas grama *(Booteloua rigidiseta),* buffalo grass *(Buchloe dactyloides),* Texas speargrass *(Stipa leucotricha*), and tobosa *(Hilaria mutica*).

Threats: The native habitat for the south Texas ambrosia has largely been converted to agricultural fields, improved pastures, or urban areas. Humans have also altered the fire regime of these grasslands allowing thorny shrub and tree species to invade the grasslands.

Star cactus (*Astrophytum asterias*)

Cameron, Hidalgo, and Starr Counties

The star cactus was listed as endangered on October 18, 1993.

Distribution: The star cactus is an endemic species to southern Texas and northern Mexico whose historical range includes Hidalgo, Starr, Zapata, and possibly Cameron Counties in Texas and the states of Nuevo Leon and Tamaulipas in Mexico. Known populations exist on private land in Starr County, Texas, Tamaulipas, Mexico, and Nuevo Leon, Mexico. Other populations likely exist but remain unknown because of difficulty surveying private lands (USFWS 2003).

Natural History:

Morphology: The star cactus is a disk or dome-shaped member of the cactus family that is spineless. It is 2-15 cm across and up to 7 cm tall. The color is dull green-to-brown and the plant is often covered in tiny white scales. The cactus is divided into eight, vaguely triangular sections. The flowers are yellow with orange centers and up to 15 cm in diameter while the fruits are green to grayish-red and fleshy when mature. The cactus flowers from March through May with fruiting between April and June(USFWS 2003).

Habitat: The star cactus occupies sparse, open thorn shrub and grasslands in a warm-temperate, sub-tropical steppe climate in the United States and dry, hot thorn shrub in Mexico. These habitats are characterized by scattered mesquite and grasses on sandy soils and thorn brush on heavier soils (USFWS 2003).

Threats: The star cactus is threatened by habitat destruction and modification, collection, and decreased population numbers.

U.S. Fish and Wildlife Service. 2003. Recovery Plan for Star Cactus (*Astrophytum asterias*). U.S. DOI Fish and Wildlife Service, Albuquerque, New Mexico. i-vii +88pp., A1-19, B-1-8.

Texas ayenia (*Ayenia limitaris*)

Cameron and Hidalgo Counties

The Texas ayenia was listed as endangered on September 23, 1994.

Distribution: The Texas ayenia is an endemic species of southern Texas and northern Mexico whose historical range included Cameron and Hidalgo Counties, Texas and the states of Coahuila, Nuevo Leon, and Tamaulipas in Mexico. The status of Mexican populations is unknown at the time. The only confirmed population of the Texas ayenia lies on private property within Hidalgo County.

Natural History:

Morphology: The Texas ayenia is a sub-shrub with pubescent leaves and stems that is between 60 cm and 150 cm. The leaves are alternate, simple leaves. The flowers are axillary with up to 4 per node and their color alternates between green, pink, and cream.

Habitat: The Texas ayenia occupies dense sub-tropical woodland communities at low elevations. The current population occupies a Texas Ebony – Anacua (*Pithecellobium ebano-Ehretia* anacua) plant community. This plant community occurs on well-drained riparian terraces with canopy cover close to 95% Species found in this community includes Ia coma *(Bumelia celastrina),* brasil *(Condalia hookeri),* granjeno (*Celtis pollicki),* and snake-eyes *(Phaulothamnus spinesceris).*

Threats: Habitat loss and degradation from agriculture or urban development have reduced the Texas Ebony – Anacua vegetation community by greater than 95%The species has been reduced to one known population of 20 individuals that is extremely vulnerable to extinction.

Walker's manioc (*Manihot walkerae*)

Hidalgo and Starr Counties

Walker's manioc was listed as endangered on October 2, 1991.

Distribution: Walker's manioc is an endemic species of the Lower Rio Grande Valley of Texas and northern Mexico. One population exists in Tamaulipas, Mexico and ten populations have been observed in the United States in Starr and Hidalgo counties of Texas.

Natural History:

Morphology: Walker's manioc is a perennial, branched herb that is about 0.5 m in height. The leaves are alternate, deeply incised, and palmately 5-lobed. Flowers are dioecious with staminate flowers tubular and light purplish. Pistillate flowers are white and purple. The known Texas plant flowers in late spring and autumn in response to seasonal rainfall (USFWS 1993).

Habitat: Walker's manioc usually grows among low shrubs, native grasses and herbaceous plants, either in full sunlight, or in partial shade of shrubs. It is found in sandy, calcareous soil, shallowly overlying indurated caliche and conglomerate of the Goliad Formation on rather xeric slopes and uplands, or over limestone.

Threats: Over 95% of Walker's manioc native brush habitat has been cleared in the United States for agriculture, urban development, and recreation. The U.S. population has been reduced to a single plant that makes the species extremely vulnerable to extinction in the United States (USFWS 1993).

U.S. Fish and Wildlife Service. 1993. Walker's Manioc (*Manihot walkerae*) Recovery Plan. USD1 Fish and Wildlife Service, Albuquerque, New Mexico. 57 pp.

Ashy dogweed (*Thymophylla tephroleuca*)

Starr County

The ashy dogweed was listed as endangered on July 19, 1984.

Distribution: The ashy dogweed is a relict species whose only known population exists of 1 acre in Zapata County, Texas. The population includes approximately 1,300 individuals.

Natural History:

Morphology: The ashy dogweed is a perennial herb with erect stems up to 30 cm in height. The leaves are linear and covered with soft, woolly, white hairs that emit a pungent odor when crushed. The flower head are yellow and flowering occurs from March to May.

Habitat: The ashy dogweed grows on fine, sandy-loam soils in open areas of a grassland-shrub community. The dominant genera of these areas include *Costela, Cordia, Prosopis, Microrhamnus, Leucophyllum, Cercidium*, and *Yucca*.

Threats: The existence of this species is endangered by overgrazing, habitat loss through roadside blading and brush clearing, oil and gas development, and possible collecting or vandalism.

Johnston's frankenia (*Frankenia johnstonii*)

Starr County

Johnston's frankenia was listed as endangered on August 7, 1984; however, it has been proposed for delisting.

Distribution: Johnston's frankenia is an endemic species of southern Texas and northern Mexico. When it was first listed as an endangered species, only five populations were known in Texas and another population from near Monterrey, Mexico. However, the frankenia has been found on 30 new sites in Starr and Zapata Counties in Texas (NatureServe 2007).

Natural History:

Morphology: Johnston's frankenia is a member of the family Frankeniaceae. The plant is blue-green with a wiry appearance. The branches appear hedged possibly from browsing by large herbivores. It is a perennial shrub that grows up to 62 cm. The leaves and stems are grayish- or bluish-green from a dense covering of short-whitish hairs. The shrub flowers from September to May.

Habitat: Johnston's frankenia grows on rocky flats or slopes of open thorn shrublands. The soils are saline, sometimes with a high gypsum content (NatureServe 2007).

Threats: The species is still threatened by brush clearing and oil and gas development, but conservation agreements are being signed by private landowners to protect the plant (NatureServe 2007).

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: October 16, 2007).

Least tern (*Sterna antillarum*)

Starr County

The interior population of the least tern was listed as endangered on June 27, 1985.

Distribution: The historic breeding range of the least tern included the Mississippi, Red, and Rio Grande River. The breeding range extended from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. Currently, the least tern maintains breeding grounds on all these river systems although suitable habitat has dwindled. In Texas, populations have been observed on the Red River System and along the Texas/Oklahoma border as far east as Burkburnett, Texas. Least terns have been observed on three reservoirs (including Amistad Reservoir in Val Verde County) along the Rio Grande River and along the Pecos River at the Bitter Lake National Wildlife Refuge, New Mexico (USFWS 1990).

Natural History:

Habitat: Along river systems such as the Rio Grande, least terns nest on sparsely vegetated sand and gravel bars along a wide, unobstructed river channel or salt flats along lake shorelines. Least terns also have been observed to nest on artificial habitats such as sand and gravel pits and dredge islands (USFWS 1990).

Breeding: Least terns reside on the breeding grounds for 4-5 months arriving from late April to early June. Nests are shallow depressions in open, sandy areas, gravelly patches, or exposed flats. The tern nests in colonies. Clutch size is usually 2-3 eggs and the eggs are laid by late May. Incubation lasts 20-25 days and fledgling occurs after three weeks. Parental attention continues until migration at the end of the breeding season (USFWS 1990).

Diet: The least tern is a fish eater that hunts in the shallow waters of rivers, streams and lakes. Fish prey is small-sized and include the following genera: *Fundulus, Notropis, Campostoma, Pimephales, Gambusia, Blonesox, Morone, Dorosoma, Lepomis* and *Carpiodes.* They usually hunt near their nesting sites (USFWS 1990).

Threats: The taming of wild river systems for irrigation, navigation, hydroelectric power, and recreation has altered the river channels that the least tern depends on for breeding grounds. Stabilized river systems eliminate most of the sandbars that terns utilize for breeding grounds by channeling wide, braided rivers into single, narrow navigation channels.

U. S. Fish and Wildlife Service. 1990. Recovery plan for the interior population of the least tern (*Sterna antillarum*). U. S. Fish and Wildlife Service, Twin Cities, Minnesota. 90 pp.

Zapata bladderpod (*Lesquerella thamnophila*)

Starr County

The Zapata bladderpod was listed as endangered on November 22, 1999

Distribution: The Zapata bladderpod is an endemic species to southern Texas and possibly northern Mexico. Four populations are known in Starr County. Two populations are found on the Lower Rio Grande Valley National Wildlife Refuge and two occur on private land. Three populations are known from Zapata County. Two are located on highway rights-of-way between the towns of Zapata and Falcon and another lies near Falcon Lake (USFWS 2004).

Natural History:

Morphology: The Zapata bladdepod is a pubescent, silvery-green perennial plant of the Mustard Family. It has sprawling stems 43-85 cm long and the basal leaves are narrowly elliptical to oblanceolate and acute with entire or slightly toothed margins. The leaves have stellate trichomes that give the plant its silvery-green appearance. The inflorescence is a loose raceme of bright, yellow flowers. The plant flowers at all times of the year depending on weather conditions (USFWS 2004).

Habitat: The Zapata bladderpod occurs on graveled to sandy-loam upland terracs above the Rio Grande flood plain. It is associated with highly calcareous sandstones and clays. The bladderpod is a component of an open *Leucophyllum fretescens – Acacia berlanderi* shrubland alliance. The shrublands are sparsely vegetated and include the following species *Acacia ridigula*, *Prosopis* sp., *Celtis pallida*, *Yucca treculeana*, *Zizyphus obtusifolia*, and *Guaiacum angustifolium* (USFWS 2004).

Threats: Habitat modification and destruction from increased road and highway construction and urban development, increased oil and gas exploration and development, and conversion of plant communities to improve pastures, overgrazing and vulnerability due to low population numbers are all threats to the Zapata bladderpod

U.S. Fish and Wildlife Service. 2004. Zapata Bladderpod (*Lesquerella thamnophila*) Recovery Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. i-vii +80 pp ., Appendices A-B.

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APPENDIX J

Preliminary Cultural Resources Findings

APPENDIX J
PRELIMINARY CULTURAL RESOURCES FINDINGS

1. General Historic Context

1.1 Precontact (Archaeological) Overview

The precontact history of the lower Rio Grande is rich, unique, and important. The river has been a critical conduit for trade and transportation, and a natural border between interests to the north and the south. The area's archaeological record is dominated by open-air sites, burned rock middens, lithic artifact scatters, clay dunes in the Rio Grande delta, and shell middens near the coast. These sites are difficult to identify and date because of heavy erosion, shallow soil horizons, and extensive artifact removal by collectors. The lack of excavation of deeply stratified subsurface sites means that the chronology of the south Texas plains is poorly understood.

The following discussion of the precontact history of the south Texas plains is divided into three general cultural periods. The Paleoindian period represents the first documented human occupation of the region. Evidence of the earliest Paleoindian complexes, Clovis and Folsom, has been found throughout southern Texas, although most of this evidence is from surface collections of the distinctive fluted points that characterize these complexes. Clovis and Folsom hunters appear to have specialized in hunting large animals, including mammoth and bison. Two stratified Paleoindian sites have been excavated in the South Texas region, Berger Bluff (41GD30) in Goliad County, and Buckner Ranch (41BE2) in Bee County.

The Archaic period in southern Texas is divided into the early, middle, and late subperiods based on subtle changes in material cultural and settlement patterns. During this period, hunting and gathering continued as the primary means of subsistence, but populations responded to fluctuations in regional climate by exploiting an increasingly wide range of plant and animal resources and geographic settings for settlement and subsistence Specifically, the Early and Middle Archaic overlap with the Altithermal (ca. 6000–2000 B.C.), a warm and dry climate episode. The Early Archaic is poorly documented in the southern Texas region, especially on the Rio Grande Delta, due to deep sediment deposition. The available evidence suggests that population density was unchanged from the Paleoindian period, and that Early Archaic hunters continued to live in small, highly mobile groups. Middle Archaic sites appear to be more common than Early Archaic sites, and are found in upland, alluvial, and tributary settings and estuary bays. Middle Archaic sites in southern Texas are also distinguished by the occurrence of ground stone artifacts (Hester et al. 1989) and other evidence for expanded plant use, including an increase in the

number of burned rock middens. Exploitation of coastal resources also appears to have increased. The increasing breadth of subsistence-related resources is accompanied by an increase in site size and artifact abundance, suggesting an increase in population (Hester et al. 1989). Sites from the later Middle Archaic also contain evidence of trade between the Rio Grande plain and the coastal delta, and elaboration of ritual or ceremonial practices in the form of cemeteries for burial of the dead. Late Archaic sites are relatively common in the project area, suggesting increasing population density (Hester et al. 1989). Along with increasing site density, the period is marked by a continued expansion in the variety of resources exploited for subsistence, with rodents and rabbits becoming more common in the archaeological record and specialized plant resource extraction features, such as hearths, increasing in frequency. Sites also appear to have been used repeatedly, suggesting a more sedentary settlement pattern or an increasingly scheduled subsistence regime. Regional trade of items such as marine shell pendants continues, as does use of cemeteries.

The Late Prehistoric period is well-documented in the region. It is characterized by the appearance of pottery and the bow and arrow, although point typologies have not been formalized (Hester et al. 1989). In much of southern Texas, the Late Prehistoric period has two distinct horizons: the Austin (A.D. 800–1350) and the Toyah (A.D. 1350–1600) (Black 1986). Bone-tempered pottery with incised designs appears by A.D. 1000. The Toyah horizon is the best documented and is associated with the occurrence of Perdiz points, small end scrappers, flake knives, beveled knives, Leon Plain bone-tempered pottery, ceramic figurines and pipes, and shell and bone ornaments and beads. Toyah sites are generally found near streams. Along the coast, the Late Prehistoric period begins around A.D. 1200 with the Rockport complex. In the Rio Grande delta area, the Late Prehistoric begins around A.D. 1200 with the Brownsville complex. This complex is similar to the Austin and Toyah horizons, and is characterized in large part by bone-tempered ceramics virtually identical to inland types and a well-developed shell-working industry (THC 2007b).

1.2 Overview of Postcontact History

In the nearly 500 years since initial Spanish exploration, the area has been claimed and influenced by four nations: Spain, Mexico, Republic of Texas, and the United States. Each has pursued its own interests and left its mark as historic landmarks or in patterns of land use and settlement.

Missions were the focus during the Spanish colonial period (ca. 1519–1822) (USACE 1999). Spanish-speaking peoples established ranches in support of the missions. During the Early Anglo-European period (1822–1845), the missions of northern Mexico and Texas were secularized and became less important. Anglo-Americans and Anglo-Europeans began rapidly settling in Texas, bringing with them their own customs, traditions, and influences. Some were of Irish and Mexican descent, and practiced small-scale farming and ranching. These Empresarios had been granted lands in exchange for settling in the area and

becoming Mexican citizens. Large-scale Mexican/Spanish ranching interests continued in the area. Roma became an important port town in this period because of its favored location where river boats met overland routes. In 1836, the Anglo colonists revolted against Mexico and won their independence by defeating Santa Anna at San Jacinto.

During the Texas Republic period (1836–1846), the lower Rio Grande was central to the border tensions between the newly independent Texan republic and the government of Mexico, culminating in the Mexican-American War (1846–1848). On behalf of the Texans, U.S. troops under General Zachary Taylor landed their forces at Port Isabel and established Fort Brown on the Rio Grande across from Matamoros. The presence of these troops provoked the Mexican government to attack, starting the Mexican-American War. Besides military action at Fort Brown, significant battles occurred at Palo Alto and Resaca de la Palma in the lower Rio Grande.

During the American period (1848–present), Anglo-European farmers and ranchers continued to settle the lower Rio Grande area. They continued the large-scale, export cattle ranching started by the Mexicans. To protect the U.S. border, the U.S. Army constructed a line of forts from north-central Texas to the Rio Grande. A second line of forts was established, including Fort Ringgold. As Anglo-American and Anglo-European settlers moved in, towns grew at road and river crossings. Potteries, brick kilns, and local commercial centers were established.

The lower Rio Grande Valley played an important role during the Civil War as local supporters used the river to transport cotton and war materials to support the Confederate effort. Roma and Brownsville, in particular, prospered during the period. The last battle of the Civil War occurred at Fort Brown, ironically a month after the war's official end at Appomattox.

The decades following the Civil War were the years of the large cattle drives north on Chisolm Trail, which began at Brownsville. Railroads, drought, and the use of barbed wire contributed to the eventual breakup of large ranches, open range ranching, and the large cattle drives. The large ranches and open ranges were broken into smaller farms, many owned by immigrants from the Midwestern states. New irrigation systems enabled large-scale agriculture and the lower Rio Grande became noted for its rich croplands, sugar cane production, and citrus groves.

In recognition of the important-contribution of the lower Rio Grande to Texas and American history, the Texas Historical Commission designated the 200-mile area from Laredo to Brownsville along the Rio Grande as the Los Rios del Camino Heritage Trail (THC 2007a; Sanchez 2007, 1997). The binational Los Caminos del Rio Heritage Project was created to support the understanding and appreciation of the history of the area (Sanchez 2007).

The location of the Proposed Action along the lower Rio Grande places it in an area rich in cultural resources. Alternatives 2 and 3 would cross within two historic districts that are designated NHLs: the Roma Historic District and Fort Brown. Each would extend adjacent to or within the bounds of four additional NRHP-listed historic districts: Fort Ringgold Historic District, Louisiana-Rio Grande Canal Company Irrigation System Historic District (including Old Hidalgo Pumphouse), Neale House, and Old Brulay Plantation. It would be in the general vicinity of many other NRHP-listed properties, such as the Rancho Toluca Historic District, La Lomita Historic District, Gems Building, and Stillman House. It is known that additional architectural resources eligible for the NRHP but not formally nominated for listing are also in the vicinity of the Proposed Action. Others that meet the NRHP eligibility criteria but have not been inventoried or evaluated are expected. Historic-era property types in the lower Rio Grande area include historic residential, commercial, and institutional buildings both in settled communities and in rural contexts; military forts; transportation resources (ferry crossing and ferry, suspension bridge); cemeteries; religious complexes; industrial resources (irrigation systems and associated water pumphouses); and farmsteads, plantations, and ranch complexes. These might be found as standing structures or historic archaeological sites. Such sites are known to include shipwrecks, forts, homesteads, and trash scatters. One site is listed on the NRHP (Fort Brown).

2. Specific Historic Property Discussion

In the following discussion, historic districts and individual properties listed in the NRHP that occur near Alternatives 2 and 3 would be described. Previously identified archaeological resources would also be noted. This discussion is based on information contained in the THC Texas Historic Sites Atlas and Texas Archaeological Sites Atlas. Cultural resources surveys of the APEs that would be directly impacted under Alternatives 2 and 3, are underway or about to commence; these surveys are anticipated to identify additional resources. **Table J-1** summarizes the resources discussed in this section.

2.1 Roma Historic District

The Roma Historic District was designated an NHL by the Secretary of the Interior in 1993. The 15-block historic district comprises 35 contributing buildings, including the Nestor Sáenz Store (1884) and Manuel Guerra House and Store (1878–84). The Roma-San Pedro International Bridge (1928) is a contributing property of the historic district. It is anticipated that architectural survey efforts would identify additional buildings that are individually eligible for listing in the NRHP, both within and outside of historic district.

The 19th-century town of Roma was an important shipping point for steamboats along the Rio Grande. The site was first settled in 1760 by Spanish colonists from the colonial settlement, Mier, on the south bank of the Rio Grande. With the

Table J-1. Table of Known Historic Properties That Might Be Affected

Fence Section	Historic Property	NRHP Status
O-1	Roma Historic District	NRHP–listed, NHL
O-2	Fort Ringgold Historic District (including an archaeological component)	NRHP–listed
O-3	Los Ebanos Crossing, Ferry, and Community	Likely NRHP–eligible
O-5	La Lomita Historic District	NRHP–listed
O-6	Louisiana-Rio Grande Canal Company Irrigation System Historic District (including Old Hidalgo Pumphouse)	NRHP–listed
O-10	Toluca Ranch Historic District	NRHP–listed
O-14	Landrum House	Registered Texas Historic Landmark, likely NRHP–eligible
O-19	Brownsville and Fort Brown Historic District (including an archaeological component)	Fort Brown – NRHP–listed, NHL Brownsville has many NRHP–listed and Registered Texas Historic Landmark properties (depends on delineations of APE)
O-19	Neale House	NRHP–listed
O-21	Old Brulay Plantation Historic District	NRHP–listed

development of steamboat river commerce in the middle of the 19th century, Roma prospered as the western port for flatbed ships carrying cotton down the Rio Grande and supplies upriver. It also was a connection point for overland trade into western Texas and the eastern interior of Mexico.

The Roma Historic District represents an outstanding example of the building techniques of the Lower Rio Grande. These techniques, derived from the 18th-century traditions of northern Mexico, are best exemplified by the finely detailed brick commercial and residential buildings designed and constructed by German emigrant mason Heinrich Portscheller. Influenced by the architecture of its sister city of Mier across the river and by the architecture of Guerrero Viejo, Mexico, Roma possesses buildings of river sandstone, caliche limestone, and molded brick. Masons used both *rejoneado* and *sillar* construction techniques in Roma. The International Bridge linking Roma to Mexico is the last suspension bridge on the Rio Grande and a contributing element of the historic district (Weitze 1993).

2.2 Fort Ringgold Historic District

Fort Ringgold was one of four military posts the Federal government organized along the Lower Rio Grande following the Mexican-American War. Its location on the Rio Grande made the post an important supplier of goods and materials to military installations further upriver. Troops stationed at Fort Ringgold helped quell numerous border conflicts that erupted from 1849 to 1917. The troops ultimately helped bring stability, which contributed to economic development on both sides of the Rio Grande. The fort was deactivated by the Army in 1944 and sold to the Rio Grande City school system.

The Fort Ringgold Historic District encompasses much of the U.S. Army installation established in 1848. The Fort Ringgold Historic District was listed in the NRHP in 1993 under Criteria A and C at the state level of significance. The district, which includes approximately 75 acres, has 41 contributing properties. Most of the buildings are at the northern end of the historic district surrounding the parade ground. They are associated with the post-1869 development of the older fort. During the earlier phase (1848–1869), frame buildings were constructed to the south on two hills overlooking the Rio Grande and a steamboat dock. A small settlement grew called Davis Landing or Davis Rancho. The 1848 buildings included a hospital, storehouses, barracks, Commandant's house, stables, mess hall and fort store, and cemetery. When new buildings were constructed to the north in 1869, these earlier structures were given new uses. The Commandant's house (also known as the Lee House or Robert E. Lee House) from the earlier post was used later as the quartermaster's office after construction of the new post. Archaeological site 41SR142 is the archaeological component of the earlier fort, and encompasses an area larger than the historic district (Clark 1975).

2.3 Los Ebanos Crossing, Ferry, and Community of Los Ebanos

The Los Ebanos ferry crossing lies on an ancient river ford site used during the 1740s by the Spanish colonist, Jose de Escandó. Historically, a salt trail led from the ford crossing to La Sal del Rey, an inland salt lake 40 miles northeast that produced the first export from the region. The ford also was used over several centuries, notably by troops of the Mexican-American War, 1846; by Texas Rangers chasing cattle rustlers, 1874; and by smugglers in many eras, especially during the American prohibition years, 1920–33 (THC 2007a). A ferry and inspection station are located at the crossing today. Los Ebanos Ferry, established in 1950, is notable as the only government-licensed, hand-pulled ferry on any boundary of the United States. The ferry has capacity for 3 automobiles and approximately 12 persons. The ferry cable is connected to an estimated 250-year–old Texas ebony tree that is included in the Texas Forest Service's *Famous Trees of Texas* (Texas Forest Service 2007). It is possible that the Los Ebanos Ferry is eligible for listing in the NRHP and that the area including the ferry is a historic landscape. The community of Los Ebanos is an

historic town, and has a cemetery where veterans of many wars are buried. It was named for and associated with the unique ebony trees.

2.4 La Lomita Historic District

La Lomita Historic District, listed in the NRHP in 1975, comprises three contributing properties. The earliest remaining property is the stucco and stone mission chapel with a bell tower constructed in 1899. On the small hill is the mission-style St. Peter's Novitiate erected in 1912 that served as a novitiate training center for student priests. Together, the Mission chapel, 122 acres of farm and ranch lands, and novitiate are tangible reminders of the important role of the Catholic Church in the lower Rio Grande Valley. They also document the contribution of the Oblate Fathers in settling this southern tip of Texas (Landon 1975).

2.5 Louisiana-Rio Grande Canal Company Irrigation System Historic District

The Louisiana-Rio Grande Canal Company Irrigation System Historic District was listed in the NRHP in 1995. The 31,200-acre historic district comprises the first-lift and second-lift pumphouses and the associated historic irrigation canal network. The first-lift pumphouse, known as the Old Hidalgo Pumphouse, is significant for its historical associations and engineering and retains original equipment. The historic canal system extends for approximately 500 miles, and includes border-to-border earthen canals, concrete-lined facilities, and canals in pipes on original alignments.

The historic district is significant at the state level under Criterion A with a period of significance from 1904 to 1949. The system contributed to the early 20th century agricultural revolution in the Lower Rio Grande. Private irrigation systems, like the Louisiana-Rio Grande system constructed by the Louisiana-Rio Grande Canal Company, transformed the arid brush land of the Lower Rio Grande Valley into a vast patchwork of 20- to 80-acre irrigated farms within two decades following the 1904 arrival of the first railroad to the isolated area. Once established, the successful production of those farms defined South Texas as one of the nation's three largest winter agricultural regions until a freeze in 1949. Today the irrigation system, except the Old Hidalgo Pumphouse, is owned by the Hidalgo County Irrigation District No. 2 (Moore et al. 1992).

2.6 Toluca Ranch

The Toluca Ranch, listed in the NRHP in 1983 as a historic district, is one of the few intact ranch ensembles in the Rio Grande Valley. Originally the ranch land holdings included 5,900 acres. The four contributing properties constituting Toluca Ranch are the Church of St. Joseph of the Worker, a two-story house, a store, and a schoolhouse. Constructed in 1899 by Florencio Saenz, the Gothic Revival church with a tower served the Saenz family and local community. The

two-story Italianate-style house was constructed in 1906 by Saenz. The schoolhouse was built in 1903 and operated for the children of the local community and the Saenz family until 1911. Saenz was a progressive farmer. Four hundred acres of Saenz's croplands were irrigated to grow beans, corn, melons, and sugar cane for ranch consumption. On pasturelands further north of the river he raised horses, sheep, goats, and cattle (Victor 1981).

2.7 Landrum House

The Landrum House has been a Recorded Texas Historic Landmark since 1978. It is not listed in the NRHP, but is likely to be eligible for its historical and architectural significance. The house was constructed in 1902 for Frances and James Landrum (THC 2007a).

2.8 Sabas Cavazos Cemetery

The Sabas Cavazos Cemetery was established in 1878 with the burial of rancher and businessman, Sabas Cavazos. Cavazos was great grandson to Jose Salvador de la Garza, recipient of the Espiritu Santo royal land grant of approximately 250,000 acres encompassing present-day Brownsville (ACHP 2007b). It lies approximately 0.25 miles north of the Section O-17 corridor (THC 2007a).

2.9 Brownsville and Fort Brown Historic District

Brownsville is rich in historic buildings and sites, many of which are listed in the NRHP. Fort Brown, a historic district designated an NHL, was established in April 1846 by Brigadier General Zachary Taylor and became the first U.S. military post in Texas. The fort was important in some of the earliest battles of the Mexican-American War, the Battles of Palo Alto and Resaca de la Palma. The early fort comprised earthworks with six bastions in the form of a six-pointed star with 15-foot thick walls.

During the Civil War, Brownsville became an important Confederate port town. Boats transported cotton bound for Europe and inbound war material for the Confederacy. Union troops fought for control of Fort Brown, which was held by the Confederate army until the end of the war. Troops from Fort Brown engaged in the last battle of Civil War, the Battle of Palmetto Hill, nearly a month after the Confederacy surrendered at Appomattox (NPS 2007).

After the Civil War, the fort was re-occupied by the U.S. Army and expanded. Under the efforts of Lieutenant Wouldiam Gorgas (later U.S. Army Surgeon General), Fort Brown had a major role in the medical research related to the control of yellow fever. Fort Brown also contributed to efforts to control the Mexican bandit trouble of 1913–1917. In 1948, the fort was transferred to the city of Brownsville. Today the former hospital and other historic buildings are part of the University of Texas/Southmost College campus. Archaeological site

41CF96, south of the later fort complex, is the remnants of the earthworks of the original Fort Brown (THC 2007a).

Brownsville has many other NRHP-listed historic buildings and sites. Near Fort Brown is the Neale House (ca. 1850). Although relocated, the Neale House is significant as one of the oldest houses in Brownsville. Within downtown Brownsville are the Gems Building and the Stillman House. Constructed in 1850 and listed in the NRHP in 1979, the Stillman House is one of the earliest Greek Revival-style brick structures in the region (ACHP 2007c). The house was originally built for and occupied by Charles Stillman, who hired a surveyor to lay out the town lots adjacent to Fort Brown before Brownsville was founded. The house was later occupied by Thomas Carson, Brownsville mayor from 1879 to 1892 and judge of the Cameron County Commissioners Court. There also are a number of historic shipwrecks that are reported west of Fort Brown including archaeological site 41CF177, a steamboat shipwreck site (THC 2007b).

2.9 Old Brulay Plantation Historic District

The Old Brulay Plantation, listed in the NRHP in 1975, is composed of the two-story brick house of French emigrant George N. Brulay and nine buildings associated with his sugar cane plantation. The Brulay Plantation was purchased in 1870 by Brulay. In 1872, he built the first commercial sugar mill in the area to produce *piloncillo* (a dark brown sugar) on his 300-acre plantation and began irrigating his fields. In irrigating his plantation, Brulay revolutionized agricultural practices in the lower Rio Grande Valley; in the early 20th century, irrigation districts established elaborate irrigation systems throughout the valley. Brulay's cultivated fields are north of the structures (Clark 1975). The Brulay Cemetery is north and east of the plantation complex.

2.10 Archaeological Resources

Previously reported prehistoric archaeological resources within a mile of the Proposed Action are primarily open–air campsites and lithic scatters. Temporal and cultural affiliations of the sites are unclear, and few sites are very extensive. The recorders did not evaluate the NRHP eligibility of most of them. Additional prehistoric sites are expected to be found.

In general, historic archaeological sites can be expected to include early Spanish and Mexican colonial remains, forts, shipwrecks, early Republic and American-period sites, homesteads, industrial archaeological sites such as potteries and early irrigation and agricultural sites and features, and historic trash scatters. There might be additional types of historic archaeological sites identified upon further research. Should any sites be found through archaeological surveys, they would be considered for various treatment options such as redesigning the project or data recovery.

3. Cultural Resource Surveys

3.1 Area of Potential Effects

According to 36 CFR 800, the Area of Potential Effects (APE) of a Federal undertaking is defined as the geographical area within which effects on historic properties could occur if such properties hypothetically exist. According to 36 CFR 800, the APE should account for both direct and indirect effects. 36 CFR 800.5(a)(2) specifically cites as adverse effects both visual effects and changes to the setting of a historic property where the setting contributes to the significance of the property.

Under Alternative 2 of the Proposed Action, direct construction impacts would occur within a 60-foot–wide corridor that accounts for grading of vegetation and fence construction. Under Alternative 3, the direct construction APE would directly affect a 130-foot-wide corridor. In addition, there are ancillary areas outside the corridor of both alternatives such as construction staging areas. Thus, for direct construction purposes, the APE considers a 150-foot-wide corridor plus ancillary areas outside that corridor. A second APE for both Alternatives 2 and 3 is being delineated by USBP in consultation with the THC to account for visual impacts, noise, and other potential impacts that extend beyond immediate construction locations. Topography, type and density of vegetation and intervening development, orientation of streets and properties in relation to the Proposed Action, traffic patterns, and surrounding development all are factors to be considered in the definition of this latter APE.

Finally, several Native American tribes with ancestral ties to lands within the Rio Grande Valley Sector have been contacted for input into the cultural resources survey as required under NHPA.

3.2 Identification of Historic Properties

Efforts are underway to identify historic properties potentially affected by the Proposed Action. An archaeological survey is in progress, and an architectural survey would begin in the near future (November 2007). To prepare for these studies, information about previously recorded archaeological, historical, and architectural sites within the 150-foot survey corridor and within a 1-mile radius of the corridor was gathered from the two THC atlases. This information was plotted on project maps, aerial photographs, and topographic maps to identify areas of interest for further identification and evaluation. This data set was considered as a starting point because it has inherent limitations. Much of the survey data from the THC atlases are not recent and might not be complete. Not all of the area of the corridor has had recent archaeological surveys, and the information from past surveys is quite fragmentary. Information about architectural resources from the Texas Historic Sites Atlas is limited to buildings and historic districts listed in the NRHP. It is assumed that additional buildings

and resources are eligible for listing in the NRHP but have not been formally listed or previously surveyed and evaluated.

3.3 Archaeological Resources

Pedestrian and subsurface archaeological survey of accessible portions of fence sections began October 19, 2007. Accessibility has been limited by Right of Entry (ROE) agreements for privately owned parcels, issuance of a Special Use Permit for surveys on lands managed by the USFWS, and Texas Antiquities Permit requirements for all non-Federal publicly owned land (e.g., Texas Parks and Wildlife, county land, municipal parks). The USFWS has found that the surveys would not be harmful to the refuge. The finding is in a public comment period through November 15, 2007.

The archaeological survey is being conducted in accordance with the Texas Archaeological Research Council requirements and standards identified in *Archaeological Survey Standards of Texas.* The survey also is being conducted in accordance with the Secretary of the Interior's *Standards and Guidelines for Archaeology and Historic Preservation Projects* (including the *Standards and Guidelines for Identification, Evaluation, and Archaeological Documentation*). The survey is subject to a State Antiquities Permit from the THC, and the THC has been consulted in the development of the survey methodology. Professional archaeologists meeting the *Secretary of the Interior's Professional Qualifications Standards* are conducting the survey (NPS).

Priority for archaeological survey was determined based upon the general proportion of land in a given section for which access is available. At the time this document is being prepared, an archaeological survey has been completed for 20.6 miles of the 68.06 miles of surveyable alignment. This represents all accessible portions of the McAllen Sector (Sections O-3, O-4, and O-6), the Weslaco Sector (Sections O-7, O-8, O-9, and O-10), and portions of the Harlingen Sector (Sections O-11, O-12, O-13, and portions of O-14). Accessible portions of the Rio Grande City Sector (Sections O-1 and O-2), the Brownsville Sector (Sections O-17, O-18, O-19, and O-20), the Fort Brown Sector (Section O-21), and the remaining portions of the Harlingen Sector (Sections O-15 and O-16) are slated for survey beginning mid-November 2007. The status of archaeological survey is presented in more detail in **Table J-2**.

Archaeological survey to date has resulted in the identification of 11 previously unrecorded sites. The majority of these (n=8) are historic in age or have historic components. Five sites are either prehistoric or have prehistoric components. Preliminary results support a recommendation of eligible for listing in the NRHP for 6 sites, not eligible for 4 sites, and eligible for 1 site. These recommendations are preliminary and are subject to change as investigation continues. Sites recommended as NRHP eligible might require further testing before a determination can be made.

Table J-2. Archaeological Survey Status for All Fence Sections, as of November 1, 2007

Fence Section Number	County	Border Patrol Station	Total Mileage	Approximate Mileage Completed	Approximate Percentage Completed
O-1	Starr	Rio Grande City	5.28	0.00	0.0
O-2	Starr	Rio Grande City	7.3	0.00	0.0
O-3	Hidalgo	McAllen	1.85	0.56	30.0
O-4	Hidalgo	McAllen	4.35	3.48	80.0
O-5	Hidalgo	McAllen	1.72	0.00	0.0
O-6	Hidalgo	McAllen	3.85	2.70	70.0
O-7	Hidalgo	Weslaco	2.43	2.43	100.0
O-8	Hidalgo	Weslaco	2.04	1.63	80.0
O-9	Hidalgo	Weslaco	3.01	3.01	100.0
O-10	Hidalgo	Weslaco	2.42	1.45	60.0
O-11	Cameron	Harlingen	2.32	1.51	65.0
O-12	Cameron	Harlingen	0.95	0.81	85.0
O-13	Cameron	Harlingen	1.58	1.50	95.0
O-14	Cameron	Harlingen	3.06	1.53	50.0
O-15	Cameron	Harlingen	1.92	0.00	0.0
O-16	Cameron	Harlingen	2.97	0.00	0.0
O-17	Cameron	Brownsville	1.62	0.00	0.0
O-18	Cameron	Brownsville	3.58	0.00	0.0
O-19	Cameron	Brownsville	1.62	0.00	0.0
O-20	Cameron	Brownsville	0.9	0.00	0.0
O-21	Cameron	Fort Brown	13.29	0.00	0.0
		Total	**68.06**	**20.60**	**30.3**

The THC requires backhoe trenching of deep sediments on lands with high archaeological potential if the lands fall under the State Antiquities Permit.

All recorded archaeological resources would be evaluated for their NRHP eligibility using the National Register Criteria (36 CFR 60.4) and relevant guidance of the NPS such as *National Register Bulletins 15* and *22*. USBP would request the THC's concurrence regarding determination of a resource's NRHP eligibility; a determination of eligibility from the Keeper of the National Register (NPS) would be sought if the THC does not concur with USBP's evaluation.

3.4 Resources of the Built Environment

An architectural survey of buildings and structures that might be affected by the Proposed Action was begun in November 2007. The APE to be surveyed for indirect impacts related to the Proposed Action is being determined in discussion with the THC and would vary depending on the visual field in a given area, relative to the Proposed Action. Types of resources expected to be surveyed and evaluated include residences, commercial and institutional resources, ranches and plantations, levees, irrigation canals and pumphouses, ferry crossing, bridges, and industrial facilities such as water treatment plants as appropriate. Resources that pre-date 1968 would be surveyed and evaluated, consistent with THC requirements. Based on a windshield survey conducted on October 30–November 1, 2007, it is estimated that as many as 325 buildings and other resources predating 1968 mightrequire survey.

Information about past surveys of architectural resources available at the THC is being evaluated for completeness, level of effort, conformance to current standards, and survey results. This information would help to focus survey efforts so that resources are considered to the extent and manner appropriate. The architectural survey would be conducted in accordance with both the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and the THC's *Historic Resources Survey Form* and survey guidance. Professionals who meet the *Secretary of the Interior's Professional Qualifications Standards* for architectural historian, historian, and other appropriate discipline would conduct the survey (ACHP 2007a, DOI 1983). The THC has been consulted in the delineation of the APEs and the development of the survey methodology.

All surveyed resources would be evaluated for their NRHP eligibility using the National Register Criteria (36 CFR 60.4) and relevant guidance of the NPS such as *National Register Bulletins 15* and *22*. USBP would request THC concurrence regarding determination of a property's NRHP eligibility; a determination of eligibility from the keeper of the National Register (NPS) would be sought if the THC does not concur with USBP's evaluation.

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APPENDIX K

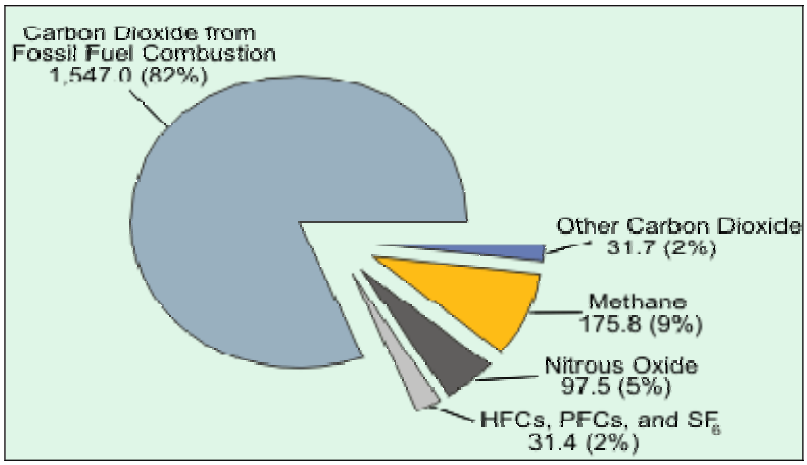
Air Quality Information

Greenhouse Gases

In April 2007, the U.S. Supreme Court declared that carbon dioxide (CO_2) and other greenhouse gases are air pollutants under the Clean Air Act (CAA). The Court declared that the U.S. Environmental Protection Agency (USEPA) has the authority to regulate emissions from new cars and trucks under the landmark environment law.

Many chemical compounds found in the Earth's atmosphere act as "greenhouse gases." These gases allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth's surface, some of it is reflected back towards space as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere. Over time, the trapped heat results in the phenomenon of global warming.

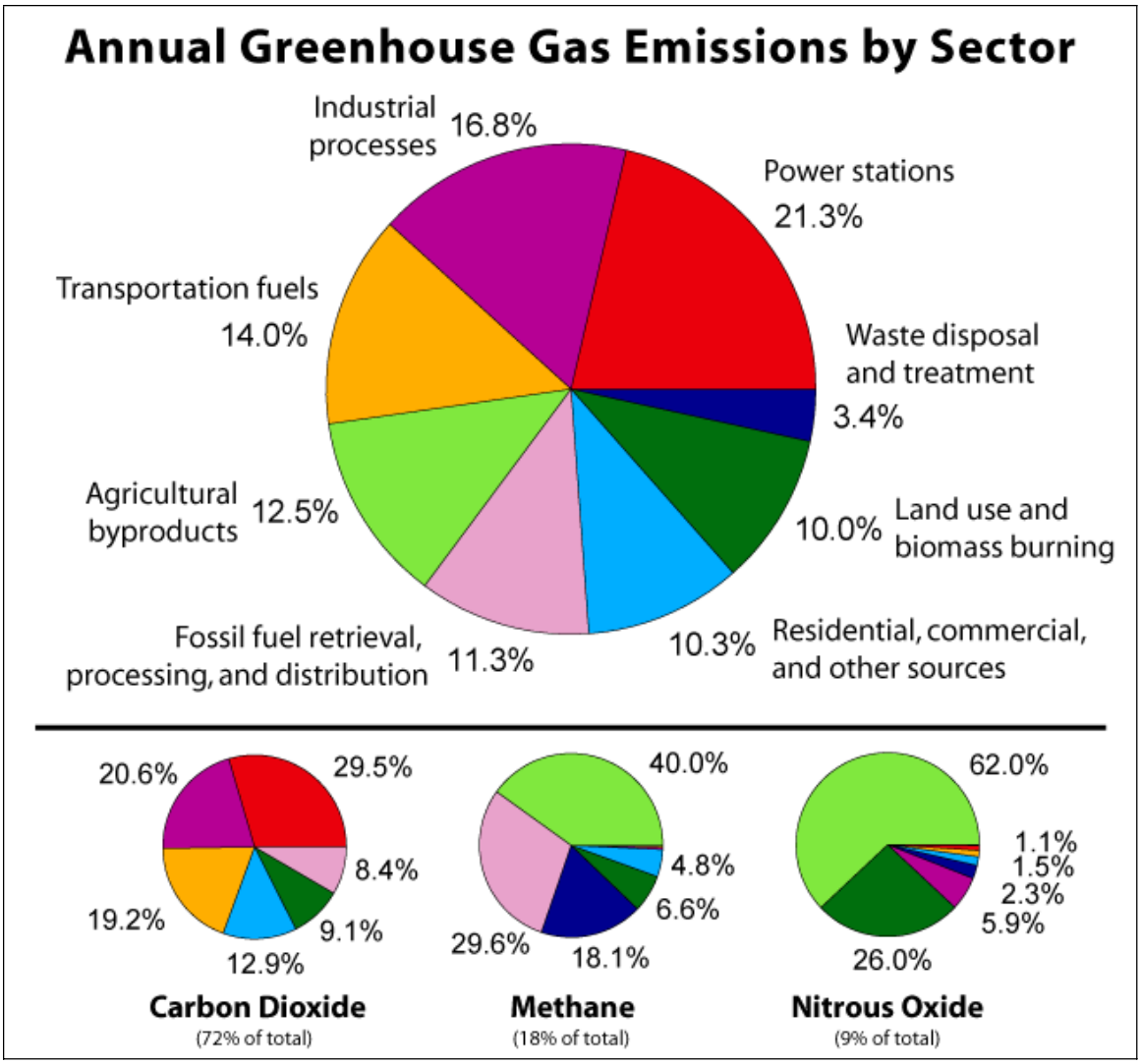
Many gases exhibit these "greenhouse" properties. The sources of the majority of greenhouse gases come mostly from natural sources but are also contributed to by human activity and are shown in **Figure K-1**. It is not possible to state that a specific gas causes a certain percentage of the greenhouse effect because the influences of the various gases are not additive.



Source: Energy Information Administration 2003

Figure K-1. Greenhouse Gas Emissions From Burning of Gas (Million Metric Tons of Carbon Equivalent)

Figure K-2 displays the annual greenhouse gas emissions by sector in the United States. Most government agencies and military installations are just beginning to establish a baseline for their operations and their impact on the greenhouse effect. Since the USEPA has not promulgated an ambient standard or *de minimis* level for CO_2 emissions for Federal actions, there is no standard value to compare an action against in terms of meeting or violating the standard. Hence, we shall attempt to establish the effects on air quality as a result of the amount of CO_2 produced by the Federal action and what could be done to minimize the impact of these emissions.



Source: Rosmarino 2006

Figure K-2. Annual Greenhouse Gas Emissions by Sector

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Summary	Summar zes tota em ss ons by ca endar year.
Combustion	Est mates em ss ons from non-road equ pment exhaust as we as pa nt ng.
Fugitive	Est mates f ne part cu ate em ss ons from earthmov ng, veh c e traff c, and w ndb own dust
Grading	Est mates the number of days of s te preparat on, to be used for est mat ng heavy equ pment exhaust and earthmov ng dust em ss ons
Maintenance Emissions	Est mates the tota em ss ons from future ma ntenance of fence nes and patro roads from mowers.
Generator Emissions	Est mates the tota em ss ons from emergency generators to power construct on equ pment.
AQCR Tier Report	Summar zes tota em ss ons for the Brownsv e-Laredo Intrastate AQCR T er Reports for 2001, to be used to compare project to reg ona em ss ons.

BW1 FOIA CBP 001145

Air Quality Emissions from Alternative 2, Route A

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	
CY2008	Construct on Combust on	470.443	70.127	549.588	9.409	15.782	
	Construct on Fug t ve Dust	-	-	-	-	646.336	662.118
	Ma ntenance Em ss ons	0.042	0.005	0.021	0.010	0.005	
	Generator Em ss ons	22.777	1.859	4.907	1.498	1.601	
	TOTAL CY2008	493.263	71.992	554.516	10.917	663.724	

S nce future year budgets were not read y ava ab e, actua 2001 a r em ss ons nventor es for the count es were used as an approx mat on of the reg ona nventory. Because the A ternat ve 2, Route A s severa orders of magn tude be ow s gn f cance, the conc us on wou d be the same, regard ess of whether future year budget data set were used.

Brownsville-Laredo Intrastate AQCR

	Point and Area Sources Combined				
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
2001	44,137	73,577	317,422	2,940	132,788

Source: USEPA-A rData NET T er Report (http://www.epa.gov/a r/data/geose .htm). S te v s ted on 15 October 2007.

Determination Significance (Significance Threshold = 10%) for Construction Activities

	Point and Area Sources Combined				
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
M n mum - 2001	44,137	73,577	317,422	2,940	132,788
2008 Em ss ons	493.263	71.992	554.516	10.917	663.724
A ternat ve 2, Route A %	**1.118%**	**0.098%**	**0.175%**	**0.371%**	**0.500%**

BW1 FOIA CBP 001146

Construction Combustion Emissions for CY 2008

Combust on Em ss ons of VOC, NO_x, SO_2, CO and PM_{10} Due to Construct on

Inc udes:

100% of Construct Pedestr an Fence and Patro Road	22,134,816	ft²

Assumpt ons:

Tota ground d sturbance for pedestr an fence and patro road wou d be 69.87 m es ong by 60 feet w de (22,134,816 ft ^{2}).
No grad ng wou d be requ red n construct on stag ng areas.
Patro road wou d be graded and ned w th grave . No pav ng wou d be nc uded n A ternat ve 2, Route A.
Construct on wou d occur between March and December 2008 for a tota of 190 work ng days.

Tota Bu d ng Construct on Area:	0	ft²	(none)
Tota Demo shed Area:	0	ft²	(none)
Tota Paved Area:	0	ft²	(none)
Tota D sturbed Area:	22,134,816	ft²	
Construct on Durat on:	1.0	year(s)	
Annua Construct on Act v ty:	190	days/yr	

BW1 FOIA CBP 001147

Emissions Factors Used for Construction Equipment

Reference: Gu de to A r Qua ty Assessment, SMAQMD, 2004

Em ss ons factors are taken from Tab e 3-2. Assumpt ons regard ng the type and number of equ pment are from Tab e 3-1 un ess otherw se noted.

Grading

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Bu dozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	3	60.51	9.02	70.69	1.21	2.03

Paving

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Ro er	1	5.01	0.86	7.34	0.10	0.14
Tota per 10 acres of act v ty	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Hau Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equ pment[d]	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Stat onary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industr a Saw	1	17.02	2.12	14.52	0.34	0.68
We der	1	4.48	0.56	3.83	0.09	0.18
Mob e (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Fork ft	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Tota per 10 acres of act v ty	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tab es are on fo ow ng page

BW1 FOIA CBP 001148

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emissions factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not provide SO_2 emissions factors. For this worksheet, SO_2 emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO_2 factor was found to be approximately 0.04 times the NOx emissions factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emissions factor for all other equipment (based on AP-42, Table 3.4-1)

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSIONS FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emissions Factors (lb/day)				
		NO_x	VOC	CO	SO_2**	PM_{10}
Grading Equipment	51	156814.195	23375.707	183196.091	3136.284	5260.830
Paving Equipment	1	0.000	0.000	0.000	0.000	0.000
Demolition Equipment	1	0.000	0.000	0.000	0.000	0.000
Building Construction	1	0.000	0.000	0.000	0.000	0.000
Air Compressor for Architectural Coating	1	0.000	0.000	0.000	0.000	0.000
Architectural Coating**			0.000			

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emissions factors are from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emissions Factor for Grading Equipment NOx = (Total Grading NOx per 10 ac*((total disturbed area/43560)/10))*(Equipment Multiplier)

BW1 FOIA CBP 001149

Summary of Input Parameters

	Tota Area (ft^2)	Tota Area (acres)	Tota Days	
Grad ng:	22,134,816	508.15	6	(from "CY2008 Grad ng" worksheet)
Pav ng:	0	0.00	0	
Demo t on:	0	0.00	0	
Bu d ng Construct on:	0	0.00	0	
Arch tectura Coat ng	0	0.00	0	(per the SMAQMD "A r Qua ty of Thresho ds of S gn f cance", 1994)

NOTE: The 'Tota Days' est mate for pav ng s ca cu ated by d v d ng the tota number of acres by 0.21 acres/day, wh ch s a factor der ved from the 2005 MEANS Heavy Construct on Cost Data, 19th Ed t on, for 'Aspha t c Concrete Pavement, Lots and Dr veways - 6" stone base', wh ch prov des an est mate of square feet paved per day. There s a so an est mate for 'P a n Cement Concrete Pavement', however the est mate for aspha t s used because t s more conservat ve. The 'Tota 'Days' est mate for demo t on s ca cu ated by d v d ng the tota number of acres by 0.02 acres/day, wh ch s a factor a so der ved from the 2005 MEANS reference. Th s s ca cu ated by averag ng the demo t on est mates from 'Bu d ng Demo t on - Sma Bu d ngs, Concrete', assum ng a he ght of 30 feet for a two-story bu d ng; from 'Bu d ng Foot ngs and Foundat ons Demo t on - 6" Th ck, P a n Concrete'; and from 'Demo sh, Remove Pavement and Curb - Concrete to 6" th ck, rod re nforced'. Pav ng s doub e-we ghted s nce projects typ ca y nvo ve more pav ng demo t on. The 'Tota Days' est mate for bu d ng construct on s assumed to be 230 days, un ess project-spec f c data s known.

Total Project Emissions by Activity (lbs)

	NO_x	VOC	CO	SO_2	PM_{10}
Grad ng Equ pment	940,885.17	140,254.24	1,099,176.55	18,817.70	31,564.98
Pav ng	-	-	-	-	-
Demo t on	-	-	-	-	-
Bu d ng Construct on	-	-	-	-	-
Arch tectura Coat ngs	-	-	-	-	-
Total Emissions (lbs):	**940,885.17**	**140,254.24**	**1,099,176.55**	**18,817.70**	**31,564.98**

Results: Total Project Annual Emissions Rates

	NO_x	VOC	CO	SO_2	PM_{10}
Tota Project Em ss ons (bs)	940,885.17	140,254.24	1,099,176.55	18,817.70	31,564.98
Tota Project Em ss ons (tons)	470.44	70.13	549.59	9.41	15.78

CO2 Emissions

It s assumed that 30 veh c es cons st ng of bu dozer, grader, fork ft, cranes, ro ers, and ght duty trucks wou d be usefor th s project.

It s further assumed that the tota approx mate average m es per day per veh c e wou d be 10 m es

It s assumed that the average veh c e w produce 19.5 pounds of CO2 per ga on of gas used. (www.e a.doe.gov/o af/1605/coeff c ents)

30 veh c es x 10 m es/day/veh c e x 190 days work ng x 1 ga /10 m es x 19.5 b co2/ga x ton/2000 b = 55 tons CO2

Estimate emissions of CO2 for BLIAQCR region is 995,000 tons per year

BW1 FOIA CBP 001150

Construction Fugitive Dust Emissions for CY 2008

Ca cu at on of PM_{10} Em ss ons Due to S te Preparat on (Uncontro ed).

User Input Parameters / Assumpt ons

Acres graded per year:	508.15	acres/yr	(From "CY2008 Combust on" worksheet)
Grad ng days/yr:	5.59	days/yr	(From "CY2008 Grad ng worksheet)
Exposed days/yr:	90	assumed days/yr graded area s exposed	
Grad ng Hours/day:	8	hr/day	
So p es area fract on:	0.10	(assumed fract on of s te area covered by so p es)	
So percent s t, s:	8.5	%	(mean s t content; expected range: 0.56 to 23, AP-42 Tab e 13.2.2-1)
So percent mo sture, M:	85	%	(http://www.cpc.noaa.gov/products/so mst/w.shtm)
Annua ra nfa days, p:	70	days/yr ra nfa exceeds 0.01 nch/day (AP-42 F g 13.2.2-1)	
W nd speed > 12 mph %, I:	39.5	%	Ave. of w nd speed at Brownsv e, TX (ftp://ftp.wcc.nrcs.usda.gov/down oads/c mate/w ndrose/texas/brownsv e/)
Fract on of TSP, J:	0.5	per Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993, p. A9-99	
Mean veh c e speed, S:	5	m /hr	(On-s te)
Dozer path w dth:	8	ft	
Qty construct on veh c es:	152.44	veh c es	(From "CY2008 Grad ng worksheet)
On-s te VMT/veh c e/day:	5	m /veh/day	(Exc ud ng bu dozer VMT dur ng grad ng)
PM_{10} Adjustment Factor k	1.5	b/VMT	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor a	0.9	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor b	0.45	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
Mean Veh c e We ght W	40	tons	assumed for aggregate trucks

TSP - Tota Suspended Part cu ate
VMT - Veh c e M es Trave ed

BW1 FOIA CBP 001151

Emissions Due to Soil Disturbance Activities

Operat on Parameters (Ca cu ated from User Inputs)

Grad ng durat on per acre	0.1	hr/acre	
Bu dozer m eage per acre	1	VMT/acre	(M es trave ed by bu dozer dur ng grad ng)
Construct on VMT per day	762	VMT/day	
Construct on VMT per acre	8.4	VMT/acre	(Trave on unpaved surfaces w th n s te)

Equat ons Used (Corrected for PM_{10})

Operat on	Emp r ca Equat on	Un ts	AP-42 Sect on (5th Ed t on)
Bu doz ng	$0.75(s^{1.5})/(M^{1.4})$	bs/hr	Tab e 11.9-1, Overburden
Grad ng	$(0.60)(0.051)s^{2.0}$	bs/VMT	Tab e 11.9-1,
Veh c e Traff c (unpaved roads)	$[(k(s/12)^{a} (W/3)^{b})]$ [(365-P)/365]	bs/VMT	Sect on 13.2.2

Source: Comp at on of A r Po utant Em ss ons Factors, Vo . I, USEPA AP-42, Sect on 11.9 dated 10/98 and Sect on 13.2 dated 12/03

Ca cu at on of PM_{10} Em ss ons Factors for Each Operat on

Operat on	Em ss ons Factor (mass/ un t)	Operat on Parameter	Em ss ons Factor (bs/ acre)
Bu doz ng	0.04 bs/hr	0.1 hr/acre	0.00 bs/acre
Grad ng	0.77 bs/VMT	1 VMT/acre	0.80 bs/acre
Veh c e Traff c (unpaved roads)	2.85 bs/VMT	8.4 VMT/acre	24.00 bs/acre

BW1 FOIA CBP 001152

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993.

So P es EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

So P es EF = 15.9 bs/day/acre covered by so p es

Cons der so p es area fract on so that EF app es to graded area

So p es area fract on: 0.10 (Fract on of s te area covered by so p es)
So P es EF = 1.59 bs/day/acres graded

Graded Surface EF = 26.4 bs/day/acre (recommended n CEQA Manua , p. A9-93).

Calculation of Annual PM_{10} Emissions

Source	Em ss ons Factor	Graded Acres/yr	Exposed days/yr	Em ss ons bs/yr	Em ss ons tons/yr
Bu doz ng	0.00 bs/acre	508.15	NA	0	0.000
Grad ng	0.80 bs/acre	508.15	NA	407	0.203
Veh c e Traff c	24.00 bs/acre	508.15	NA	12,195	6.098
Eros on of So P es	1.59 bs/acre/day	508.15	90	72,716	36.358
Eros on of Graded Surface	26.40 bs/acre/day	508.15	90	1,207,354	603.677
TOTAL				1,292,671	646.34

So D sturbance EF: 24.80 bs/acre
W nd Eros on EF: 27.99 bs/acre/day

Back ca cu ate to get EF: 455.46 bs/acre/grad ng day

BW1 FOIA CBP 001153

Construction (Grading) Schedule for CY 2008

Est mate of t me requ red to grade a spec f ed area.

Input Parameters
Construct on area: 508.15 acres/yr (from "CY2008 Combust on" Worksheet)
Qty Equ pment: 152.44 (ca cu ated based on 3 p eces of equ pment for every 10 acres)

Assumpt ons.
Terra n s most y f at.
An average of 6" so s excavated from one ha f of the s te and backf ed to the other ha f of the s te; no so s hau ed off-s te or borrowed.
200 hp bu dozers are used for s te c ear ng.
300 hp bu dozers are used for str pp ng, excavat on, and backf .
V bratory drum ro ers are used for compact ng.
Str pp ng, Excavat on, Backf and Compact on requ re an average of two passes each.
Excavat on and Backf are assumed to nvo ve on y ha f of the s te.

Ca cu at on of days requ red for one p ece of equ pment to grade the spec f ed area.

Reference: Means Heavy Construct on Cost Data, 19th Ed., R. S. Means, 2005.

Means L ne No.	Operat on	Descr pt on	Output	Un ts	Acres per equ p-day)	equ p-days per acre	Acres/yr (project-spec f c)	Equ p-days per year
2230 200 0550	S te C ear ng	Dozer & rake, med um brush	8	acre/day	8	0.13	508.15	63.52
2230 500 0300	Str pp ng	Topso & stockp ng, adverse so	1,650	cu. yd/day	2.05	0.49	508.15	248.43
2315 432 5220	Excavat on	Bu k, open s te, common earth, 150' hau	800	cu. yd/day	0.99	1.01	254.07	256.19
2315 120 5220	Backf	Structura , common earth, 150' hau	1,950	cu. yd/day	2.42	0.41	254.07	105.10
2315 310 5020	Compact on	V brat ng ro er, 6 " fts, 3 passes	2,300	cu. yd/day	2.85	0.35	508.15	178.22
TOTAL								851.46

Ca cu at on of days requ red for the nd cated p eces of equ pment to grade the des gnated acreage.

(Equ p)(day)/yr: 851.46
Qty Equ pment: 152.44
Grad ng days/yr: 5.59

BW1 FOIA CBP 001154

Maintenance Activities Emissions for CY 2008

Combust on Em ss ons of VOC, NO_x, SO_2, CO and PM_{10} Due to Ma ntenance Act v t es

The pedestr an fence ne and patro road wou d requ re mow ng approx mate y two t mes per year to ma nta n vegetat on he ght and a ow enhanced v s b ty and secur ty.

Assumpt ons:
Approx mate y 508.15 acres of and wou d be mowed tw ce per year.
Two agr cu tura mowers (40 horsepower) wou d operate for approx mate y 14 days.
Each work ng day wou d be 8 hours.
Agr cu tura mowers operate at 43% oad capac ty (17.2 horsepower).

Emissions Factors Used for Maintenance Equipment

Reference: USAF IERA "A r Em ss ons Inventory Gu dance", Ju y 2001, Tab e 7-6. Cr ter a Po utant Em ss ons Factors for Nonroad D ese Eng nes.

			Em ss ons Factors						
Equ pment	Rated Power (hp)	Load ng Factor (% of Max Power)	Operat ng T me (hr/yr)	BSFC (b/hp-hr)	NO_x (g/hp-hr)	VOC (g/hp-hr)	CO (g/hp-hr)	SO_2 (g/hp-hr)	PM_{10} (g/hp-hr)
Agr cu tura Mower (D ese)	40	43	224	0.408	5.0	0.6	2.5	1.19	0.6

BSFC = Brake Spec f c Fue Consumpt on

Results: Total Maintenance Annual Emissions Rates

	NO_x	VOC	CO	SO_2	PM_{10}
Tota Ma ntenance Em ss ons (bs)	84.954	10.195	42.477	20.219	10.195
Tota Ma ntenance Em ss ons (tons)	0.042	0.005	0.021	0.010	0.005

Examp e:
Tota Ma ntenance Em ss ons (bs of NO_x) =
(Rated power output of equ pment eng ne)*(Load ng Factor/100)*(Operat ng T me)*(Number of Equ pment)*(Em ss ons Factor)*(Convers on factor)

Tota Ma ntenance Em ss ons (bs of NO_x) = (40 hp)*(43/100)*(224 hr/yr)*(2 Equ pment)*(5.0 g/hp-hr)*(0.002205 b/g) = 84.95 bs/yr

BW1 FOIA CBP 001155

Emissions from Diesel Powered Generators for Construction Equipment

A ternat ve 2, Route A wou d requ re s x d ese powered generators to power construct on equ pment. These generators wou d operate approx mate y 8 hours per day for 190 work ng days.

Number of Generators	6	
Max mum Hours of Operat on	8	hrs/day
Number of Construct on Days	190	

Tota Generator Capac ty	75	hp
Hour y Rate	0.5262	MMBtu/hr
Annua Use	4,799	MMBtu/yr

Examp e: 1hp=0.002546966 MMBtu/Hr
Hour y Rate (MMBtu) = (75 Hp/0.363)*(0.002546699 MMBtu/hr) =0.5262 MMBtu/hr
Annua Use (MMBtu) = (Number of Generator * Hours Operat on/Day * Number of Construct on Days) = (6*8*190*0.5262) = 4,799 MMBtu/yr

Note: Generators horsepower output capac ty s on y 0.363 percent eff c ent (AP-42 Chapter 3.3).
Source: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

Generator Em ss ons Factors (D ese)

NO_x	4.41	b/MMBtu
VOC	0.36	b/MMBtu
CO	0.95	b/MMBtu
SO_x	0.29	b/MMBtu
PM_{10}	0.31	b/MMBtu

Em ss ons (D ese)

NO_x	10.581	tpy
VOC	0.864	tpy
CO	2.279	tpy
SO_x	0.696	tpy
PM_{10}	0.744	tpy

Examp e: Tota NOx Em ss ons = (Annua MMBtu/year*(EF)/2000 = (4,799*4.41)/2000 = 10.581 tpy

Source: Em ss ons Factors: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

BW1 FOIA CBP 001156

Emissions from Diesel Powered Generators for Portable Lights

To be conservat ve, t was assumed that up to 30 portab e ght un ts wou d be needed for construct on. These portab e ghts are powered by 6-k owatt se f-conta ned d ese generators. Portab e ghts wou d genera y operate cont nuous y every n ght (approx mate y 12 hours) 365 days per year.

Number of Generators	30	
Max mum Hours of Operat on	12	hrs/day
Number of Construct on Days	365	

Tota Generator Capac ty	6	hp
Hour y Rate	0.0421	MMBtu/hr
Annua Use	5,531	MMBtu/yr

Examp e: 1hp=0.002546966 MMBtu/Hr
Hour y Rate (MMBtu) = (75 Hp/0.363)*(0.002546699 MMBtu/hr) =0.5262 MMBtu/hr
Annua Use (MMBtu) = (Number of Generator * Hours Operat on/Day * Number of Construct on Days) = (6*8*190*0.5262) = 4,799 MMBtu/yr

Note: Generators horsepower output capac ty s on y 0.363 percent eff c ent (AP-42 Chapter 3.3).
Source: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

Generator Em ss ons Factors (D ese)

NO_x	4.41	b/MMBtu
VOC	0.36	b/MMBtu
CO	0.95	b/MMBtu
SO_x	0.29	b/MMBtu
PM_{10}	0.31	b/MMBtu

Em ss ons (D ese)

NO_x	12.196	tpy
VOC	0.996	tpy
CO	2.627	tpy
SO_x	0.802	tpy
PM_{10}	0.857	tpy

Examp e: Tota NOx Em ss ons = (Annua MMBtu/year*(EF)/2000 = (5,531*4.41)/2000 = 12.196 tpy

Source: Em ss ons Factors: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

BW1 FOIA CBP 001157

Brownsville-Laredo Intrastate Air Quality Control Region

			Area Source Em ss ons						Po nt Source Em ss ons					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	TX	Cameron Co	84,539	10,659	36,197	6,679	849	15,988	386	1,169	149	111	136	516
2	TX	H da go Co	145,505	17,041	61,198	11,285	1,161	27,056	4,064	2,697	319	313	41	773
3	TX	J m Hogg Co	1,621	110	1,229	291	18.5	763	77.3	293	3.32	3.32	0.08	50
4	TX	Starr Co	17,040	2,251	12,645	2,259	141	4,287	433	1,144	0.47	0.42	30.4	215
5	TX	Webb Co	47,946	5,122	9,943	2,380	376	13,764	755	1,128	36.7	35.6	25.2	124
6	TX	W acy Co	9,021	1,371	9,238	1,777	121	2,753	144	253	1.61	1.61	0.02	49.6
7	TX	Zapata Co	5,466	396	1,828	477	40.1	7,134	425	503	0.18	0.17	0.21	104
Grand Tota			311,138	36,950	132,278	25,148	2,707	71,745	6,284	7,187	510	465	233	1,832

SOURCE:
http://www.epa.gov/a r/data/geose .htm
USEPA - A rData NET T er Report
*Net A r po ut on sources (area and po nt) n tons per year (2001)
S te v s ted on 15 October 2007.

Brownsv e-Laredo Intrastate AQCR (40 CFR 81.135):
In the State of Texas: Cameron County, H da go County, J m Hogg County, Starr County, Webb County, W acy County, Zapata County

BW1 FOIA CBP 001158

Summary	Summar zes tota em ss ons by ca endar year.
Combustion	Est mates em ss ons from non-road equ pment exhaust as we as pa nt ng.
Fugitive	Est mates f ne part cu ate em ss ons from earthmov ng, veh c e traff c, and w ndb own dust
Grading	Est mates the number of days of s te preparat on, to be used for est mat ng heavy equ pment exhaust and earthmov ng dust em ss ons
Maintenance Emissions	Est mates the tota em ss ons from future ma ntenance of fence nes and patro roads from mowers.
Generator Emissions	Est mates the tota em ss ons from emergency generators to power construct on equ pment.
AQCR Tier Report	Summar zes tota em ss ons for the Brownsv e-Laredo Intrastate AQCR T er Reports for 2001, to be used to compare project to reg ona em ss ons.

BW1 FOIA CBP 001159

Air Quality Emissions from Alternative 2, Route B

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)
CY2008	Construct on Combust on	470.241	70.097	549.352	9.405	15.776
	Construct on Fug t ve Dust	-	-	-	-	645.982
	Ma ntenance Em ss ons	0.042	0.005	0.021	0.010	0.005
	Generator Em ss ons	22.777	1.859	4.907	1.498	1.601
	TOTAL CY2008	493.061	71.961	554.280	10.913	663.364

S nce future year budgets were not read y ava ab e, actua 2001 a r em ss ons nventor es for the count es were used as an approx mat on of the reg ona nventory. Because A ternat ve 2, Route B s severa orders of magn tude be ow s gn f cance, the conc us on wou d be the same, regard ess of whether future year budget data set were used.

Brownsville-Laredo Intrastate AQCR

	Point and Area Sources Combined				
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
2001	44,137	73,577	317,422	2,940	132,788

Source: USEPA-A rData NET T er Report (http://www.epa.gov/a r/data/geose .htm). S te v s ted on 15 October 2007.

Determination Significance (Significance Threshold = 10%) for Construction Activities

	Point and Area Sources Combined				
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
M n mum - 2001	44,137	73,577	317,422	2,940	132,788
2008 Em ss ons	493.061	71.961	554.280	10.913	663.364
A ternat ve 2, Route B %	**1.117%**	**0.098%**	**0.175%**	**0.371%**	**0.500%**

BW1 FOIA CBP 001160

Construction Combustion Emissions for CY 2008

Combust on Em ss ons of VOC, NO_x, SO_2, CO and PM_{10} Due to Construct on

Inc udes:

100% of Construct Pedestr an Fence and Patro Road 22,125,312 ft^2

Assumpt ons:

Tota ground d sturbance for pedestr an fence and patro road wou d be 69.84 m es ong by 60 feet w de (22,125,312 ft^2).
A ternat ve 2
Patro road wou d be graded and ned w th grave . No pav ng wou d be nc uded n A ternat ve 2, Route B.
Construct on wou d occur between March and December 2008 for a tota of 190 work ng days.

Tota Bu d ng Construct on Area:	0 ft^2	(none)
Tota Demo shed Area:	0 ft^2	(none)
Tota Paved Area:	0 ft^2	(none)
Tota D sturbed Area:	22,125,312 ft^2	
Construct on Durat on:	1.0 year(s)	
Annua Construct on Act v ty:	190 days/yr	

BW1 FOIA CBP 001161

Emissions Factors Used for Construction Equipment

Reference: Gu de to A r Qua ty Assessment, SMAQMD, 2004

Em ss ons factors are taken from Tab e 3-2. Assumpt ons regard ng the type and number of equ pment are from Tab e 3-1 un ess otherw se noted.

Grading

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Bu dozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	3	60.51	9.02	70.69	1.21	2.03

Paving

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Ro er	1	5.01	0.86	7.34	0.10	0.14
Tota per 10 acres of act v ty	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Hau Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equ pment[d]	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Stat onary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industr a Saw	1	17.02	2.12	14.52	0.34	0.68
We der	1	4.48	0.56	3.83	0.09	0.18
Mob e (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Fork ft	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Tota per 10 acres of act v ty	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tab es are on fo ow ng page

BW1 FOIA CBP 001162

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emissions factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not provide SO_2 emissions factors. For this worksheet, SO_2 emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO_2 factor was found to be approximately 0.04 times the NOx emissions factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emissions factor for all other equipment (based on AP-42, Table 3.4-1)

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSIONS FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emissions Factors (lb/day)				
		NO_x	VOC	CO	SO_2**	PM_{10}
Grading Equipment	51	156746.864	23365.670	183117.432	3134.937	5258.571
Paving Equipment	1	0.000	0.000	0.000	0.000	0.000
Demolition Equipment	1	0.000	0.000	0.000	0.000	0.000
Building Construction	1	0.000	0.000	0.000	0.000	0.000
Air Compressor for Architectural Coating	1	0.000	0.000	0.000	0.000	0.000
Architectural Coating**			0.000			

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emissions factors are from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emissions Factor for Grading Equipment NOx = (Total Grading NOx per 10 ac*((total disturbed area/43560)/10))*(Equipment Multiplier)

BW1 FOIA CBP 001163

Summary of Input Parameters

	Tota Area (ft^2)	Tota Area (acres)	Tota Days	
Grad ng:	22,125,312	507.93	6	(from "CY2008 Grad ng" worksheet)
Pav ng:	0	0.00	0	
Demo t on:	0	0.00	0	
Bu d ng Construct on:	0	0.00	0	
Arch tectura Coat ng	0	0.00	0	(per the SMAQMD "A r Qua ty of Thresho ds of S gn f cance", 1994)

NOTE: The 'Tota Days' est mate for pav ng s ca cu ated by d v d ng the tota number of acres by 0.21 acres/day, wh ch s a factor der ved from the 2005 MEANS Heavy Construct on Cost Data, 19th Ed t on, for 'Aspha t c Concrete Pavement, Lots and Dr veways - 6" stone base', wh ch prov des an est mate of square feet paved per day. There s a so an est mate for 'P a n Cement Concrete Pavement', however the est mate for aspha t s used because t s more conservat ve. The 'Tota 'Days' est mate for demo t on s ca cu ated by d v d ng the tota number of acres by 0.02 acres/day, wh ch s a factor a so der ved from the 2005 MEANS reference. Th s s ca cu ated by averag ng the demo t on est mates from 'Bu d ng Demo t on - Sma Bu d ngs, Concrete', assum ng a he ght of 30 feet for a two-story bu d ng; from 'Bu d ng Foot ngs and Foundat ons Demo t on - 6" Th ck, P a n Concrete'; and from 'Demo sh, Remove Pavement and Curb - Concrete to 6" th ck, rod re nforced'. Pav ng s doub e-we ghted s nce projects typ ca y nvo ve more pav ng demo t on. The 'Tota Days' est mate for bu d ng construct on s assumed to be 230 days, un ess project-spec f c data s known.

Total Project Emissions by Activity (lbs)

	NO_x	VOC	CO	SO_2	PM_{10}
Grad ng Equ pment	940,481.19	140,194.02	1,098,704.59	18,809.62	31,551.43
Pav ng	-	-	-	-	-
Demo t on	-	-	-	-	-
Bu d ng Construct on	-	-	-	-	-
Arch tectura Coat ngs	-	-	-	-	-
Total Emissions (lbs):	**940,481.19**	**140,194.02**	**1,098,704.59**	**18,809.62**	**31,551.43**

Results: Total Project Annual Emissions Rates

	NO_x	VOC	CO	SO_2	PM_{10}
Tota Project Em ss ons (bs)	940,481.19	140,194.02	1,098,704.59	18,809.62	31,551.43
Tota Project Em ss ons (tons)	470.24	70.10	549.35	9.40	15.78

CO2 Em ss ons

BW1 FOIA CBP 001164

Construction Fugitive Dust Emissions for CY 2008

Ca cu at on of PM_{10} Em ss ons Due to S te Preparat on (Uncontro ed).

User Input Parameters / Assumpt ons

Acres graded per year:	507.93	acres/yr	(From "CY2008 Combust on" worksheet)
Grad ng days/yr:	5.56	days/yr	(From "CY2008 Grad ng worksheet)
Exposed days/yr:	90	assumed days/yr graded area s exposed	
Grad ng Hours/day:	8	hr/day	
So p es area fract on:	0.10	(assumed fract on of s te area covered by so p es)	
So percent s t, s:	8.5	%	(mean s t content; expected range: 0.56 to 23, AP-42 Tab e 13.2.2-1)
So percent mo sture, M:	85	%	(http://www.cpc.noaa.gov/products/so mst/w.shtm)
Annua ra nfa days, p:	70	days/yr ra nfa exceeds 0.01 nch/day (AP-42 F g 13.2.2-1)	
W nd speed > 12 mph %, I:	39.5	%	Ave. of w nd speed at Brownsv e, TX (ftp://ftp.wcc.nrcs.usda.gov/down oads/c mate/w ndrose/texas/brownsv e/)
Fract on of TSP, J:	0.5	per Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993, p. A9-99	
Mean veh c e speed, S:	5	m /hr	(On-s te)
Dozer path w dth:	8	ft	
Qty construct on veh c es:	152.38	veh c es	(From "CY2008 Grad ng worksheet)
On-s te VMT/veh c e/day:	5	m /veh/day	(Exc ud ng bu dozer VMT dur ng grad ng)
PM_{10} Adjustment Factor k	1.5	b/VMT	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor a	0.9	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor b	0.45	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
Mean Veh c e We ght W	40	tons	assumed for aggregate trucks

TSP - Tota Suspended Part cu ate
VMT - Veh c e M es Trave ed

BW1 FOIA CBP 001165

Emissions Due to Soil Disturbance Activities

Operat on Parameters (Ca cu ated from User Inputs)

Grad ng durat on per acre	0.1	hr/acre	
Bu dozer m eage per acre	1	VMT/acre	(M es trave ed by bu dozer dur ng grad ng)
Construct on VMT per day	762	VMT/day	
Construct on VMT per acre	8.3	VMT/acre	(Trave on unpaved surfaces w th n s te)

Equat ons Used (Corrected for PM10)

Operat on	Emp r ca Equat on	Un ts	AP-42 Sect on (5th Ed t on)
Bu doz ng	$0.75(s^{1.5})/(M^{1.4})$	bs/hr	Tab e 11.9-1, Overburden
Grad ng	$(0.60)(0.051)s^{2.0}$	bs/VMT	Tab e 11.9-1,
Veh c e Traff c (unpaved roads)	$[(k(s/12)^{a} (W/3)^{b})]$ [(365-P)/365]	bs/VMT	Sect on 13.2.2

Source: Comp at on of A r Po utant Em ss ons Factors, Vo . I, USEPA AP-42, Sect on 11.9 dated 10/98 and Sect on 13.2 dated 12/03

Ca cu at on of PM_{10} Em ss ons Factors for Each Operat on

Operat on	Em ss ons Factor (mass/ un t)	Operat on Parameter	Em ss ons Factor (bs/ acre)
Bu doz ng	0.04 bs/hr	0.1 hr/acre	0.00 bs/acre
Grad ng	0.77 bs/VMT	1 VMT/acre	0.80 bs/acre
Veh c e Traff c (unpaved roads)	2.85 bs/VMT	8.3 VMT/acre	23.70 bs/acre

BW1 FOIA CBP 001166

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993.

So P es EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

So P es EF = 15.9 bs/day/acre covered by so p es

Cons der so p es area fract on so that EF app es to graded area

So p es area fract on: 0.10 (Fract on of s te area covered by so p es)
So P es EF = 1.59 bs/day/acres graded

Graded Surface EF = 26.4 bs/day/acre (recommended n CEQA Manua , p. A9-93).

Calculation of Annual PM_{10} Emissions

Source	Em ss ons Factor	Graded Acres/yr	Exposed days/yr	Em ss ons bs/yr	Em ss ons tons/yr
Bu doz ng	0.00 bs/acre	507.93	NA	0	0.000
Grad ng	0.80 bs/acre	507.93	NA	406	0.203
Veh c e Traff c	23.70 bs/acre	507.93	NA	12,038	6.019
Eros on of So P es	1.59 bs/acre/day	507.93	90	72,684	36.342
Eros on of Graded Surface	26.40 bs/acre/day	507.93	90	1,206,835	603.418
TOTAL				1,291,964	645.98

So D sturbance EF: 24.50 bs/acre
W nd Eros on EF: 27.99 bs/acre/day

Back ca cu ate to get EF: 457.26 bs/acre/grad ng day

BW1 FOIA CBP 001167

Construction (Grading) Schedule for CY 2008

Est mate of t me requ red to grade a spec f ed area.

Input Parameters
Construct on area: 507.93 acres/yr (from "CY2008 Combust on" Worksheet)
Qty Equ pment: 152.38 (ca cu ated based on 3 p eces of equ pment for every 10 acres)

Assumpt ons.
Terra n s most y f at.
An average of 6" so s excavated from one ha f of the s te and backf ed to the other ha f of the s te; no so s hau ed off-s te or borrowed.
200 hp bu dozers are used for s te c ear ng.
300 hp bu dozers are used for str pp ng, excavat on, and backf .
V bratory drum ro ers are used for compact ng.
Str pp ng, Excavat on, Backf and Compact on requ re an average of two passes each.
Excavat on and Backf are assumed to nvo ve on y ha f of the s te.

Ca cu at on of days requ red for one p ece of equ pment to grade the spec f ed area.

Reference: Means Heavy Construct on Cost Data, 19th Ed., R. S. Means, 2005.

Means L ne No.	Operat on	Descr pt on	Output	Un ts	Acres per equ p-day)	equ p-days per acre	Acres/yr (project-spec f c)	Equ p-days per year
2230 200 0550	S te C ear ng	Dozer & rake, med um brush	8	acre/day	8	0.13	507.93	63.49
2230 500 0300	Str pp ng	Topso & stockp ng, adverse so	1,650	cu. yd/day	2.05	0.49	507.93	248.32
2315 432 5220	Excavat on	Bu k, open s te, common earth, 150' hau	800	cu. yd/day	0.99	1.01	253.96	256.08
2315 120 5220	Backf	Structura , common earth, 150' hau	1,950	cu. yd/day	2.42	0.41	253.96	105.06
2315 310 5020	Compact on	V brat ng ro er, 6 " fts, 3 passes	2,300	cu. yd/day	2.85	0.35	507.93	178.14
TOTAL								851.09

Ca cu at on of days requ red for the nd cated p eces of equ pment to grade the des gnated acreage.

(Equ p)(day)/yr: 851.09
Qty Equ pment: 153.00
Grad ng days/yr: 5.56

BW1 FOIA CBP 001168

Maintenance Activities Emissions for CY 2008

Combust on Em ss ons of VOC, NO_x, SO_2, CO and PM_{10} Due to Ma ntenance Act v t es

The fence ne and patro road wou d requ re mow ng approx mate y two t mes per year to ma nta n vegetat on he ght and a ow enhanced v s b ty and secur ty.

Assumpt ons:
Approx mate y 507.93 acres of and wou d be mowed tw ce per year.
Two agr cu tura mowers (40 horsepower) wou d operate for approx mate y 14 days.
Each work ng day wou d be 8 hours.
Agr cu tura mowers operate at 43% oad capac ty (17.2 horsepower).

Emissions Factors Used for Maintenance Equipment

Reference: USAF IERA "A r Em ss ons Inventory Gu dance", Ju y 2001, Tab e 7-6. Cr ter a Po utant Em ss ons Factors for Nonroad D ese Eng nes.

			Em ss ons Factors						
Equ pment	Rated Power (hp)	Load ng Factor (% of Max Power)	Operat ng T me (hr/yr)	BSFC (b/hp-hr)	NO_x (g/hp-hr)	VOC (g/hp-hr)	CO (g/hp-hr)	SO_2 (g/hp-hr)	PM_{10} (g/hp-hr)
Agr cu tura Mower (D ese)	40	43	224	0.408	5.0	0.6	2.5	1.19	0.6

BSFC = Brake Spec f c Fue Consumpt on

Results: Total Maintenance Annual Emissions Rates

	NO_x	VOC	CO	SO_2	PM_{10}
Tota Ma ntenance Em ss ons (bs)	84.954	10.195	42.477	20.219	10.195
Tota Ma ntenance Em ss ons (tons)	0.042	0.005	0.021	0.010	0.005

Examp e:
Tota Ma ntenance Em ss ons (bs of NO_x) =
(Rated power output of equ pment eng ne)*(Load ng Factor/100)*(Operat ng T me)*(Number of Equ pment)*(Em ss ons Factor)*(Convers on factor)

Tota Ma ntenance Em ss ons (bs of NO_x) = (40 hp)*(43/100)*(224 hr/yr)*(2 Equ pment)*(5.0 g/hp-hr)*(0.002205 b/g) = 84.95 bs/yr

BW1 FOIA CBP 001169

Emissions from Diesel Powered Generators for Construction Equipment

A ternat ve 2, Route B wou d requ re s x d ese powered generators to power construct on equ pment. These generators wou d operate approx mate y 8 hours per day for 190 work ng days.

Number of Generators	6	
Max mum Hours of Operat on	8	hrs/day
Number of Construct on Days	190	
Tota Generator Capac ty	75	hp
Hour y Rate	0.5262	MMBtu/hr
Annua Use	4,799	MMBtu/yr

Examp e: 1hp=0.002546966 MMBtu/Hr
Hour y Rate (MMBtu) = (75 Hp/0.363)*(0.002546699 MMBtu/hr) =0.5262 MMBtu/hr
Annua Use (MMBtu) = (Number of Generator * Hours Operat on/Day * Number of Construct on Days) = (6*8*190*0.5262) = 4,799 MMBtu/yr

Note: Generators horsepower output capac ty s on y 0.363 percent eff c ent (AP-42 Chapter 3.3).
Source: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

Generator Em ss ons Factors (D ese)

NO_x	4.41	b/MMBtu
VOC	0.36	b/MMBtu
CO	0.95	b/MMBtu
SO_x	0.29	b/MMBtu
PM_{10}	0.31	b/MMBtu

Em ss ons (D ese)

NO_x	10.581	tpy
VOC	0.864	tpy
CO	2.279	tpy
SO_x	0.696	tpy
PM_{10}	0.744	tpy

Examp e: Tota NOx Em ss ons = (Annua MMBtu/year*(EF)/2000 = (4,799*4.41)/2000 = 10.581 tpy

Source: Em ss ons Factors: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

BW1 FOIA CBP 001170

Emissions from Diesel Powered Generators for Portable Lights

To be conservat ve, t was assumed that up to 30 portab e ght un ts wou d be needed for construct on. These portab e ghts are powered by 6-k owatt se f-conta ned d ese generators. Portab e ghts wou d genera y operate cont nuous y every n ght (approx mate y 12 hours) 365 days per year.

Number of Generators	30	
Max mum Hours of Operat on	12	hrs/day
Number of Construct on Days	365	

Tota Generator Capac ty	6	hp
Hour y Rate	0.0421	MMBtu/hr
Annua Use	5,531	MMBtu/yr

Examp e: 1hp=0.002546966 MMBtu/Hr
Hour y Rate (MMBtu) = (75 Hp/0.363)*(0.002546699 MMBtu/hr) =0.5262 MMBtu/hr
Annua Use (MMBtu) = (Number of Generator * Hours Operat on/Day * Number of Construct on Days) = (6*8*190*0.5262) = 4,799 MMBtu/yr

Note: Generators horsepower output capac ty s on y 0.363 percent eff c ent (AP-42 Chapter 3.3).
Source: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

Generator Em ss ons Factors (D ese)

NO_x	4.41	b/MMBtu
VOC	0.36	b/MMBtu
CO	0.95	b/MMBtu
SO_x	0.29	b/MMBtu
PM_{10}	0.31	b/MMBtu

Em ss ons (D ese)

NO_x	12.196	tpy
VOC	0.996	tpy
CO	2.627	tpy
SO_x	0.802	tpy
PM_{10}	0.857	tpy

Examp e: Tota NOx Em ss ons = (Annua MMBtu/year*(EF)/2000 = (5,531*4.41)/2000 = 12.196 tpy

Source: Em ss ons Factors: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

BW1 FOIA CBP 001171

Brownsville-Laredo Intrastate Air Quality Control Region

			Area Source Em ss ons						Po nt Source Em ss ons					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	TX	Cameron Co	84,539	10,659	36,197	6,679	849	15,988	386	1,169	149	111	136	516
2	TX	H da go Co	145,505	17,041	61,198	11,285	1,161	27,056	4,064	2,697	319	313	41	773
3	TX	J m Hogg Co	1,621	110	1,229	291	18.5	763	77.3	293	3.32	3.32	0.08	50
4	TX	Starr Co	17,040	2,251	12,645	2,259	141	4,287	433	1,144	0.47	0.42	30.4	215
5	TX	Webb Co	47,946	5,122	9,943	2,380	376	13,764	755	1,128	36.7	35.6	25.2	124
6	TX	W acy Co	9,021	1,371	9,238	1,777	121	2,753	144	253	1.61	1.61	0.02	49.6
7	TX	Zapata Co	5,466	396	1,828	477	40.1	7,134	425	503	0.18	0.17	0.21	104
Grand Tota			311,138	36,950	132,278	25,148	2,707	71,745	6,284	7,187	510	465	233	1,832

SOURCE:
http://www.epa.gov/a r/data/geose .htm
USEPA - A rData NET T er Report
*Net A r po ut on sources (area and po nt) n tons per year (2001)
S te v s ted on 15 October 2007.

Brownsv e-Laredo Intrastate AQCR (40 CFR 81.135):
In the State of Texas: Cameron County, H da go County, J m Hogg County, Starr County, Webb County, W acy County, Zapata County

BW1 FOIA CBP 001172

Summary	Summar zes tota em ss ons by ca endar year.
Combustion	Est mates em ss ons from non-road equ pment exhaust as we as pa nt ng.
Fugitive	Est mates f ne part cu ate em ss ons from earthmov ng, veh c e traff c, and w ndb own dust
Grading	Est mates the number of days of s te preparat on, to be used for est mat ng heavy equ pment exhaust and earthmov ng dust em ss ons
Maintenance Emissions	Est mates the tota em ss ons from future ma ntenance of fence nes and patro roads from mowers.
Generator Emissions	Est mates the tota em ss ons from emergency generators to power construct on equ pment.
AQCR Tier Report	Summar zes tota em ss ons for the Brownsv e-Laredo Intrastate AQCR T er Reports for 2001, to be used to compare project to reg ona em ss ons.

BW1 FOIA CBP 001173

Air Quality Emissions from Alternative 3

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)
CY2008	Construct on Combust on	2,927.478	436.388	3,419.987	58.550	98.212
	Construct on Fug t ve Dust	-	-	-	-	1,615.145
	Ma ntenance Em ss ons	0.127	0.015	0.064	0.030	0.015
	Generator Em ss ons	22.777	1.859	4.907	1.498	1.601
	TOTAL CY2008	2,950.383	438.263	3,424.958	60.078	1,714.973

S nce future year budgets were not read y ava ab e, actua 2001 a r em ss ons nventor es for the count es were used as an approx mat on of the reg ona nventory. Because A ternat ve 3 s severa orders of magn tude be ow s gn f cance, the conc us on wou d be the same, regard ess of whether future year budget data set were used.

Brownsville-Laredo Intrastate AQCR

	Point and Area Sources Combined				
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
2001	44,137	73,577	317,422	2,940	132,788

Source: USEPA-A rData NET T er Report (http://www.epa.gov/a r/data/geose .htm). S te v s ted on 15 October 2007.

Determination Significance (Significance Threshold = 10%) for Construction Activities

	Point and Area Sources Combined				
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
M n mum - 2001	44,137	73,577	317,422	2,940	132,788
2008 Em ss ons	2,950.383	438.263	3,424.958	60.078	1,714.973
A ternat ve 3 %	**6.685%**	**0.596%**	**1.079%**	**2.044%**	**1.292%**

BW1 FOIA CBP 001174

Construction Combustion Emissions for CY 2008

Combust on Em ss ons of VOC, NO_x, SO_2, CO and PM_{10} Due to Construct on

Inc udes:

100% of Construct Pedestr an Fences and Patro Road	55,313,280	ft²

Assumpt ons:

Tota ground d sturbance for pedestr an fence and patro road wou d be 69.84 m es ong by 150 feet w de (55,313,280 ft ^{2}).
No grad ng wou d be requ red n construct on stag ng areas.
Patro road wou d be graded and ned w th grave . No pav ng wou d be nc uded n A ternat ve 3.
Construct on wou d occur between March and December 2008 for a tota of 190 work ng days.

Tota Bu d ng Construct on Area:	0	ft²	(none)
Tota Demo shed Area:	0	ft²	(none)
Tota Paved Area:	0	ft²	(none)
Tota D sturbed Area:	55,313,280	ft²	
Construct on Durat on:	1.0	year(s)	
Annua Construct on Act v ty:	190	days/yr	

BW1 FOIA CBP 001175

Emissions Factors Used for Construction Equipment

Reference: Gu de to A r Qua ty Assessment, SMAQMD, 2004

Em ss ons factors are taken from Tab e 3-2. Assumpt ons regard ng the type and number of equ pment are from Tab e 3-1 un ess otherw se noted.

Grading

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Bu dozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	3	60.51	9.02	70.69	1.21	2.03

Paving

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Ro er	1	5.01	0.86	7.34	0.10	0.14
Tota per 10 acres of act v ty	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Hau Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equ pment[d]	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Stat onary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industr a Saw	1	17.02	2.12	14.52	0.34	0.68
We der	1	4.48	0.56	3.83	0.09	0.18
Mob e (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Fork ft	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Tota per 10 acres of act v ty	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tab es are on fo ow ng page

BW1 FOIA CBP 001176

Architectural Coatings

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
A r Compressor	1	6.83	0.85	5.82	0.14	0.27
Tota per 10 acres of act v ty	1	6.83	0.85	5.82	0.14	0.27

a) The SMAQMD 2004 gu dance suggests a defau t equ pment f eet for each act v t y, assum ng 10 acres of that act v ty, (e.g., 10 acres of grad ng, 10 acres of pav ng, etc.). The defau t equ pment f eet s ncreased for each 10 acre ncrement n the s ze of the construct on project. That s, a 26 acre project wou d round to 30 acres and the f eet s ze wou d be three t mes the defau t f eet for a 10 acre project.

b) The SMAQMD 2004 reference sts em ss ons factors for react ve organ c gas (ROG). For the purposes of th s worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not prov de SO_2 em ss ons factors. For th s worksheet, SO_2 em ss ons have been est mated based on approx mate fue use rate for d ese equ pment and the assumpt on of 500 ppm su fur d ese fue . For the average of the equ pment f eet, the resu t ng SO_2 factor was found to be approx mate y 0.04 t mes the NOx em ss ons factor for the mob e equ pment (based upon 2002 USAF IERA "A r Em ss ons Inventory Gu dance") and 0.02 t mes the NOx em ss ons factor for a other equ pment (based on AP-42, Tab e 3.4-1)

d) Typ ca equ pment f eet for bu d ng construct on was not tem zed n SMAQMD 2004 gu dance. The equ pment st above was assumed based on SMAQMD 1994 gu dance.

PROJECT-SPECIFIC EMISSIONS FACTOR SUMMARY

Source	Equ pment Mu t p er*	SMAQMD Em ss ons Factors (b/day)				
		NO_x	VOC	CO	SO_2**	PM_{10}
Grad ng Equ pment	127	975826.067	145462.752	1139995.780	19516.521	32737.183
Pav ng Equ pment	1	0.000	0.000	0.000	0.000	0.000
Demo t on Equ pment	1	0.000	0.000	0.000	0.000	0.000
Bu d ng Construct on	1	0.000	0.000	0.000	0.000	0.000
A r Compressor for Arch tectura Coat ng	1	0.000	0.000	0.000	0.000	0.000
Arch tectura Coat ng**			0.000			

*The equ pment mu t p er s an nteger that represents un ts of 10 acres for purposes of est mat ng the number of equ pment requ red for the project

**Em ss ons factor s from the evaporat on of so vents dur ng pa nt ng, per "A r Qua ty Thresho ds of S gn f cance", SMAQMD, 1994

Examp e: SMAQMD Em ss ons Factor for Grad ng Equ pment NOx = (Tota Grad ng NOx per 10 ac*((tota d sturbed area/43560)/10))*(Equ pment Mu t p er)

BW1 FOIA CBP 001177

Summary of Input Parameters

	Tota Area (ft^2)	Tota Area (acres)	Tota Days	
Grad ng:	55,313,280	1,269.82	6	(from "CY2008 Grad ng" worksheet)
Pav ng:	0	0.00	0	
Demo t on:	0	0.00	0	
Bu d ng Construct on:	0	0.00	0	
Arch tectura Coat ng	0	0.00	0	(per the SMAQMD "A r Qua ty of Thresho ds of S gn f cance", 1994)

NOTE: The 'Tota Days' est mate for pav ng s ca cu ated by d v d ng the tota number of acres by 0.21 acres/day, wh ch s a factor der ved from the 2005 MEANS Heavy Construct on Cost Data, 19th Ed t on, for 'Aspha t c Concrete Pavement, Lots and Dr veways - 6" stone base', wh ch prov des an est mate of square feet paved per day. There s a so an est mate for 'P a n Cement Concrete Pavement', however the est mate for aspha t s used because t s more conservat ve. The 'Tota 'Days' est mate for demo t on s ca cu ated by d v d ng the tota number of acres by 0.02 acres/day, wh ch s a factor a so der ved from the 2005 MEANS reference. Th s s ca cu ated by averag ng the demo t on est mates from 'Bu d ng Demo t on - Sma Bu d ngs, Concrete', assum ng a he ght of 30 feet for a two-story bu d ng; from 'Bu d ng Foot ngs and Foundat ons Demo t on - 6" Th ck, P a n Concrete'; and from 'Demo sh, Remove Pavement and Curb - Concrete to 6" th ck, rod re nforced'. Pav ng s doub e-we ghted s nce projects typ ca y nvo ve more pav ng demo t on. The 'Tota Days' est mate for bu d ng construct on s assumed to be 230 days, un ess project-spec f c data s known.

Total Project Emissions by Activity (lbs)

	NO_x	VOC	CO	SO_2	PM_{10}
Grad ng Equ pment	5,854,956.40	872,776.51	6,839,974.68	117,099.13	196,423.10
Pav ng	-	-	-	-	-
Demo t on	-	-	-	-	-
Bu d ng Construct on	-	-	-	-	-
Arch tectura Coat ngs	-	-	-	-	-
Total Emissions (lbs):	**5,854,956.40**	**872,776.51**	**6,839,974.68**	**117,099.13**	**196,423.10**

Results: Total Project Annual Emissions Rates

	NO_x	VOC	CO	SO_2	PM_{10}
Tota Project Em ss ons (bs)	5,854,956.40	872,776.51	6,839,974.68	117,099.13	196,423.10
Tota Project Em ss ons (tons)	2,927.48	436.39	3,419.99	58.55	98.21

CO2 Em ss ons

It s assumed that 75 veh c es cons st ng of bu dozer, grader, fork ft, cranes, ro ers, and ght duty trucks wou d be usefor th s project.

It s further assumed that the tota approx mate average m es per day per veh c e wou d be 10 m es

It s assumed that the average veh c e w produce 19.5 pounds of CO2 per ga on of gas used. (www.e a.doe.gov/o af/1605/coeff c ents)

75 veh c es x 10 m es/day/veh c e x 190 days work ng x 1 ga /10 m es x 19.5 b co2/ga x ton/2000 b = 137.5 tons CO2

Est mate em ss ons of CO2 for BLIAQCR reg on s 995,000 tons per year

BW1 FOIA CBP 001178

Construction Fugitive Dust Emissions for CY 2008

Ca cu at on of PM_{10} Em ss ons Due to S te Preparat on (Uncontro ed).

User Input Parameters / Assumpt ons

Acres graded per year:	1269.82	acres/yr	(From "CY2008 Combust on" worksheet)
Grad ng days/yr:	5.59	days/yr	(From "CY2008 Grad ng worksheet)
Exposed days/yr:	90	assumed days/yr graded area s exposed	
Grad ng Hours/day:	8	hr/day	
So p es area fract on:	0.10	(assumed fract on of s te area covered by so p es)	
So percent s t, s:	8.5	%	(mean s t content; expected range: 0.56 to 23, AP-42 Tab e 13.2.2-1)
So percent mo sture, M:	85	%	(http://www.cpc.noaa.gov/products/so mst/w.shtm)
Annua ra nfa days, p:	70	days/yr ra nfa exceeds 0.01 nch/day (AP-42 F g 13.2.2-1)	
W nd speed > 12 mph %, I:	39.5	%	Ave. of w nd speed at Brownsv e, TX (ftp://ftp.wcc.nrcs.usda.gov/down oads/c mate/w ndrose/texas/brownsv e/)
Fract on of TSP, J:	0.5	per Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993, p. A9-99	
Mean veh c e speed, S:	5	m /hr	(On-s te)
Dozer path w dth:	8	ft	
Qty construct on veh c es:	380.95	veh c es	(From "CY2008 Grad ng worksheet)
On-s te VMT/veh c e/day:	5	m /veh/day	(Exc ud ng bu dozer VMT dur ng grad ng)
PM_{10} Adjustment Factor k	1.5	b/VMT	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor a	0.9	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor b	0.45	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
Mean Veh c e We ght W	40	tons	assumed for aggregate trucks

TSP - Tota Suspended Part cu ate
VMT - Veh c e M es Trave ed

BW1 FOIA CBP 001179

Emissions Due to Soil Disturbance Activities

Operat on Parameters (Ca cu ated from User Inputs)

Grad ng durat on per acre	0	hr/acre	
Bu dozer m eage per acre	1	VMT/acre	(M es trave ed by bu dozer dur ng grad ng)
Construct on VMT per day	1905	VMT/day	
Construct on VMT per acre	8.4	VMT/acre	(Trave on unpaved surfaces w th n s te)

Equat ons Used (Corrected for PM10)

Operat on	Emp r ca Equat on	Un ts	AP-42 Sect on (5th Ed t on)
Bu doz ng	$0.75(s^{1.5})/(M^{1.4})$	bs/hr	Tab e 11.9-1, Overburden
Grad ng	$(0.60)(0.051)s^{2.0}$	bs/VMT	Tab e 11.9-1,
Veh c e Traff c (unpaved roads)	$[(k(s/12)^{a} (W/3)^{b})]$ [(365-P)/365]	bs/VMT	Sect on 13.2.2

Source: Comp at on of A r Po utant Em ss ons Factors, Vo . I, USEPA AP-42, Sect on 11.9 dated 10/98 and Sect on 13.2 dated 12/03

Ca cu at on of PM_{10} Em ss ons Factors for Each Operat on

Operat on	Em ss ons Factor (mass/ un t)	Operat on Parameter	Em ss ons Factor (bs/ acre)
Bu doz ng	0.04 bs/hr	0 hr/acre	0.00 bs/acre
Grad ng	0.77 bs/VMT	1 VMT/acre	0.80 bs/acre
Veh c e Traff c (unpaved roads)	2.85 bs/VMT	8.4 VMT/acre	24.00 bs/acre

BW1 FOIA CBP 001180

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993.

So P es EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

So P es EF = 15.9 bs/day/acre covered by so p es

Cons der so p es area fract on so that EF app es to graded area

So p es area fract on: 0.10 (Fract on of s te area covered by so p es)
So P es EF = 1.59 bs/day/acres graded

Graded Surface EF = 26.4 bs/day/acre (recommended n CEQA Manua , p. A9-93).

Calculation of Annual PM_{10} Emissions

Source	Em ss ons Factor	Graded Acres/yr	Exposed days/yr	Em ss ons bs/yr	Em ss ons tons/yr
Bu doz ng	0.00 bs/acre	1269.82	NA	0	0.000
Grad ng	0.80 bs/acre	1269.82	NA	1,016	0.508
Veh c e Traff c	24.00 bs/acre	1269.82	NA	30,476	15.238
Eros on of So P es	1.59 bs/acre/day	1269.82	90	181,711	90.855
Eros on of Graded Surface	26.40 bs/acre/day	1269.82	90	3,017,088	1,508.544
TOTAL				3,230,290	1,615.15

So D sturbance EF: 24.80 bs/acre
W nd Eros on EF: 27.99 bs/acre/day

Back ca cu ate to get EF: 455.46 bs/acre/grad ng day

BW1 FOIA CBP 001181

Construction (Grading) Schedule for CY 2008

Est mate of t me requ red to grade a spec f ed area.

Input Parameters
Construct on area: 1,269.82 acres/yr (from "CY2008 Combust on" Worksheet)
Qty Equ pment: 380.95 (ca cu ated based on 3 p eces of equ pment for every 10 acres)

Assumpt ons.
Terra n s most y f at.
An average of 6" so s excavated from one ha f of the s te and backf ed to the other ha f of the s te; no so s hau ed off-s te or borrowed.
200 hp bu dozers are used for s te c ear ng.
300 hp bu dozers are used for str pp ng, excavat on, and backf .
V bratory drum ro ers are used for compact ng.
Str pp ng, Excavat on, Backf and Compact on requ re an average of two passes each.
Excavat on and Backf are assumed to nvo ve on y ha f of the s te.

Ca cu at on of days requ red for one p ece of equ pment to grade the spec f ed area.

Reference: Means Heavy Construct on Cost Data, 19th Ed., R. S. Means, 2005.

Means L ne No.	Operat on	Descr pt on	Output	Un ts	Acres per equ p-day)	equ p-days per acre	Acres/yr (project-spec f c)	Equ p-days per year
2230 200 0550	S te C ear ng	Dozer & rake, med um brush	8	acre/day	8	0.13	1269.82	158.73
2230 500 0300	Str pp ng	Topso & stockp ng, adverse so	1,650	cu. yd/day	2.05	0.49	1269.82	620.80
2315 432 5220	Excavat on	Bu k, open s te, common earth, 150' hau	800	cu. yd/day	0.99	1.01	634.91	640.20
2315 120 5220	Backf	Structura , common earth, 150' hau	1,950	cu. yd/day	2.42	0.41	634.91	262.65
2315 310 5020	Compact on	V brat ng ro er, 6 " fts, 3 passes	2,300	cu. yd/day	2.85	0.35	1269.82	445.36
TOTAL								2127.73

Ca cu at on of days requ red for the nd cated p eces of equ pment to grade the des gnated acreage.

(Equ p)(day)/yr: 2127.73
Qty Equ pment: 380.95
Grad ng days/yr: 5.59

BW1 FOIA CBP 001182

Maintenance Activities Emissions for CY 2008

Combust on Em ss ons of VOC, NO_x, SO_2, CO and PM_{10} Due to Ma ntenance Act v t es

The fence ne and patro road wou d requ re mow ng approx mate y two t mes per year to ma nta n vegetat on he ght and a ow enhanced v s b ty and secur ty.

Assumpt ons:
Approx mate y 1,269.82 acres of and wou d be mowed tw ce per year.
S x agr cu tura mowers (40 horsepower) wou d operate for approx mate y 14 days.
Each work ng day wou d be 8 hours.
Agr cu tura mowers operate at 43% oad capac ty (17.2 horsepower).

Emission Factors Used for Maintenance Equipment

Reference: USAF IERA "A r Em ss ons Inventory Gu dance", Ju y 2001, Tab e 7-6. Cr ter a Po utant Em ss on Factors for Nonroad D ese Eng nes.

				Em ss on Factors					
Equ pment	Rated Power (hp)	Load ng Factor (% of Max Power)	Operat ng T me (hr/yr)	BSFC (b/hp-hr)	NO_x (g/hp-hr)	VOC (g/hp-hr)	CO (g/hp-hr)	SO_2 (g/hp-hr)	PM_{10} (g/hp-hr)
Agr cu tura Mower (D ese)	40	43	224	0.408	5.0	0.6	2.5	1.19	0.6

BSFC = Brake Spec f c Fue Consumpt on

Results: Total Maintenance Annual Emission Rates

	NO_x	VOC	CO	SO_2	PM_{10}
Tota Ma ntenance Em ss ons (bs)	254.863	30.584	127.431	60.657	30.584
Tota Ma ntenance Em ss ons (tons)	0.127	0.015	0.064	0.030	0.015

Examp e:
Tota Ma ntenance Em ss ons (bs of NO_x) =
(Rated power output of equ pment eng ne)*(Load ng Factor/100)*(Operat ng T me)*(Number of Equ pment)*(Em ss on Factor)*(Convers on factor)

Tota Ma ntenance Em ss ons (bs of NO_x) = (40 hp)*(43/100)*(224 hr/yr)*(2 Equ pment)*(5.0 g/hp-hr)*(0.002205 b/g) = 84.95 bs/yr

BW1 FOIA CBP 001183

Emissions from Diesel Powered Generators for Construction Equipment

A ternat ve 3 wou d requ re s x d ese powered generators to power construct on equ pment. These generators wou d operate approx mate y 8 hours per day for 190 work ng days.

Number of Generators	6	
Max mum Hours of Operat on	8	hrs/day
Number of Construct on Days	190	

Tota Generator Capac ty	75	hp
Hour y Rate	0.5262	MMBtu/hr
Annua Use	4,799	MMBtu/yr

Examp e: 1hp=0.002546966 MMBtu/Hr
Hour y Rate (MMBtu) = (75 Hp/0.363)*(0.002546699 MMBtu/hr) =0.5262 MMBtu/hr
Annua Use (MMBtu) = (Number of Generator * Hours Operat on/Day * Number of Construct on Days) = (6*8*190*0.5262) = 4,799 MMBtu/yr

Note: Generators horsepower output capac ty s on y 0.363 percent eff c ent (AP-42 Chapter 3.3).
Source: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

Generator Em ss ons Factors (D ese)

NO_x	4.41	b/MMBtu
VOC	0.36	b/MMBtu
CO	0.95	b/MMBtu
SO_x	0.29	b/MMBtu
PM_{10}	0.31	b/MMBtu

Em ss ons (D ese)

NO_x	10.581	tpy
VOC	0.864	tpy
CO	2.279	tpy
SO_x	0.696	tpy
PM_{10}	0.744	tpy

Examp e: Tota NOx Em ss ons = (Annua MMBtu/year*(EF)/2000 = (4,799*4.41)/2000 = 10.581 tpy
Source: Em ss ons Factors: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

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Emissions from Diesel Powered Generators for Portable Lights

To be conservative, it was assumed that up to 30 portable lighting units would be needed for construction. These portable lights are powered by 6-kilowatt self-contained diesel generators. Portable lights would generally operate continuously every night (approximately 12 hours) 365 days per year.

Number of Generators	30	
Maximum Hours of Operation	12	hrs/day
Number of Construction Days	365	

Total Generator Capacity	6	hp
Hourly Rate	0.0421	MMBtu/hr
Annual Use	5,531	MMBtu/yr

Example: 1hp=0.002546966 MMBtu/Hr
Hourly Rate (MMBtu) = (75 Hp/0.363)*(0.002546699 MMBtu/hr) =0.5262 MMBtu/hr
Annual Use (MMBtu) = (Number of Generator * Hours Operation/Day * Number of Construction Days) = (6*8*190*0.5262) = 4,799 MMBtu/yr

Note: Generators horsepower output capacity is only 0.363 percent efficient (AP-42 Chapter 3.3).
Source: USEPA AP-42 Volume I, Stationary Internal Combustion Sources, Table 3.3-1 (http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf)

Generator Emissions Factors (Diesel)

NO_x	4.41	lb/MMBtu
VOC	0.36	lb/MMBtu
CO	0.95	lb/MMBtu
SO_x	0.29	lb/MMBtu
PM_{10}	0.31	lb/MMBtu

Emissions (Diesel)

NO_x	12.196	tpy
VOC	0.996	tpy
CO	2.627	tpy
SO_x	0.802	tpy
PM_{10}	0.857	tpy

Example: Total NOx Emissions = (Annual MMBtu/year*(EF)/2000 = (5,531*4.41)/2000 = 12.196 tpy

Source: Emissions Factors: USEPA AP-42 Volume I, Stationary Internal Combustion Sources, Table 3.3-1 (http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf)

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Brownsville-Laredo Intrastate Air Quality Control Region

			Area Source Em ss ons						Po nt Source Em ss ons					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	TX	Cameron Co	84,539	10,659	36,197	6,679	849	15,988	386	1,169	149	111	136	516
2	TX	H da go Co	145,505	17,041	61,198	11,285	1,161	27,056	4,064	2,697	319	313	41	773
3	TX	J m Hogg Co	1,621	110	1,229	291	18.5	763	77.3	293	3.32	3.32	0.08	50
4	TX	Starr Co	17,040	2,251	12,645	2,259	141	4,287	433	1,144	0.47	0.42	30.4	215
5	TX	Webb Co	47,946	5,122	9,943	2,380	376	13,764	755	1,128	36.7	35.6	25.2	124
6	TX	W acy Co	9,021	1,371	9,238	1,777	121	2,753	144	253	1.61	1.61	0.02	49.6
7	TX	Zapata Co	5,466	396	1,828	477	40.1	7,134	425	503	0.18	0.17	0.21	104
Grand Tota			311,138	36,950	132,278	25,148	2,707	71,745	6,284	7,187	510	465	233	1,832

SOURCE:
http://www.epa.gov/a r/data/geose .htm
USEPA - A rData NET T er Report
*Net A r po ut on sources (area and po nt) n tons per year (2001)
S te v s ted on 15 October 2007.

Brownsv e-Laredo Intrastate AQCR (40 CFR 81.135):
In the State of Texas: Cameron County, H da go County, J m Hogg County, Starr County, Webb County, W acy County, Zapata County

BW1 FOIA CBP 001186

COVER SHEET

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE U.S. BORDER PATROL SAN DIEGO SECTOR, CALIFORNIA

Responsible Agencies: U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP).

Affected Location: U.S./Mexico international border in San Diego County, California.

Proposed Action: The Proposed Action includes the construction, operation, and maintenance of tactical infrastructure, to include a primary pedestrian fence, supporting patrol roads, and other infrastructure in two distinct sections along the U.S./Mexico international border within USBP's San Diego Sector. The fence sections would be approximately 0.8 miles and 3.6 miles in length. Proposed constructed access and patrol roads to support each fence section would be 0.8 miles and 5.2 miles, respectively.

Report Designation: Draft Environmental Impact Statement (EIS).

Abstract: CBP proposes to construct, operate, and maintain approximately 4.4 miles of tactical infrastructure. Proposed tactical infrastructure would consist of primary pedestrian fence, patrol roads, and access roads in two sections along the U.S./Mexico international border in San Diego County, California. The first section designated as A-1 would consist of 3.6 miles of primary pedestrian fence, supported by an access and patrol road that would be approximately 5.2 miles in length and would start at the Puebla Tree and end at Boundary Monument 250. The proposed section would be south of the Otay Mountain Wilderness (OMW) and would not connect to any existing fence. Approximately half of the 5.2 miles of access and patrol road and 1,300 feet of fence would be on the OMW. The OMW is on public lands administered by the Bureau of Land Management (BLM). The second section designated as A-2 would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate, California. This fence section is an extension of existing fence near Tecate Peak and would pass through a riparian area. Some portions of the fence sections would be on privately owned land parcels. Lights would not be constructed as part of the Proposed Action.

The EIS process will serve as a planning tool to assist agencies with decisionmaking authority associated with the Proposed Action and ensure that the required public involvement under the National Environmental Policy Act (NEPA) is accomplished. This Draft EIS presents potential environmental impacts associated with the Proposed Action and alternatives and provides information to assist in the decisionmaking process about whether and how to implement the Proposed Action.

Throughout the NEPA process, the public may obtain information concerning the status and progress of the Proposed Action and the EIS via the project Web site at *www.BorderFenceNEPA.com*; by emailing *information@BorderFenceNEPA.com*; or by written request to Mr. Charles McGregor, Environmental Manager, U.S. Army Corps of Engineers (USACE), Fort Worth District, Engineering Construction Support Office (ECSO), 814 Taylor Street, Room 3B10, Fort Worth, TX 76102, and Fax: (757) 257-7643.

Interested parties may submit comments to CBP. To avoid duplication, please use only one of the following methods:

(a) Electronically through the Web site at: www.BorderFenceNEPA.com

(b) By email to: SDcomments@BorderFenceNEPA.com

(c) By mail to: San Diego Sector Tactical Infrastructure EIS, c/o e²M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031

(d) By fax to: (757) 257-7643.

PRIVACY NOTICE

Public comments on this document are requested. Comments will normally be addressed in the EIS and made available to the public. Any personal information included in comments will therefore be publicly available.

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

FOR THE

PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE

U.S. BORDER PATROL SAN DIEGO SECTOR, CALIFORNIA

U.S. Department of Homeland Security
U.S. Customs and Border Protection
U.S. Border Patrol

DECEMBER 2007

This document printed on paper that contains at least 30 percent postconsumer fiber.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP) proposes to construct, operate, and maintain approximately 4.4 miles of tactical infrastructure including primary pedestrian fence, patrol roads, and access roads along the U.S./Mexico international border in the USBP San Diego Sector, California.

The mission of CBP is to prevent terrorists and terrorist weapons from entering the United States, while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the border of the United States. USBP's mission strategy consists of the following five main objectives:

- Establish substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between the Ports of Entry (POEs)
- Deter illegal entries through improved enforcement
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband
- Leverage "smart border" technology to multiply the effect of enforcement personnel
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

This Draft Environmental Impact Statement (EIS) has been prepared through coordination with Federal and state agencies to identify and assess the potential impacts associated with the proposed construction, operation, and maintenance of tactical infrastructure. This Draft EIS is also being prepared to fulfill the requirements of the National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA).

PURPOSE AND NEED

The purpose of the Proposed Action is to increase security capabilities within the USBP San Diego Sector through the construction, operation, and maintenance of tactical infrastructure in the form of fences, roads, and supporting technological and tactical assets. The USBP San Diego Sector has identified several areas along the U.S./Mexico international border that experience high levels of illegal cross-border activity. This activity occurs in areas that are remote and not easily accessed by USBP agents, are near POEs where concentrated populations might live on either side of the border, contain thick vegetation that can provide concealment, or have quick access to U.S. transportation routes.

The Proposed Action is needed because of high levels of illegal cross-border activity in these two sections of the USBP San Diego Sector and the associated environmental damage. The Proposed Action would provide USBP agents with the tools necessary to strengthen their control of the U.S. borders between POEs in the USBP San Diego Sector. The Proposed Action would help to deter illegal cross-border activities within the USBP San Diego Sector by improving enforcement, preventing terrorists and terrorist weapons from entering the United States, reducing the flow of illegal drugs and other contraband, and enhancing response time, while providing a safer work environment for USBP agents.

PUBLIC INVOLVEMENT

CBP initiated the public scoping process for this Draft EIS on September 24, 2007, with the publication in the *Federal Register* of a Notice of Intent (NOI) to prepare an EIS. The NOI requested public comments on the scope of the EIS and provided information on how the public could submit comments by mail, facsimile, electronic mail, or through the project-specific Web site. Public comments submitted as part of the public scoping process were considered during the EIS development process.

DESCRIPTION OF PROPOSED ACTION

CBP proposes to construct, operate, and maintain tactical infrastructure consisting of primary pedestrian fence, patrol roads, and access roads along the U.S./Mexico international border in the USBP San Diego Sector, California. Proposed tactical infrastructure includes installation of fence sections in areas of the border that are not currently fenced. The proposed locations of tactical infrastructure are based on a USBP San Diego Sector assessment of local operational requirements where tactical infrastructure would assist USBP agents in reducing illegal cross-border activities. The Fiscal Year (FY) 2007 DHS Appropriations Act (Public Law [P.L.] 109-295) provided $1,187,565,000 under the Border Security Fencing, Infrastructure, and Technology appropriation for the installation of fencing, infrastructure, and technology along the border.

CBP has identified the Proposed Action as its Preferred Alternative. Implementation of the Proposed Action would meet USBP's purpose and need.

ALTERNATIVES ANALYSIS

No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP San Diego Sector. The USBP San Diego Sector would continue to use agents and technology to identify illegal cross-border activity, and deploy agents to make apprehensions. Although USBP agents would continue to patrol

the Pack Trail and make apprehensions, their response time and success rate in apprehensions would continue to be impeded. The No Action Alternative is no longer an efficient use of USBP resources and would not meet future USBP mission or operational needs. However, inclusion of the No Action Alternative is prescribed by the CEQ regulations and will be carried forward for analysis in the EIS. The No Action Alternative also serves as a baseline against which to evaluate the impacts of the Proposed Action.

Proposed Action

The proposed tactical infrastructure would be constructed in two sections (designated as A-1 and A-2) along the U.S./Mexico international border within the USBP San Diego Sector, in San Diego County, California. Section A-1 is approximately 3.6 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The proposed section of fence would be adjacent to and on the Otay Mountain Wilderness (OMW), and would follow the U.S./Mexico international border where topography allows, deviating from the border to follow the proposed construction access road where topography does not allow, such as descent to canyon bottoms. The length of access road and patrol road to support the operation and maintenance of the fence would be approximately 5.2 miles. In areas where the patrol road is not adjacent to the fence, trails suitable for light-tracked vehicles would be constructed for the purposes of fence installation and maintenance. These trails would require clearing of brush and boulders and minor grading. Rock outcrops might require leveling for safe travel and fence construction.

The OMW is on public lands administered by Bureau of Land Management (BLM). The wilderness boundary is at least 100 feet from the U.S./Mexico international border. The corridor between the OMW and the U.S./Mexico international border is public land administered by the BLM. Approximately one half of the proposed patrol and access road would occur in this corridor between the U.S./Mexico international border and the wilderness boundary. Due to steep topography, approximately one half of the length of patrol and access road and approximately 1,300 feet of the primary pedestrian fence would extend into the OMW.

Section A-2 would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate. This fence section would be constructed along the southeastern border of Tecate Peak, and would pass through a riparian area. This proposed fence section would encroach on a mix of privately owned land parcels and public land administered by the BLM. Construction of this fence section would include an upgrade to an access road west of Tecate.

SUMMARY OF ENVIRONMENTAL IMPACTS

Table ES-1 provides an overview of potential impacts anticipated under each alternative considered, broken down by resource area. **Section 4** of this EIS evaluates these impacts.

Table ES-1. Summary of Anticipated Environmental Impacts by Alternative

Resource Area	No Action Alternative	Proposed Action
Air Quality	No impacts would be expected.	Short- and long-term minor adverse impacts would be expected.
Noise	No impacts would be expected.	Short-term moderate and long-term negligible to minor adverse impacts would be expected.
Land Use and Recreation	Long-term minor adverse impacts would continue to occur.	Long-term minor adverse impacts would be expected.
Geology and Soils	Long-term minor adverse impacts would continue to occur.	Short- and long-term major adverse impacts would be expected.
Hydrology and Groundwater	Long-term minor adverse impacts would continue to occur.	Short- and long-term minor direct adverse impacts would be expected
Surface Water and Waters of the United States	Long-term minor adverse impacts would continue to occur.	Long-term minor direct and short-term negligible adverse impacts would be expected.
Floodplains	Long-term minor adverse impacts would continue to occur.	Short- and long-term negligible to minor adverse impacts would be expected.
Vegetation	Short- and long-term moderate adverse impacts would continue to occur.	Short- and long-term, minor to moderate, adverse impacts would be expected.
Wildlife and Aquatic Resources	Long-term minor adverse impacts would continue to occur.	Short- and long-term negligible to major adverse impacts would be expected.

Resource Area	No Action Alternative	Proposed Action
Special Status Species	Long-term minor adverse impacts would continue to occur.	Short- and long-term minor to major adverse, and minor beneficial impacts would be expected.
Cultural Resources	Long-term minor adverse impacts would continue to occur.	Long-term minor adverse impacts would be expected.
Visual Resources	No impacts would be expected.	Short- and long-term minor to major adverse impacts would be expected.
Socioeconomic Resources, Environmental Justice, and Protection of Children	No impacts would be expected.	Short- and long-term minor direct and indirect beneficial impacts would be expected.

CBP followed design criteria to reduce adverse environmental impacts and would implement mitigation measures to further reduce or offset adverse environmental impacts. Design criteria to reduce adverse environmental impacts include selecting a location for tactical infrastructure that would avoid or minimize impacts on environmental and cultural resources, consulting with Federal and state agencies and other stakeholders to avoid or minimize adverse environmental impacts and develop appropriate Best Management Practices (BMPs), and avoiding physical disturbance and construction of solid barriers in wetlands/riparian areas and streambeds. BMPs would include implementation of a Construction Mitigation and Restoration (CM&R) Plan, Spill Prevention Control and Countermeasure (SPCC) Plan, Storm Water Pollution Prevention Plan (SWPPP), Dust Control Plan, Fire Prevention and Suppression Plan, and Unanticipated Discovery Plan.

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DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE U.S. BORDER PATROL SAN DIEGO SECTOR, CALIFORNIA

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Introduction

1. INTRODUCTION

U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP) proposes to construct, operate, and maintain approximately 4.4 miles of tactical infrastructure including primary pedestrian fence, patrol roads, and access roads along the U.S./Mexico international border in the USBP San Diego Sector, California.

The proposed tactical infrastructure would be constructed in two discrete sections (designated A-1 and A-2). The first section designated as A-1 would consist of 3.6 miles of primary pedestrian fence, supported by access and patrol roads that would be approximately 5.2 miles in length and would start at the Puebla Tree and end at Boundary Monument 250. The second section would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate, California (see **Figure 1-1**). Construction of this fence section would include an upgrade to an access road west of Tecate. The proposed tactical infrastructure could encroach on both public lands managed by the Bureau of Land Management (BLM)—including the Otay Mountain Wilderness (OMW)—and multiple privately owned land parcels.

This Draft Environmental Impact Statement (EIS) is divided into nine sections and appendices. **Section 1** provides background information on USBP missions, identifies the purpose of and need for the Proposed Action, describes the area in which the Proposed Action would occur, and explains the public involvement process. **Section 2** provides a detailed description of the Proposed Action, alternatives considered, and the No Action Alternative. **Section 3** describes existing environmental conditions in the areas where the Proposed Action would occur. **Section 4** identifies potential environmental impacts that could occur within each resource area under the alternatives evaluated in detail. **Section 5** presents proposed mitigation measures and the California Environmental Quality Act (CEQA). **Section 6** discusses potential cumulative and other impacts that might result from implementation of the Proposed Action, combined with foreseeable future actions. **Sections 7** and **8** provide references and acronyms, respectively. **Section 9** identifies the preparers of the Draft EIS.

Appendix A provides potential fence designs and a description of the proposed tactical infrastructure. **Appendix B** contains a listing of those laws, regulations, and Executive Orders (EOs) potentially applicable to the Proposed Action. **Appendix C** presents the Scoping Summary Report which includes the *Federal Register*, Notice of Intent (NOI), newspaper ads posted in local papers, and agency coordination letters. **Appendix D** will present materials related to the Draft EIS comment process and public involvement. **Appendix E** contains detailed maps of the proposed tactical infrastructure sections. **Appendix F** presents air quality information for the Proposed Action. **Appendix G** contains detailed soil maps of each of the two proposed tactical infrastructure sections.

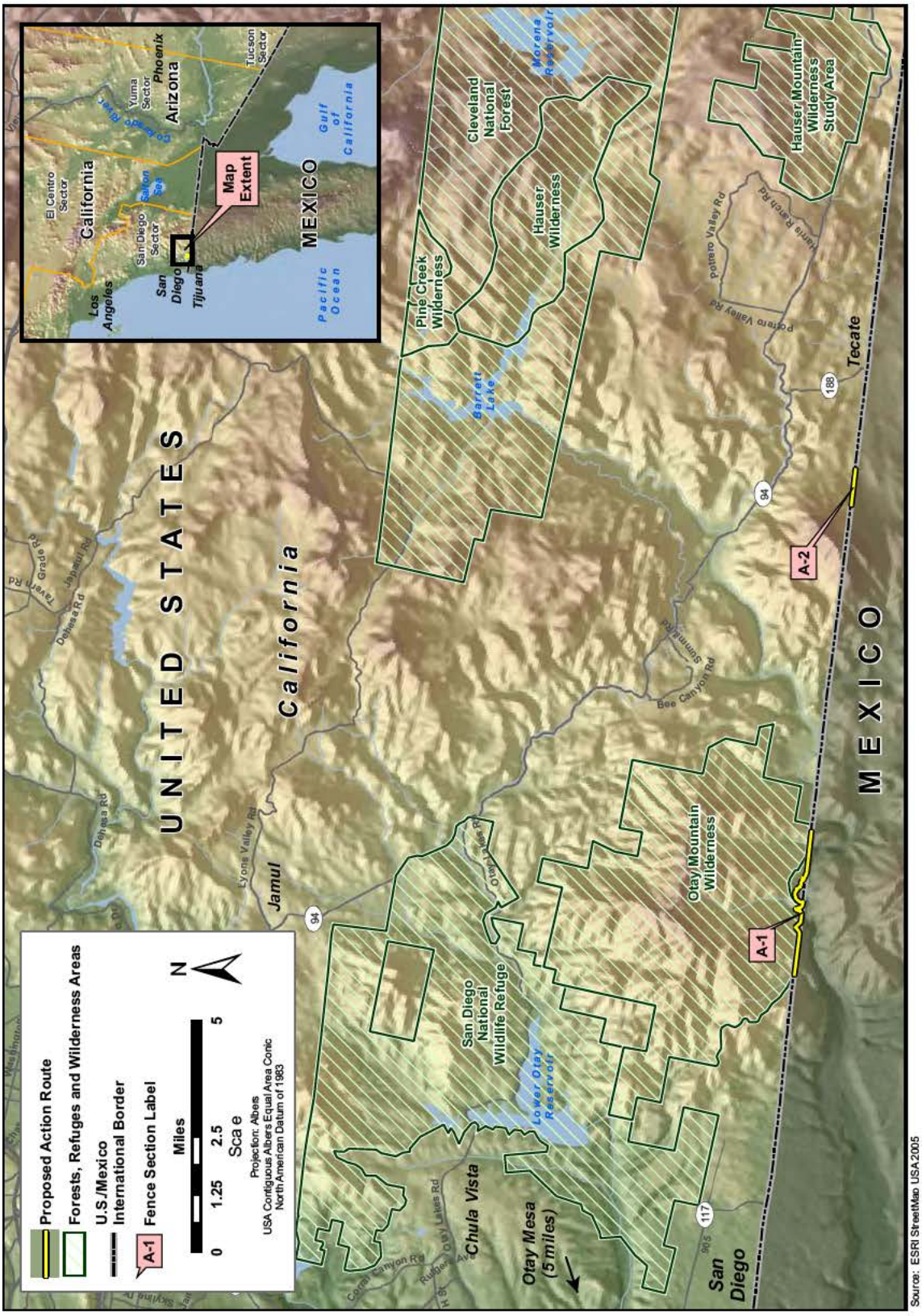

Figure 1-1. Locations of the Proposed Tactical Infrastructure

Appendix H contains the Draft Biological Survey Report for the Proposed Action. **Appendix I** contains the Draft Cultural Resources Survey Report for the Proposed Action.

1.1 USBP BACKGROUND

The mission of CBP is to prevent terrorists and terrorist weapons from entering the United States, while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the border of the United States. USBP's mission strategy consists of the following five main objectives:

- Establish substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between the Ports of Entry (POEs)
- Deter illegal entries through improved enforcement
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband
- Leverage "smart border" technology to multiply the effect of enforcement personnel
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

USBP has nine administrative sectors along the U.S./Mexico international border. The USBP San Diego Sector is responsible for 7,000 square miles of southern California and 66 miles of the U.S./Mexico international border. The USBP San Diego Sector is responsible for all of San Diego County, California (CBP 2007a).

Within the USBP San Diego Sector, areas for tactical infrastructure improvements have been identified that would help the Brown Field and Chula Vista Stations gain more effective control of the border and significantly contribute to USBP's priority mission of homeland security. The Brown Field Station has responsibility for approximately 11.5 miles of the border within the USBP San Diego Sector. During the 2006 calendar year, the Brown Field Station was responsible for 46,213 apprehensions, or 34 percent of all apprehensions within the USBP San Diego Sector. As such, the Brown Field Station is the fifth busiest station (in terms of apprehensions) of USBP (CBP 2007a).

Approximately half of the Brown Field Station area of responsibility has tactical infrastructure in place. The region without infrastructure is rugged mountainous terrain that is difficult for USBP to access and patrol. This unsecured mountain region encompasses Otay Mountain which consists of lands administered by BLM. The majority of this unsecured mountain region is under special Federal

designation as the OMW. The entire mountain area is a focal point of illegal immigrant traffic, where traffickers are well-funded and organized.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to increase border security within the USBP San Diego Sector through the construction, operation, and maintenance of tactical infrastructure in the form of fences, roads, and supporting infrastructure. The USBP San Diego Sector has identified two discrete areas along the border that experience high levels of illegal cross-border activity. This activity occurs in areas that are remote and not easily accessed by USBP agents, are near POEs where concentrated populations might live on either side of the border, or have quick access to U.S. transportation routes.

The Proposed Action is needed because of high levels of illegal cross-border activity in these two sections of the USBP San Diego Sector, the associated environmental damage, and the steep terrain of the OMW (see **Figure 1-2**). The Proposed Action would provide USBP agents with the tools necessary to strengthen their control of the U.S. borders between POEs in the USBP San Diego Sector. The Proposed Action would help to deter illegal cross-border activities within the USBP San Diego Sector by improving enforcement, preventing terrorists and terrorist weapons from entering the United States, reducing the flow of illegal drugs and other contraband, and enhancing response time, while providing a safer work environment for USBP agents.

1.3 PROPOSED ACTION

CBP proposes to construct, operate, and maintain tactical infrastructure consisting of primary pedestrian fence and associated patrol roads, and access roads along two discrete areas of the U.S./Mexico international border in the USBP San Diego Sector, California (examples of primary pedestrian fence are included in **Appendix A**). Proposed tactical infrastructure includes installation of fence sections in areas of the border that are not currently fenced. The proposed locations of tactical infrastructure are based on a USBP San Diego Sector assessment of local operational requirements where such infrastructure would assist USBP agents in reducing illegal cross-border activities. The Fiscal Year (FY) 2007 DHS Appropriations Act (Public Law [P.L.] 109-295) provided $1,187,565,000 under the Border Security Fencing, Infrastructure, and Technology appropriation for the installation of fencing, infrastructure, and technology along the border (CRS 2006). **Figure 1-1** illustrates the location of the proposed tactical infrastructure within the USBP San Diego Sector. Details of the Proposed Action are included in **Section 2.2.8**. CBP has identified the Proposed Action as its Preferred Alternative.

Figure 1-2. Photographs Depicting Illegal Grazing and Extensive Erosion Caused by Illegal Cross-Border Activity within the OMW

1.4 FRAMEWORK FOR ANALYSIS

The process for implementing the National Environmental Policy Act (NEPA) is codified in Code of Federal Regulations (CFR) 40 Parts 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, and DHS's related Management Directive (MD) 5100.1, *Environmental Planning Program*. The Council on Environmental Quality (CEQ) was established under NEPA to implement and oversee Federal policy in this process.

An EIS is prepared when a proposed action is anticipated to have potentially "significant" environmental impacts, or a proposed action is environmentally controversial. An EIS generally presents separate chapters specifically tailored to address the following:

- The purpose and need for the Proposed Action
- Reasonable alternatives to the Proposed Action
- A characterization of the affected environment
- The nature and extent of potential environmental impacts associated with the Proposed Action and alternatives (including the No Action Alternative)
- A listing of agencies and persons contacted during the EIS preparation process and public involvement efforts.

To comply with NEPA, the planning and decisionmaking process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an Environmental Assessment (EA) or EIS, which enables the decisionmaker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. According to CEQ regulations, the requirements of NEPA must be integrated "with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

Within the framework of environmental impact analysis under NEPA, additional authorities that might be applicable include the Clean Air Act (CAA), Federal Water Pollution Control Act (also known as the Clean Water Act [CWA]) (including a National Pollutant Discharge Elimination System [NPDES] storm water discharge permit and Section 404 permit), Noise Control Act, Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), National Historic Preservation Act (NHPA), Archaeological Resources Protection Act, and various Executive Orders (EOs). A summary of laws, regulations, and EOs that might be applicable to the Proposed Action are shown in **Appendix B**. **Table 1-1** lists

Table 1-1. Major Permits, Approvals, and Interagency Coordination

Agency	Permit/Approval/Coordination
U.S. Department of the Interior, Bureau of Land Management (BLM)	- Otay Mountain Wilderness Act
U.S. Department of the Interior, U.S. Fish and Wildlife Service (USFWS)	- Section 7 ESA consultation - MBTA coordination
U.S. Environmental Protection Agency (USEPA)	- CWA NPDES permit
U.S. Army Corps of Engineers (USACE)	- CWA Section 404 permit
San Diego Regional Water Quality Control Board	- CWA Section 401 State Water Quality Certification
San Diego Air Pollution Control District	- CAA permit consultation
California Coastal Commission San Diego District Office	- Coastal Zone Management Act (CZMA) Consistency Determination
California Department of Fish and Game (CDFG)	- California Endangered Species Act (CESA) coordination
California State Historic Preservation Office (SHPO)	- NHPA Section 106 consultation
Federally recognized American Indian Tribes	- Consultation regarding potential effects on cultural resources
Advisory Council on Historic Preservation (ACHP)	- NHPA Section 106 consultation

major Federal and state permits, approvals, and interagency coordination required to construct, operate, and maintain the proposed tactical infrastructure.

CEQA as promulgated in the California Public Resources Code 21000-21177, was adopted in 1970 by the State of California to inform governmental decisionmakers and the public about the potential environmental effect of a project, identify ways to reduce adverse impacts, offer alternatives to the project, and disclose to the public why a project was approved. CEQA applies to projects undertaken, funded, or requiring an issuance of a permit by a public agency. For this project, CEQA is applicable because under Section 401 of the CWA (33 United States Code [U.S.C.] 1341), states and tribes are delegated authority to approve, condition, or deny all Federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands. Projects that have a potential for resulting in physical change to the environment, or that might be subject to several discretionary approvals by governmental agencies, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit, are required to go through the CEQA process.

The California Code of Regulations (CCR), Title 14, Section 15063, allows the use of a NEPA document to meet the requirements for an Initial Study under CEQA. A CEQA Initial Study Environmental Checklist would also be prepared to support the CWA Section 401 Application.

1.5 PUBLIC INVOLVEMENT

Agency and public involvement in the NEPA process promotes open communication between the public and the government and enhances the decisionmaking process. All persons or organizations having a potential interest in the Proposed Action are encouraged to participate in the decisionmaking process.

NEPA and CEQ implementing regulations direct agencies to make their EISs available to the public during the decisionmaking process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process.

Public scoping activities for this EIS were initiated on September 24, 2007, when an NOI to prepare this EIS was published in the *Federal Register* (72 FR 184, pp. 54277–78, see **Appendix C**). Besides providing a brief description of the Proposed Action and announcing CBP's intent to prepare this EIS, the NOI also established a 20-day public scoping period. The purpose of the scoping process was to solicit public comments regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS. Public comments received during the public scoping period were taken into consideration in the preparation of this Draft EIS. A summary of the scoping comments received are included in **Appendix C**.

In addition to the NOI published in the *Federal Register*, newspaper notices coinciding with the NOI were published in *San Diego Union-Tribune* and the *San Diego Daily Transcript* on September 24 and 30, 2007. The notice was also published in Spanish in *La Prensa* and *Hispanos Unidos* on September 28, 2007. Copies of the newspaper notices are included in **Appendix C**.

The U.S. Environmental Protection Agency (USEPA) will publish the Notice of Availability (NOA) for this Draft EIS in the *Federal Register*. The purpose of the USEPA NOA is to announce to the public the availability of this Draft EIS, and to begin a 45-day public comment period. In addition to the USEPA NOA, CBP will publish a separate NOA in the *Federal Register* announcing the dates, times, and places for public informational meetings and to request comments on the Draft EIS. All comments received will be taken into consideration in the development of the Final EIS and subsequent to this draft will also be included in **Appendix C**. Upon completion, CBP will make the Final EIS available to the public for 30 days. At the conclusion of the 30-day period, a Record of Decision

(ROD) regarding the Proposed Action can be signed and published in the *Federal Register*.

Through the public involvement process, CBP also notified relevant Federal, state, and local agencies of the Proposed Action and requested input regarding environmental concerns they might have regarding the Proposed Action. The public involvement process provides CBP with the opportunity to cooperate with and consider Federal, state, and local views in its decision regarding implementation of this Federal proposal. As part of the EIS process, CBP has coordinated with agencies such as the USEPA; U.S. Fish and Wildlife Service (USFWS); California State Historic Preservation Office (SHPO); and other Federal, state, and local agencies (see **Appendix C**). Input from agency responses has been incorporated into the analysis of potential environmental impacts.

Anyone wishing to provide comments, suggestions, or relevant information regarding the Proposed Action and this EIS may do so by submitting comments to CBP. To avoid duplication, please use only one of the following methods:

a. Electronically through the Web site at: www.BorderFenceNEPA.com
b. By email to: SDcomments@BorderFenceNEPA.com
c. By mail to: San Diego Sector Tactical Infrastructure EIS, c/o e²M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031
d. By fax to: (757) 257-7643.

Throughout the NEPA and CEQA processes, the public may obtain information concerning the status and progress of the EIS via the project Web site at *www.BorderFenceNEPA.com*; by emailing *information@BorderFenceNEPA.com*; or by written request to Mr. Charles McGregor, Environmental Manager, U.S. Army Corps of Engineers (USACE), Fort Worth District, Engineering and Construction Support Office, 814 Taylor Street, Room 3B10, Fort Worth, TX 76102, and Fax (757) 257-7643.

1.6 COOPERATING AND COORDINATING AGENCIES

The CEQ regulations implementing NEPA instruct agencies to combine environmental documents to reduce duplication and paperwork (40 CFR 1506.4). As such, the USACE-Los Angeles District, the United States Section, International Boundary and Water Commission (USIBWC), and the Palm Springs South Coast Field Office of the BLM as cooperating agencies and the USFWS as a coordinating agency also have decisionmaking authority for components of the Proposed Action and intend for this EIS to fulfill their requirements for compliance with NEPA.

The USACE-Los Angeles District Engineer has the authority to authorize actions under Section 404 of the CWA. Applications for work involving the discharge of

fill material into waters of the United States and work in, or affecting, a navigable water of the United States will be submitted to the USACE-Los Angeles District Regulatory Program Branch for review, and a decision on issuance of a permit will be reached.

The Palm Springs South Coast Field Office of the BLM has jurisdiction over most of the land traversed by the Proposed Action. BLM also has oversight for OMW, which is directly north of Section A-1. Any activity occurring within the BLM-owned portions of the Proposed Action or the adjacent OMW would require approval and oversight by the Palm Springs South Coast Field Office of the BLM.

Section 7 of the ESA requires federal agencies to consult with the USFWS when actions may affect federally listed species or designated critical habitat. Pre-consultation coordination with USFWS is underway for this project. The USFWS has provided critical feedback on the location and design of fence sections to avoid, minimize or mitigate potential impacts to listed species or designated critical habitat. CBP is developing the Biological Assessment in coordination with the USFWS. Potential effects of fence construction, maintenance, and operation will be analyzed in both the Biological Assessment and Biological Opinion to accompany the Final Environmental Impact Statement.

The USIBWC is an international body composed of a U.S. Section and a Mexican Section, each headed by an Engineer-Commissioner appointed by his/her respective president. Each of these sections is administered independently of the other. The USIBWC is a Federal government agency headquartered in El Paso, Texas, and operates under the foreign policy guidance of the Department of State (USIBWC 2007). The USIBWC will provide access and rights-of-way (ROWs), if necessary, to construct proposed tactical infrastructure in areas of the Tijuana River floodplain. The USIBWC will also ensure that design and placement of the proposed tactical infrastructure does not impact flood control and does not violate treaty obligations between the United States and Mexico.

SECTION 2

Proposed Action and Alternatives

2. PROPOSED ACTION AND ALTERNATIVES

This section provides detailed information on CBP's proposal to construct, operate, and maintain tactical infrastructure along the U.S./Mexico international border in the USBP San Diego Sector, California. The range of reasonable alternatives considered in this EIS is constrained to those that would meet the purpose and need described in **Section 1** to provide USBP agents with the tools necessary to achieve effective control of the border in the USBP San Diego Sector. Such alternatives must also meet essential technical, engineering, and economic threshold requirements to ensure that each alternative is environmentally sound, economically viable, and complies with governing standards and regulations.

2.1 SCREENING CRITERIA FOR ALTERNATIVES

The following screening criteria were used to develop the Proposed Action and evaluate potential alternatives. The USBP San Diego Sector is working to develop the right combination of personnel, technology, and infrastructure to meet its objective to gain effective control of the border in the USBP San Diego Sector.

- *USBP Operational Requirements*. The selected alternative must support USBP mission needs to hinder or delay individuals crossing the border illegally. Once individuals have entered an urban area or suburban neighborhood, it is much more difficult for USBP agents to identify and apprehend suspects engaged in unlawful border entry. In addition, around populated areas it is relatively easy for cross-border violators to find transportation into the interior of the United States.
- *Threatened or Endangered Species and Critical Habitat*. The selected alternative would be designed to minimize adverse impacts on threatened or endangered species and their critical habitat to the maximum extent practical. USBP is working with the USFWS to identify potential conservation and mitigation measures.
- *Wetlands and Floodplains*. The selected alternative would be designed to avoid and minimize impacts on wetlands, surface waters, and floodplain resources to the maximum extent practicable. USBP is working with the USACE-Los Angeles District to avoid, minimize, and mitigate potential impacts on wetlands, surface waters, and floodplains.
- *Cultural and Historic Resources.* The selected alternative would be designed to minimize impacts on cultural and historic resources to the maximum extent practical. USBP is working with the California SHPO to identify potential conservation and mitigation measures.

2.2 ALTERNATIVES ANALYSIS

CBP evaluated a range of possible alternatives to be considered for the Proposed Action. During the public scoping process described in **Section 1.5** and **Appendix C**, the following potential alternatives were proposed: (1) stronger enforcement and harsher penalties for employers that hire illegal immigrants, (2) additional USBP agents in lieu of tactical infrastructure, (3) technology in lieu of tactical infrastructure, and (4) vehicle fences in lieu of tactical infrastructure. Alternative fence designs were also proposed to make the fence taller, wider, or more impenetrable. In addition, CBP considered several route alternatives for the construction of tactical infrastructure. This section addresses alternatives that were reviewed but not carried forward for detailed analysis.

The following sections describe the alternative analysis for this Proposed Action. **Section 2.2.1** through **2.2.7** describes alternatives considered but eliminated from further detailed analysis. **Section 2.2.8** provides specific details of the Proposed Action, and **Section 2.2.9** presents the No Action Alternative. **Section 2.3** is the identification of the preferred alternative.

2.2.1 Stronger Enforcement and Harsher Penalties for Employers That Hire Illegal Immigrants

During the public scoping process several comments were received encouraging CBP to consider stronger enforcement of current immigration laws and harsher penalties for employers that hire illegal immigrants. This alternative was not studied in detail primarily because it would not meet the USBP San Diego Sector's Purpose and Need and the screening criteria established for viable alternatives. The Proposed Action is needed to provide USBP agents with the tools necessary to strengthen their control of the U.S. borders between POEs in the USBP San Diego Sector. USBP enforces current laws to the maximum extent practical. Although harsher penalties for employers might have some deterrent effect, it is an aspect of enforcement that is not within the purview of the USBP. Further, it does not immediately address the purpose and need of the Proposed Action, which is to strengthen control of the border, in part, by hindering or delaying individuals who attempt to cross the border illegally. It is also not clear that harsher penalties on employers would help in preventing terrorists and terrorist weapons from entering the United States, reducing the flow of illegal drugs, or providing a safer work environment for USBP agents. For these reasons, this alternative is not a practical alternative to the construction of tactical infrastructure in the USBP San Diego Sector and will not be carried forward for detailed analysis.

2.2.2 Additional USBP Agents in Lieu of Tactical Infrastructure

CBP considered the alternative of increasing the number of USBP agents assigned to the U.S./Mexico international border as a means of gaining more effective control of the U.S./Mexico international border in the San Diego Sector.

Under this alternative, USBP would hire and deploy a significantly larger number of agents than are currently deployed along the U.S./Mexico international border and increase patrols to apprehend cross-border violators. USBP would deploy additional agents as determined by operational needs, but patrols might include the use of 4-wheel drive vehicles, all-terrain vehicles, helicopters, or fixed-wing aircraft. Currently, USBP maintains an aggressive hiring program and a cadre of well-trained agents.

This alternative was determined not to meet the screening criteria of USBP operational requirements. The physical presence of an increased number of agents could provide an enhanced level of deterrence against illegal entry into the United States, but the use of additional agents alone, without the addition of proposed tactical infrastructure, would not provide a practical solution to achieving the level of effective control of the border necessary in the USBP San Diego Sector. The use of physical barriers has been demonstrated to slow cross-border violators and provide USBP agents with additional time to make apprehensions (USACE 2000). Additionally, as tactical infrastructure is built, agents could be more effectively redeployed to secure other areas.

A Congressional Research Service (CRS) report (CRS 2006) concluded that USBP border security initiatives within the USBP San Diego Sector such as the 1994 "Operation Gatekeeper" required a 150 percent increase in USBP manpower, lighting, and other equipment. The report states that "It soon became apparent to immigration officials and lawmakers that USBP needed, among other things, a 'rigid' enforcement system that could integrate infrastructure (i.e., multi-tiered fence and roads), manpower, and new technologies to further control the border region" (CRS 2006).

Increased patrol agents would aid in interdiction activities, but not to the extent anticipated by the construction of primary pedestrian fence and other tactical infrastructure along Sections A-1 and A-2. As such, this alternative is not practical in the USBP San Diego Sector and will not be carried forward for further detailed analysis.

2.2.3 Technology in Lieu of Tactical Infrastructure

CBP does and would continue to use various forms of technology to identify cross-border violators. The use of technology in certain sparsely populated areas is a critical component of the Secure Border Initiative (SBI) and an effective force multiplier that allows USBP to monitor large areas and deploy agents to where they would be most effective in apprehending cross-border violators. However, due to the large urban areas in Mexico along the U.S./Mexico international border, combined with the remoteness and steep terrain that hinders tracking and apprehension of cross-border violators, physical barriers represent the most effective means to control illegal entry into the United States, as noted above. The use of technology alone would not provide a practical solution to achieving the level of effective control of the U.S./Mexico

international border necessary in the USBP San Diego Sector. Current USBP San Diego Sector operations include the use of technology to identify cross-border violations and deploying agents to make apprehensions. As such, this alternative is very similar to the No Action Alternative discussed in **Section 2.2.9**. Therefore, this alternative would not meet the purpose and need as described in **Section 1.2** and will not be carried forward for further detailed analysis.

2.2.4 Vehicle Fences in Lieu of Primary Pedestrian Fence

During the public scoping process, the alternative of constructing vehicle fences in lieu of primary pedestrian fence was suggested. The USBP deploys both permanent and temporary vehicle fences on the U.S./Mexico international border as necessary. Temporary vehicle fences are typically chained together and can be moved to different locations at the USBP's discretion. Permanent vehicle fences are embedded in the ground and are meant to remain in one location. Vehicle fences are designed to impede the entry of vehicles while allowing individuals and animals to cross the border freely. Therefore, vehicle fences would be effective in stopping illegal vehicle traffic but would not be effective in impeding illegal foot traffic. In Section A-1, because of the steep terrain, illegal cross-border activity is typically pedestrian and not vehicle traffic, therefore vehicle fence would not provide an effective means of impeding pedestrians. In Section A-2, illegal cross-border activity is both pedestrian and vehicle, but vehicle fence would not impede pedestrians. This alternative was not studied in detail primarily because it would not meet the USBP operational screening criteria of hindering or delaying individuals crossing the border illegally. This alternative is not a practical alternative to primary pedestrian fence in the USBP San Diego Sector and will not be carried forward for detailed analysis.

2.2.5 Tactical Infrastructure 3 Feet from the U.S./Mexico International Border Alternative

The route initially identified by USBP San Diego Sector as best meeting its operational needs would be tactical infrastructure including primary pedestrian fence and patrol road approximately 3 feet north of the U.S./Mexico international border within the Roosevelt Reservation.[1] Under this alternative, Section A-1 primary pedestrian fence and construction access road would be approximately 3.4 miles long and Section A-2 primary pedestrian fence and construction access road would be approximately 0.8 miles long. The construction access road

[1] In 1907, President Roosevelt reserved from entry and set apart as a public reservation all public lands within 60 feet of the international boundary between the United States and Mexico within the State of California and the Territories of Arizona and New Mexico. Known as the "Roosevelt Reservation," this land withdrawal was found "necessary for the public welfare ... as a protection against the smuggling of goods." The proclamation excepted from the reservation all lands, which, as of its date, were (1) embraced in any legal entry; (2) covered by any lawful filing, selection, or rights of way duly recorded in the proper U.S. Land Office; (3) validly settled pursuant to law; or (4) within any withdrawal or reservation for any use or purpose inconsistent with its purposes (CRS 2006).

would subsequently become the patrol road. Due to very steep topography along Section A-1, this alternative would require significant amounts of blasting activity and cut-and-fill operations. To build the construction access road adjacent to the border, preliminary engineering design estimated that approximately 2,131,000 cubic yards of cut-and-fill would be necessary. This alternative would result in some road grades between 33 and 46 percent which would be far greater than the acceptable maximum standard of 15 percent suitable for use in the USBP San Diego Sector (USACE 2007). The resulting steep grades were determined to be unsafe for rubber tired vehicles and would place USBP agents in an unsafe environment. This alternative would not meet the purpose and need of providing a safer work environment for USBP agents, have much higher environmental impacts, and have much higher construction costs. For these reasons this alternative was deemed unfeasible and eliminated from further analysis, and other route alternatives were evaluated.

2.2.6 Secure Fence Act Alignment Alternative

Numerous comments received during the public scoping process encouraged CBP to build primary pedestrian fence that would be taller, wider, or more impenetrable. An alternative of two layers of fence, known as primary and secondary fence, was also considered for analysis in this EIS. Under this alternative, the two layers of fence would be constructed approximately 130 feet apart along Sections A-1 and A-2, and would be most closely aligned with the fence description in the Secure Fence Act of 2006, P.L. 109-367, 120 Stat. 2638, codified at 8 U.S.C. 1701. This alternative would also include construction and maintenance of construction access and patrol roads. The patrol road would be between the primary and secondary fences.

Construction of the proposed tactical infrastructure would impact an approximately 150-foot-wide corridor for 4.4 miles along Sections A-1 and A-2. The proposed project corridor would accommodate primary and secondary fencing, construction access and patrol roads. Since the patrol road would be placed between the primary and secondary fence alignments, the road in many instances would be required to follow a much steeper incline closer to the border compared to a single fence alignment where road and fence deviate from each other to avoid such grades. Consequently, the level of disturbance would be approximately double that of single-fence alternatives, would be environmentally unacceptable, prohibitively expensive, and would result in unsafe operating conditions for USBP, in direct conflict with the intended purpose and need of the Proposed Action. Therefore, this alternative was eliminated from further analysis.

2.2.7 Tactical Infrastructure Following Natural Topography Alternative

To maintain safer grades for the construction access and patrol road, a route alternative for Section A-1 was identified that would have a maximum of 15 percent slope and would follow, instead of modify, the natural topography. Under

this alternative, the Section A-1 primary pedestrian fence and construction access and patrol roads would not be directly adjacent to the U.S./Mexico international border. The length of primary pedestrian fence and roads would be approximately 5.2 miles. Under this alternative, approximately 1,300 feet of the primary pedestrian fence would extend into the OMW. There would be 143 acres of land between the road/fence and the U.S./Mexico international border. Although the Section A-1 route alternative would have fewer adverse environmental impacts compared to the Tactical Infrastructure 3 Feet from the U.S./Mexico International Border Alternative, since the fence would be too far from the U.S./Mexico international border (more than 1,000 feet) this alternative would not fully meet the USBP San Diego Sector's screening criteria to hinder or delay individuals illegally crossing the border. For this reason, other route alternatives for Section A-1 were considered and this alternative was eliminated from further analysis. In Section A-2, the fence and road would be constructed approximately 3 feet from the U.S./Mexico international border. This alternative meets the purpose and need and screening criteria, and therefore was carried forward as the Proposed Action for Section A-2.

2.2.8 Proposed Action

Under this alternative, CBP would construct, operate, and maintain tactical infrastructure consisting of primary pedestrian fence, construction access and patrol roads, and other infrastructure along the U.S./Mexico international border in the USBP San Diego Sector, California. The Section A-1 construction access and patrol road would follow the natural topography along the route identified in the Tactical Infrastructure Following Natural Topography Alternative (**Section 2.2.7**), while the primary pedestrian fence would follow the U.S./Mexico international border but deviate where topography does not allow, such as descent to canyon bottoms. Sections A-1 and A-2 are shown on **Figures 2-1** and **2-2**, in **Appendix E**, and are listed in **Table 2-1**.

Table 2-1. Proposed Tactical Infrastructure Sections

Fence Section Number	Border Patrol Station	General Location	Land Ownership	Length of Fence Section
A-1	Brown Field/Chula Vista	Pack Trail	Public: BLM-managed	3.6
A-2	Brown Field	West of Tecate	Private Public: BLM-managed	0.8
			Total	**4.4**

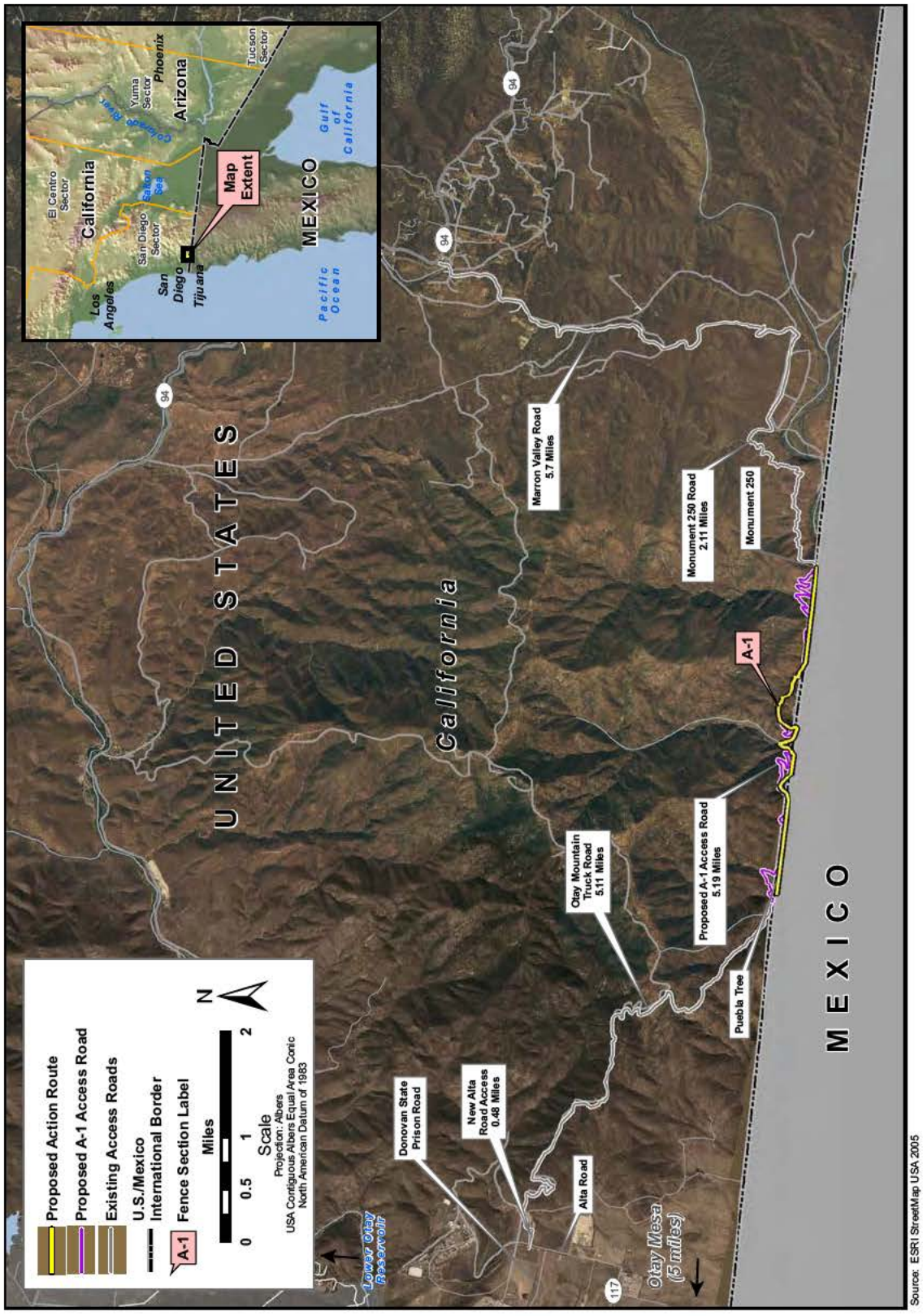

Figure 2-1. Proposed Tactical Infrastructure Section A-1

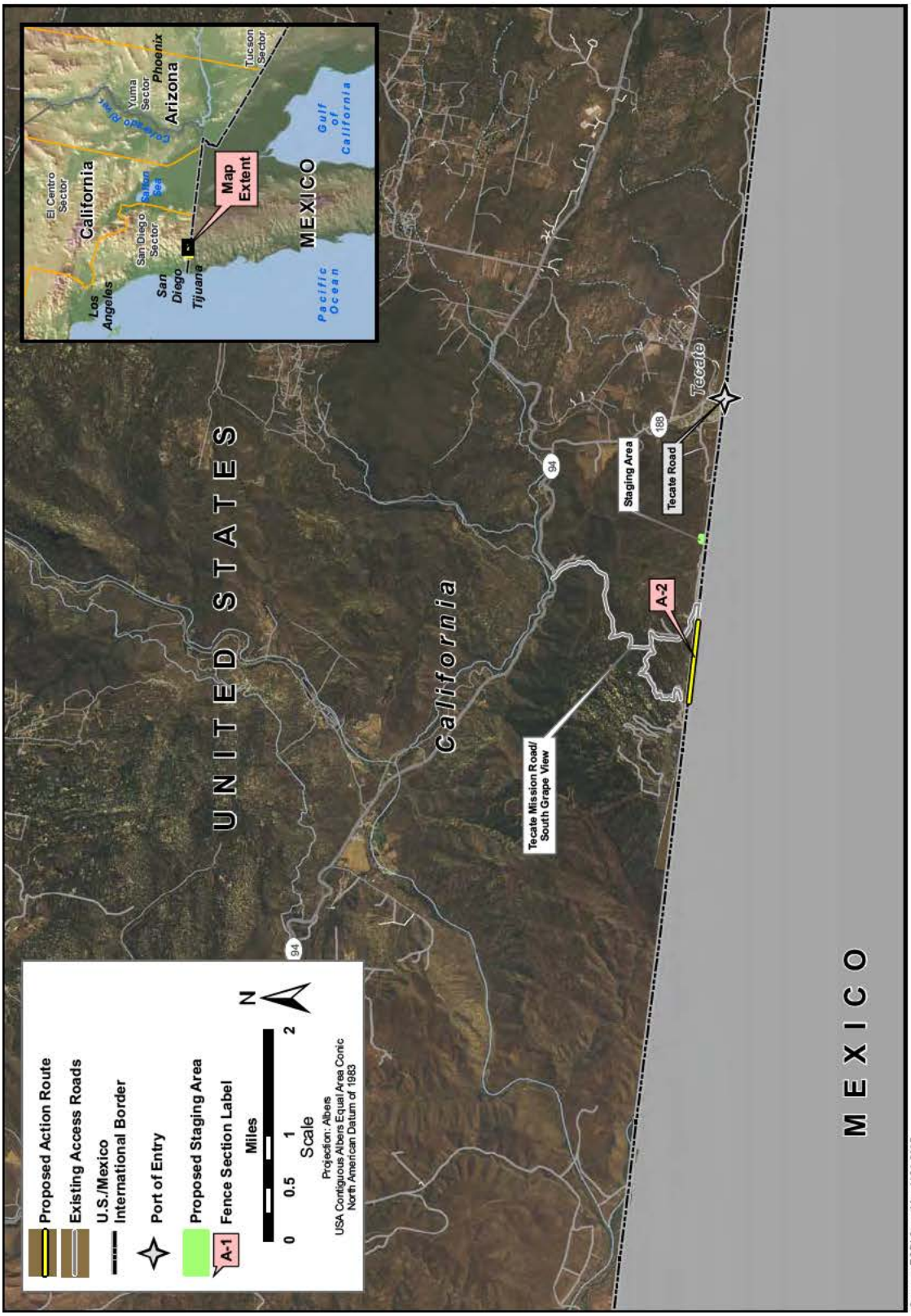

Figure 2-2. Proposed Tactical Infrastructure Section A-2

Section A-1 would be approximately 3.6 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The Section A-1 primary pedestrian fence would be adjacent to the U.S./Mexico international border where topography allows. The proposed fence would deviate from the border to follow a new construction access road where conditions warrant, such as descent to canyon bottoms.

The proposed fence would be constructed around IBWC monuments and locked gates would be installed at each monument to allow for access to the monuments. The length of construction access and patrol road to support the operation and maintenance of the fence would be approximately 5.2 miles. Aggregate and soil stabilizing or binding agents (such as RoadOyl or Pennzsuppress) would be added to the surface of the construction access road to reduce erosion and maintenance activities. An additional layer of the soil stabilizing agent would be applied to the road surface on an annual basis. When applied according to label directions, the soil stabilizers would be non-toxic to terrestrial and aquatic organisms. Maps of the proposed route are shown in **Figures 2-3** through **2-8**. In areas where the patrol road would not be adjacent to the fence, trails suitable for light-tracked vehicles would be constructed for the purposes of fence installation and maintenance. These trails would require clearing of brush and boulders and minor grading. Rock outcrops might require leveling for safe travel and fence construction.

Approximately one half of the proposed construction and patrol road would occur on the Roosevelt Reservation between the U.S./Mexico international border and the OMW boundary. Due to steep topography, approximately one half of the length of the construction and patrol road and approximately 1,300 feet of the primary pedestrian fence would extend into the OMW.

Section A-2 would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate. Section A-2 would be an extension of an existing fence near Tecate Peak, would be constructed along the southeastern border of Tecate Peak, and would pass through a riparian area. This proposed fence section would encroach on a mix of privately owned land parcels and public land administered by the BLM. Construction of this fence section would necessitate an upgrade to an access road west of Tecate (see **Figure 2-2** and **Appendix E**).

The proposed tactical infrastructure for Section A-2 would potentially impact an approximate 60-foot-wide corridor. Steep topography at Section A-1 would necessitate a wider impact corridor where more extensive cutting and filling would be required. This corridor would include primary pedestrian fence, construction and patrol roads, and construction staging areas. In areas of Section A-1 where the fence separates from the road, a disturbance corridor no greater than 60 feet is anticipated. The area permanently impacted within the two sections (including new road construction and staging areas) would be

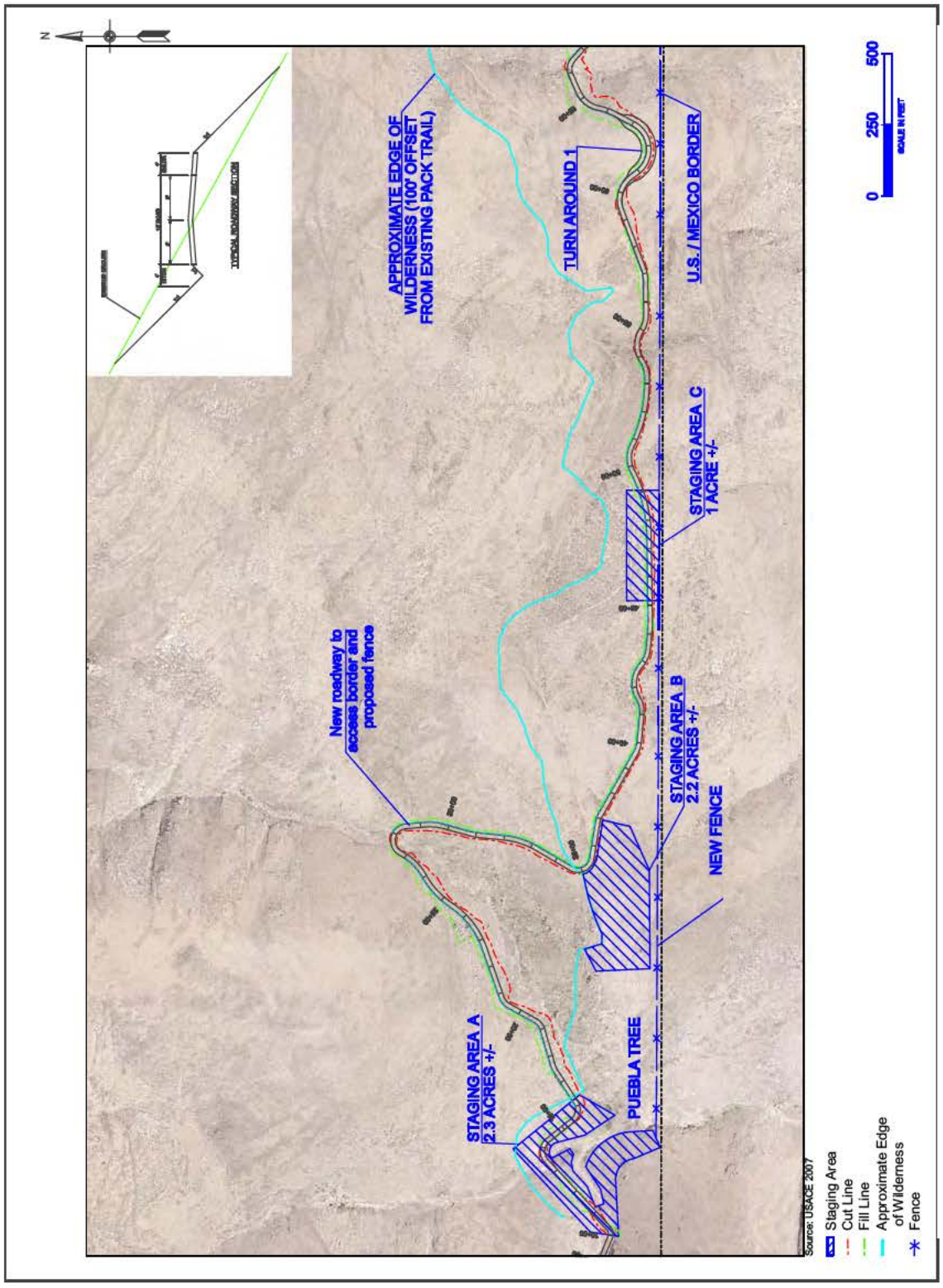

Figure 2-3. Detailed Map of Section A-1 (1 of 6)

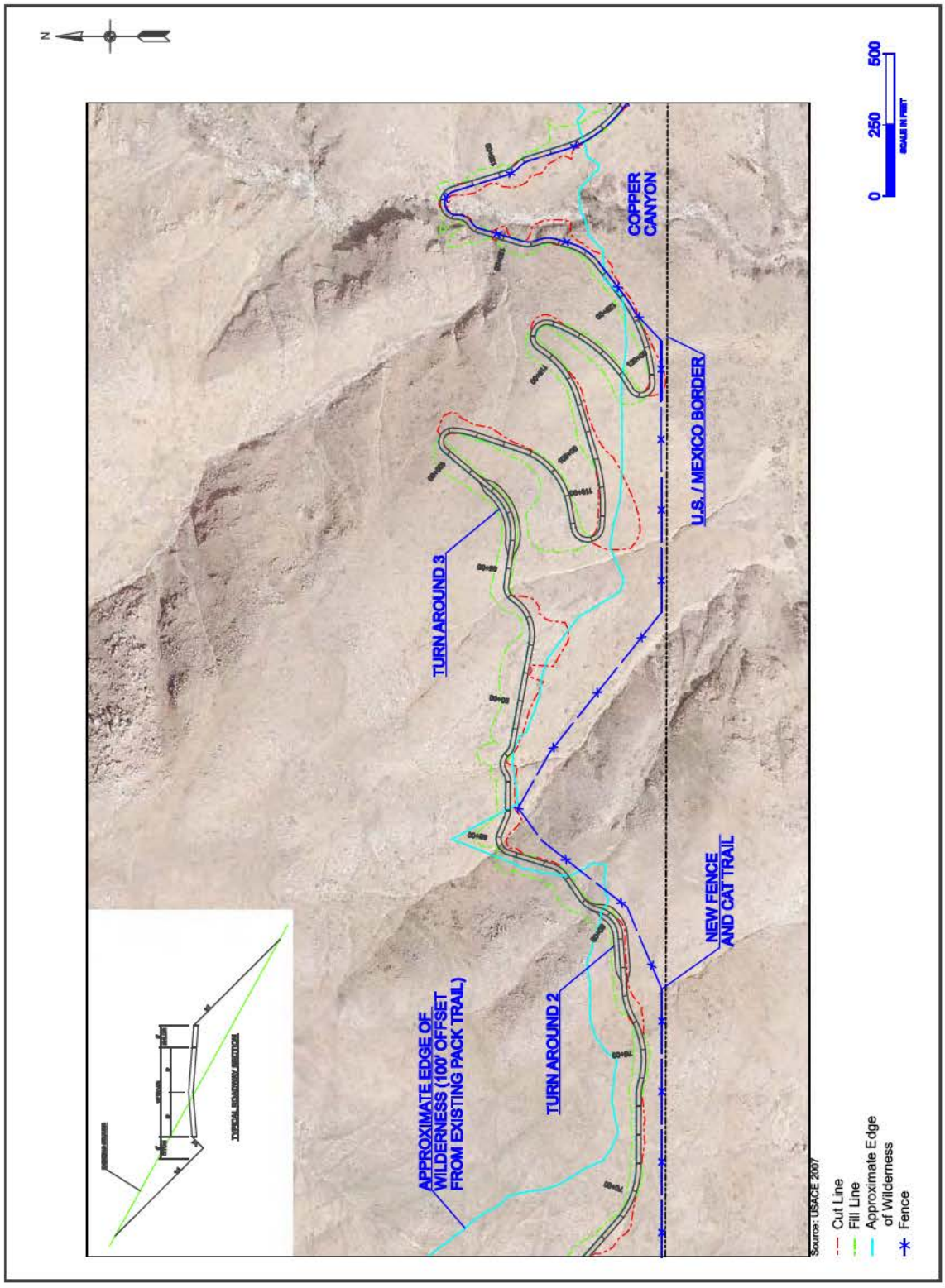

Figure 2-4. Detailed Map of Section A-1 (2 of 6)

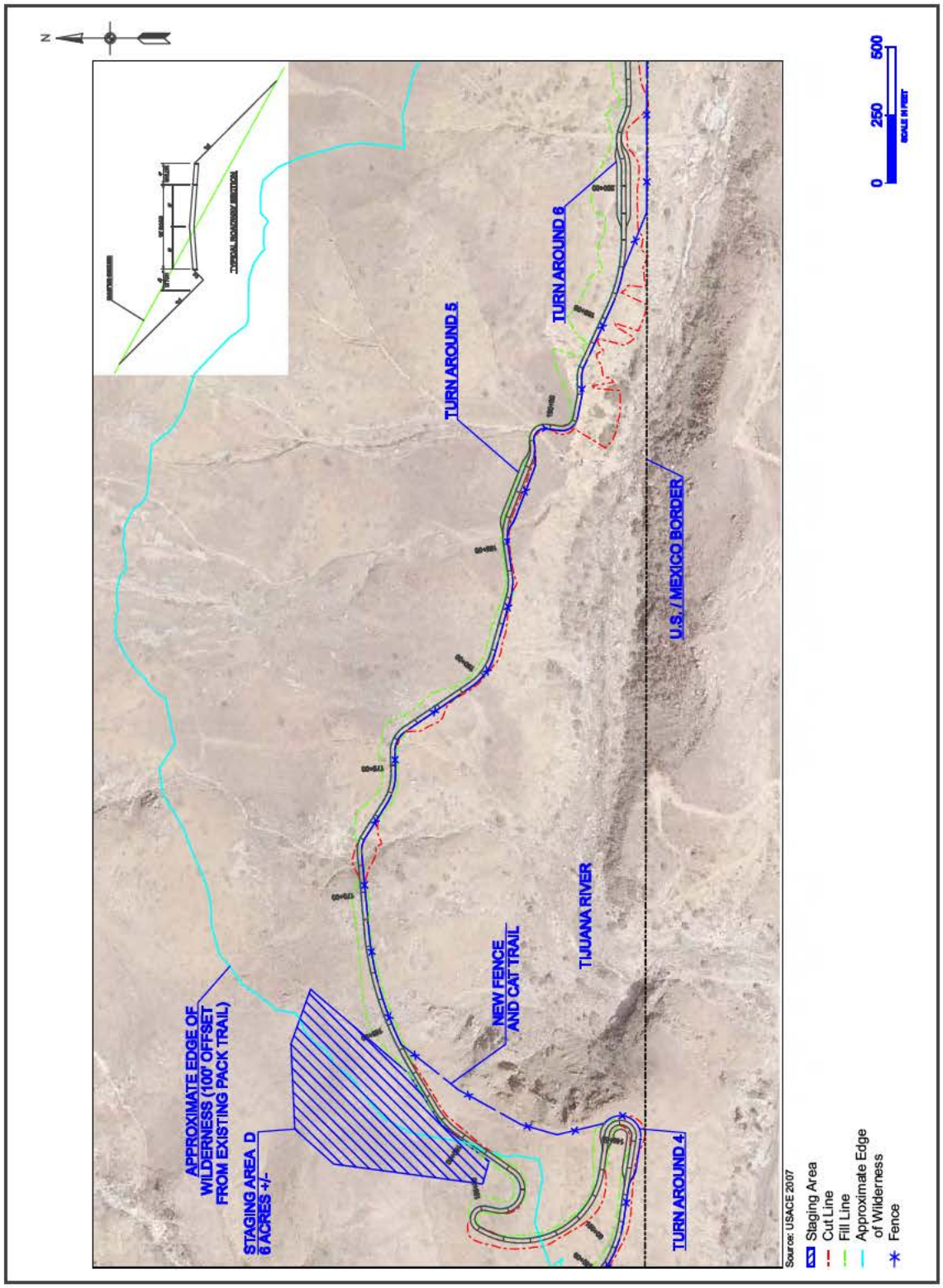

Figure 2-5. Detailed Map of Section A-1 (3 of 6)

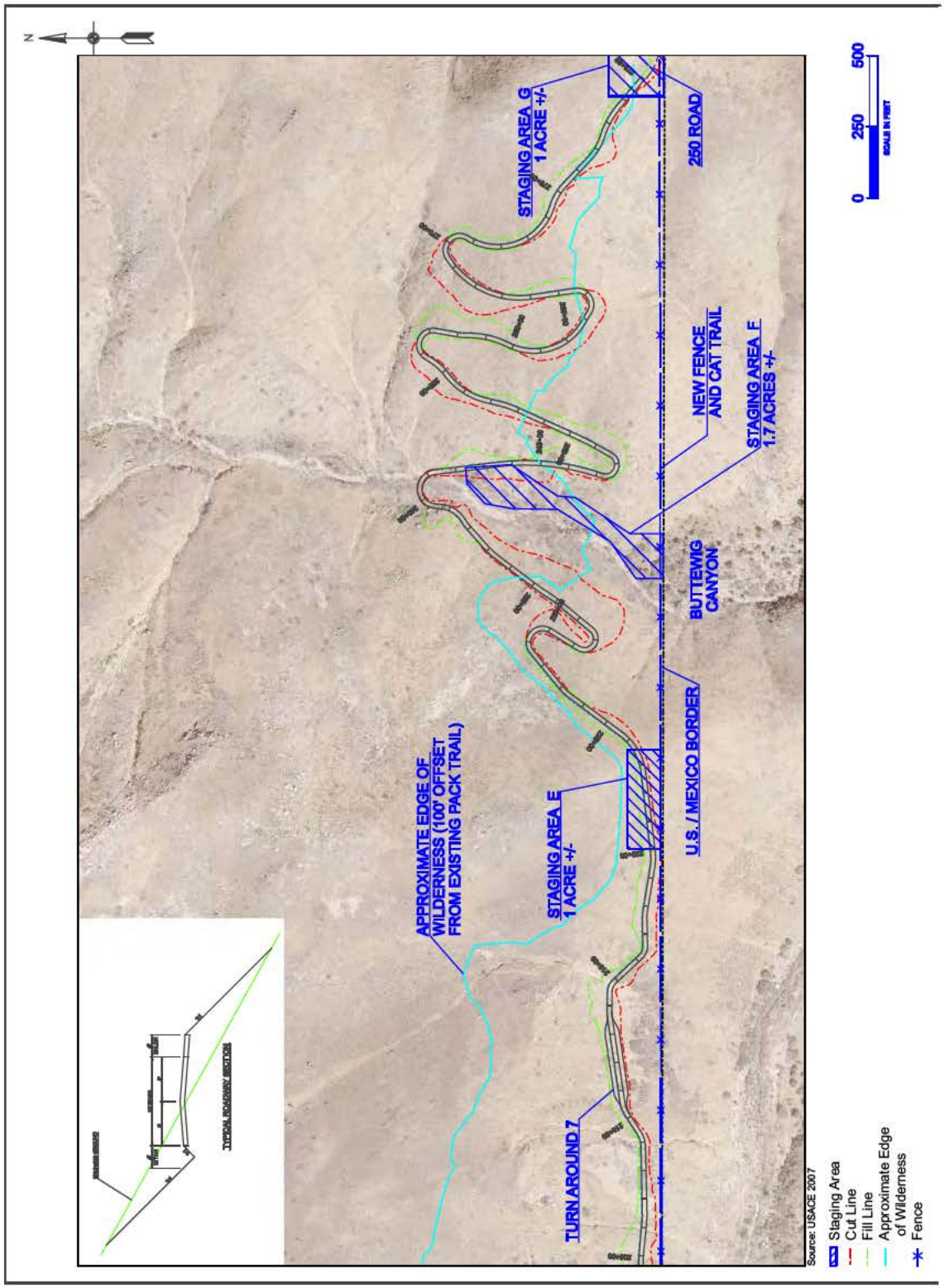

Figure 2-6. Detailed Map of Section A-1 (4 of 6)

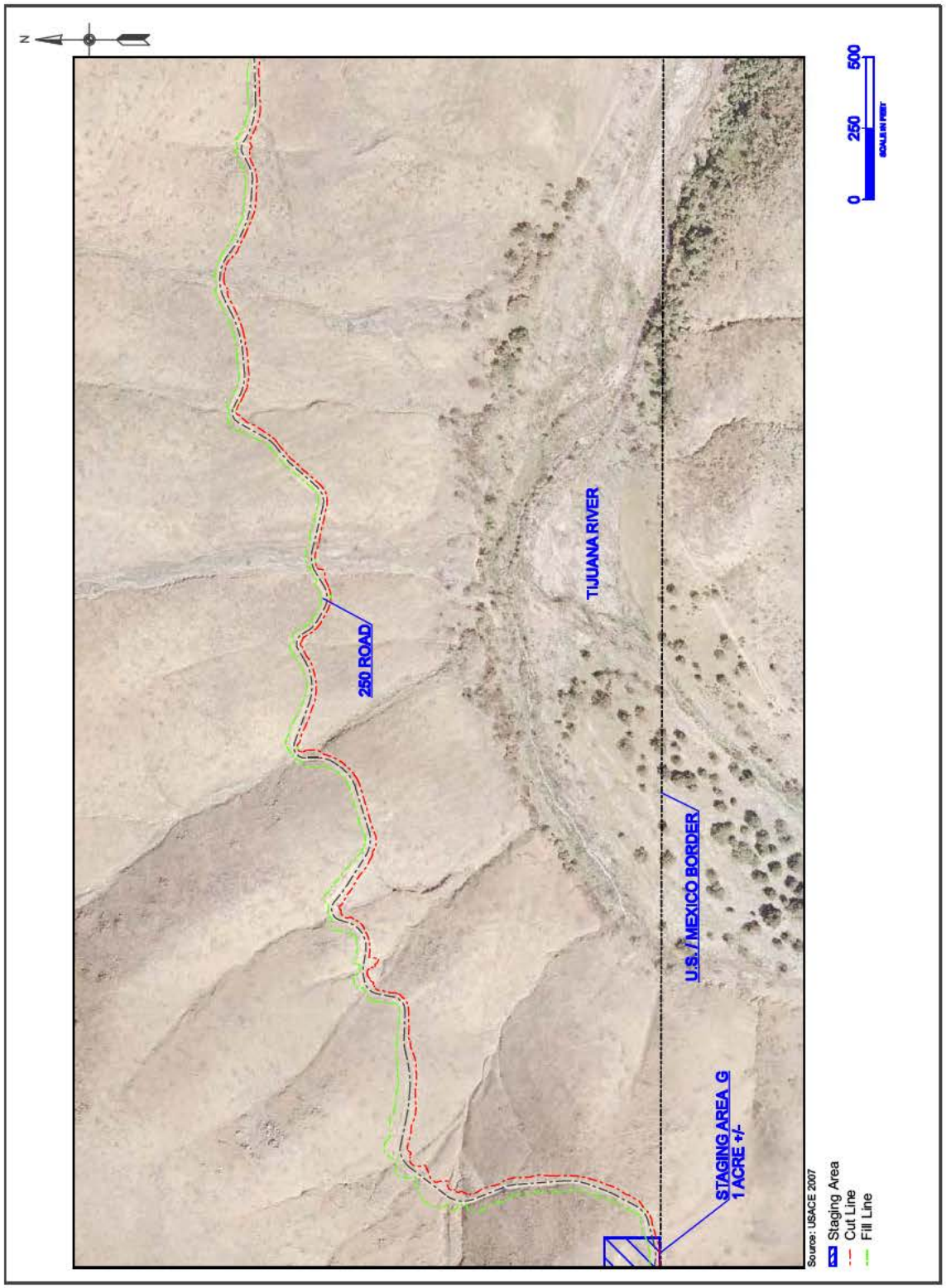

Figure 2-7. Detailed Map of Section A-1 (5 of 6)

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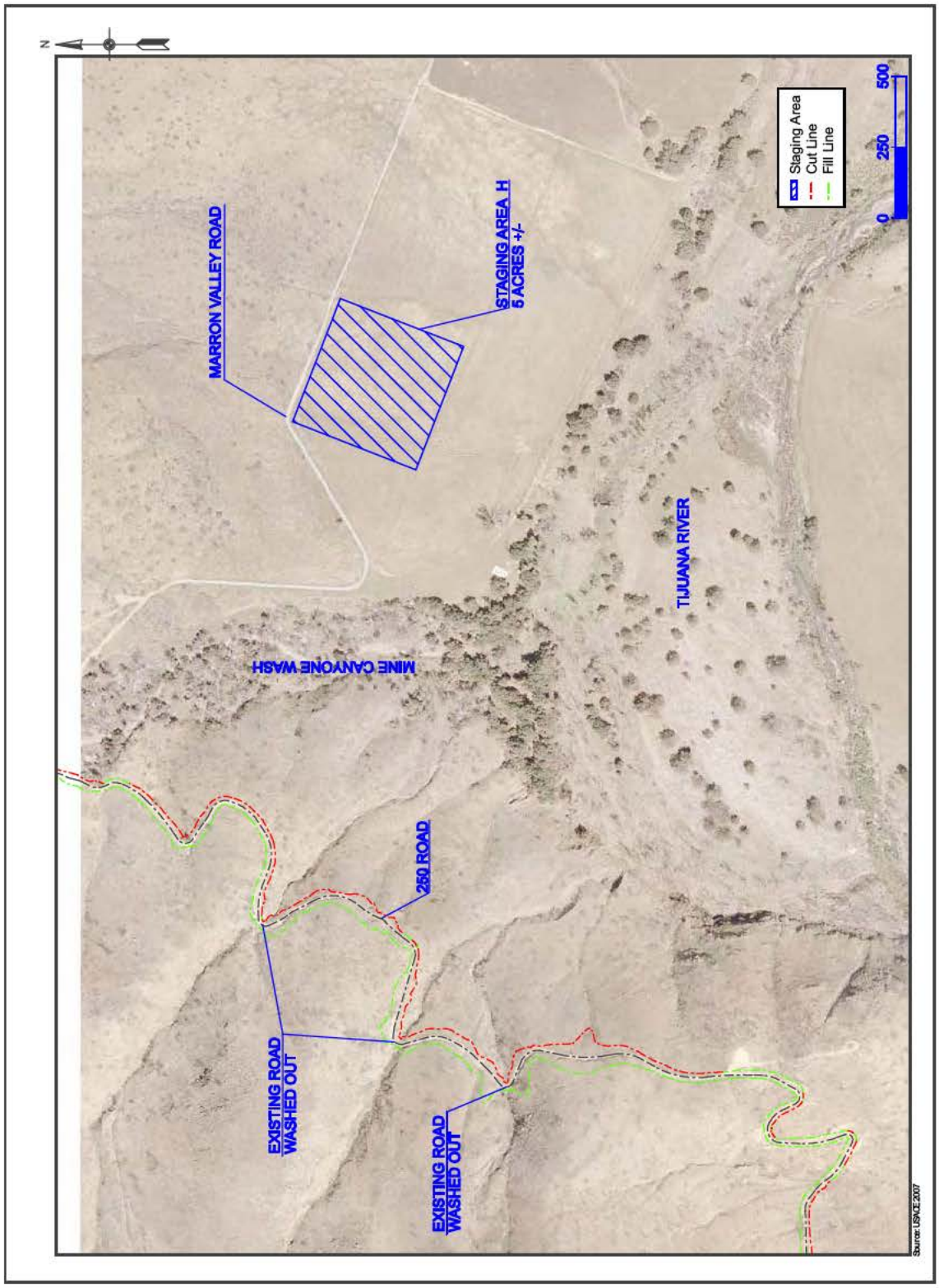

Figure 2-8. Detailed Map of Section A-1 (6 of 6)

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3

approximately 82.4 acres for Section A-1 and approximately 10 acres for Section A-2. It is estimated that approximately 270,000 cubic yards (cy) of cut-and-fill disturbance would be required to construct Section A-1 and an estimated 30,000 cy of cut-and-fill disturbance would be required for Section A-2. **Figure 2-9** shows a schematic drawing of the proposed project corridor.

Wherever possible, existing roads would be used to access the Section A-1 and A-2 areas. These access roads would require some improvements in places to allow for the passage of commercial construction equipment. To the west of Section A-1, approximately 5.1 miles of existing access road would be utilized. A new access road would be constructed starting at the intersection of Alta and Donovan Prison Roads for a distance of approximately 0.5 miles.

To the east of Section A-1, approximately 7.8 miles of existing road would be utilized. Part of this road is designated as the Monument 250 Road. Certain upgrades to this portion were recently addressed in an EA (*Monument 250 Road Improvement Project, Office of Border Patrol, San Diego Sector, Brown Field Station, San Diego County, California).* Relevant information discussed in this EA will be incorporated by reference. Additional widening and drainage upgrades not evaluated in the *Monument 250 Road Improvement Project EA* would be necessary. It is estimated that an additional 75,000 cy of cut-and-fill disturbance would occur in association with access road upgrades and new road construction. To the west of Section A-1, certain points along Otay Mountain Truck Road and the spur to Puebla Tree construction access roads might require widening at various locations to allow for the safe travel of large construction vehicles. To the east of Section A-1, similar improvement might be required to Marron Valley Road (see **Figure 2-1**). It is anticipated that Mission Road would serve as the access road to Section A-2.

Design criteria that have been established based on USBP operational needs require that, at a minimum, any fencing must meet the following requirements:

- Built 15 to 18 feet high and extend below ground
- Capable of withstanding a crash of a 10,000-pound (gross weight) vehicle traveling at 40 miles per hour
- Capable of withstanding vandalism, cutting, or various types of penetration
- Semi-transparent, as dictated by operational need
- Designed to survive extreme climate changes
- Designed to reduce or minimize impacts on small animal movements
- Engineered not to impede the natural flow of surface water
- Aesthetically pleasing to the extent practical.

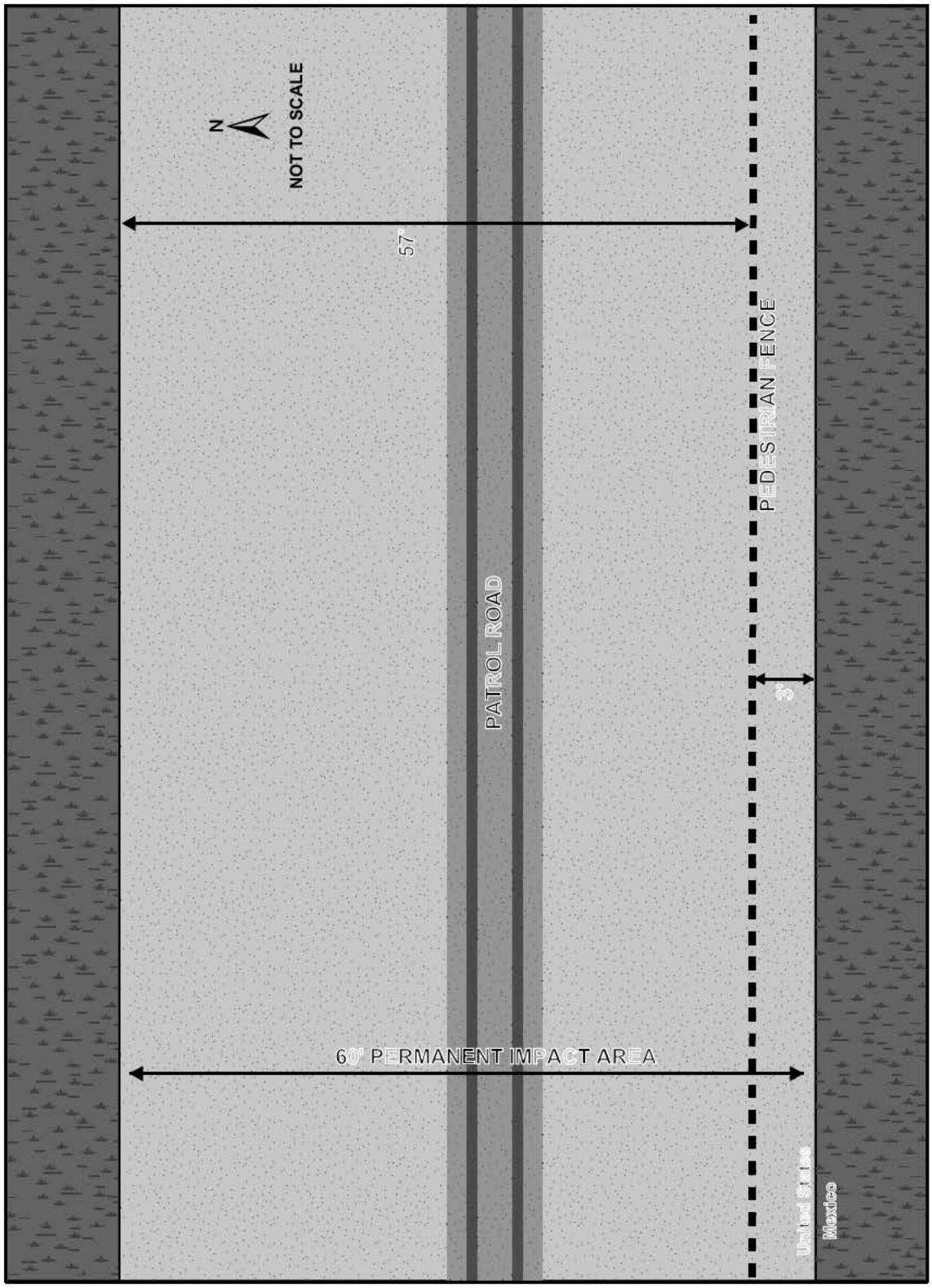

Figure 2-9. Schematic Drawing of Proposed Project Corridor

Typical primary pedestrian fence designs that could be used are included in **Appendix A**. Congress has appropriated funds for the construction of the proposed tactical infrastructure. The preliminary estimate to construct the proposed tactical infrastructure sections is approximately $50 million.

There would be no overall change in USBP San Diego Sector operations. The USBP San Diego Sector activities routinely adapt to operational requirements, and would continue to do so under this alternative. Overall, the USBP San Diego Sector operations would retain the same flexibility to most effectively provide a law enforcement resolution to illegal cross-border activity. Fence maintenance would initially be performed by USBP Sector personnel, but would eventually become a contractor performed activity.

If approved, construction of the proposed tactical infrastructure would begin in Spring 2008 and continue through December 31, 2008.

Construction of other tactical infrastructure might be required in the future as mission and operational requirements are continually reassessed. To the extent that additional actions are known, they are discussed in this EIS in **Section 5**, Cumulative Impacts.

2.2.9 No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP San Diego Sector. The USBP San Diego Sector would continue to use agents and technology to identify illegal cross-border activity, and deploy agents to make apprehensions. Although USBP agents would continue to patrol the Pack Trail and make apprehensions, their response time and success rate in apprehensions would continue to be impeded. The No Action Alternative is no longer an efficient use of USBP resources and would not meet future USBP mission or operational needs. However, inclusion of the No Action Alternative is prescribed by the CEQ regulations and will be carried forward for analysis in the EIS. The No Action Alternative also serves as a baseline against which to evaluate the impacts of the Proposed Action.

2.3 IDENTIFICATION OF THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

CEQ's implementing regulation 40 CFR 1502.14(c) instructs EIS preparers to "Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference." CBP has identified the Proposed Action to be the most environmentally preferred, least-damaging, and most practical alternative considered.

Implementation of the Proposed Action would meet USBP's purpose and need described in **Section 1.2**. The No Action Alternative would not meet USBP's purpose and need.

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SECTION 3

Affected Environment

3. AFFECTED ENVIRONMENT

3.1 INTRODUCTION

In compliance with NEPA, the CEQ guidelines, and DHS MD 5100.1, the following evaluation of potential environmental impacts focuses on those resource areas and conditions subject to impacts and on potentially significant environmental issues deserving of study, and deemphasizes insignificant issues. All potentially relevant resource areas were initially considered in this EIS. Some environmental resource areas and conditions that are often selected for analysis in an EIS have been omitted from detailed analysis here because of their inapplicability to this proposal. General descriptions of the eliminated resources and the bases for elimination are described below.

Climate. The Proposed Action would neither affect nor be affected by the climate. However, air emissions and their impact on air quality are discussed in **Section 3.2**.

Utilities and Infrastructure. The Proposed Action would not be located in any utility corridors, and would not impact utilities or similar infrastructure. Operation and maintenance of the proposed tactical infrastructure would not be connected to any utilities.

Roadways and Traffic. The Proposed Action would be located in remote areas not accessible from public roadways. Construction traffic would have negligible impacts on other traffic in local areas. As a result, the Proposed Action would have negligible impacts on transportation and transportation corridors.

Hazardous Materials and Solid Waste. Long-term, minor, adverse effects would be expected as a result of the Proposed Action. Products containing hazardous materials (such as fuels, oils, lubricants, pesticides, and herbicides) would be procured and used during the proposed construction. It is anticipated that the quantity of products containing hazardous materials used would be minimal and their use would be of short duration. Minimal quantities of herbicide would be used for vegetative growth in the immediate vicinity of the fence. In addition, the quantity of hazardous and petroleum wastes generated from proposed construction would be negligible. Construction contractors would be responsible for the management of hazardous materials and wastes. The management of hazardous materials and wastes would include the use of best management practices (BMPs), a pollution prevention plan, and a storm water pollution prevention plan (SWPPP). All hazardous materials and wastes would be handled in accordance with applicable Federal, state, and local regulations.

Sustainability and Greening. EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (January 24, 2007), promotes environmental practices, including acquisition of biobased, environmentally

preferable, energy-efficient, water-efficient, and recycled-content products; and maintaining cost-effective, waste prevention and recycling programs in their facilities. The Proposed Action would use minimal amounts of resources during construction and maintenance. Therefore, the Proposed Action would have negligible impacts on sustainability and greening.

3.2 AIR QUALITY

In accordance with Federal CAA requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere. The CAA directed USEPA to develop National Ambient Air Quality Standards (NAAQS) for pollutants that have been determined to affect human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulates equal to or less than 10 microns in diameter [PM_{10}] and particulates equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The primary NAAQS are ambient air quality standards of which maintenance is required to protect the public health, with an adequate margin of safety. Secondary NAAQS specify levels of air quality of which maintenance is required to protect vegetation, crops, and other public resources along with maintaining visibility standards.

The CAA requires states to designate any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for a criteria pollutant as a nonattainment area. For O_3, the CAA requires that each designated nonattainment area be classified as marginal, moderate, serious, severe, or extreme, based on ambient O_3 concentrations. The California Environmental Protection Agency (Cal/EPA), California Air Resources Board (CARB) has delegated responsibility for implementation of the Federal CAA and California CAA to local air pollution control agencies. The Proposed Action is subject to rules and regulations developed by the San Diego County Air Pollution Control District (SDAPCD).

The State of California adopted the NAAQS and promulgated additional State Ambient Air Quality Standards (SAAQS) for criteria pollutants. The California standards are more stringent than the Federal primary standards. **Table 3.2-1** presents the primary and secondary USEPA NAAQS and SAAQS.

USEPA classifies the air quality in an air quality control region (AQCR), or in subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the primary or secondary NAAQS. All areas within each AQCR are therefore designated as either “attainment,” “nonattainment,” “maintenance,” or “unclassified” for each of the six criteria pollutants. Attainment means that the air quality within an AQCR is better than

Table 3.2-1. National and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard	National Standard	
		Concentration	Primary	Secondary
O_3	1 Hour [c]	0.09 ppm (180 µg/m^3)	----	Same as Primary Standard
	8 Hour [b]	0.070 ppm (137 µg/m^3)	0.08 ppm (157 µg/m^3)	
PM_{10}	24 Hour [a]	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean [d]	20 µg/m^3	----	
$PM_{2.5}$	24 Hour [f]	No separate State Standard	35 µg/m^3	Same as Primary Standard
	Annual Arithmetic Mean [e]	12 µg/m^3	15 µg/m^3	
CO	8 Hour [a]	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	None
	1 Hour [a]	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
NO_2	Annual Arithmetic Mean	0.030 ppm (56 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
	1 Hour	0.18 ppm (338 µg/m^3)	----	
SO_2	Annual Arithmetic Mean	----	0.030 ppm (80 µg/m^3)	----
	24 Hour [a]	0.04 ppm (105 µg/m^3)	0.14 ppm (365 µg/m^3)	----
	3 hour [a]	----	----	0.5 ppm (1300 µg/m^3)
	1 Hour	0.25 ppm (655 µg/m^3)	----	
Pb	30 Day Average	1.5 µg/m^3	----	----
	Calendar Year	----	1.5 µg/m^3	Same as Primary Standard

Pollutant	Averaging Time	California Standard	National Standard	
		Concentration	Primary	Secondary
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer visibility of 10 miles or more due to particles when relative humidity is less than 70 percent	No Federal Standards	
Sulfates	24 Hour	25 µg/m^3		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m^3)		

Sources: USEPA 2007a and CARB 2007a

Notes: Parenthetical values are approximate equivalent concentrations.

[a] Not to be exceeded more than once per year.

[b] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

[c] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1. (b) As of June 15, 2005, USEPA revoked the 1-hour ozone standard in all areas except the 14 8-hour ozone nonattainment Early Action Compact Areas.

[d] To attain this standard, the expected annual arithmetic mean PM_{10} concentration at each monitor within an area must not exceed 50 µg/m^3.

[e] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m^3.

[f] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m^3.

ppm = parts per million

µg/m^3 = micrograms per cubic meter

mg/m^3 = milligrams per cubic meter

the NAAQS, nonattainment indicates that criteria pollutant levels exceed NAAQS, maintenance indicates that an area was previously designated in nonattainment but is now in attainment, and unclassifiable means that there is not enough information to appropriately classify an AQCR, so the area is considered in attainment.

Many chemical compounds found in the Earth's atmosphere act as "greenhouse gases." These gases allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth's surface, some of it is reflected back towards space as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and

trap the heat in the atmosphere. Over time, the trapped heat results in the phenomenon of global warming.

In April 2007, the U.S. Supreme Court declared that carbon dioxide (CO_2) and other greenhouse gases are air pollutants under the CAA. The Court declared that the USEPA has the authority to regulate emissions from new cars and trucks under the landmark environment law.

Many gases exhibit these "greenhouse" properties. The majority of greenhouse gases comes from natural sources but is also contributed to by human activity. Additional information on sources of greenhouse gases is included in **Appendix F**.

Sections A-1 and A-2

The Proposed Action is located within San Diego County, California, within the San Diego Interstate Air Quality Control Region (SDIAQCR). The SDIAQCR is composed of San Diego County, California. San Diego County is within a Federal Subpart 1 (Basic) and State nonattainment area for 8-hour O_3, Federal moderate maintenance area for CO, and State nonattainment area for PM_{10} and $PM_{2.5}$. San Diego County is in attainment/unclassified for all other criteria pollutants.

3.3 NOISE

Sound is defined as a particular auditory effect produced by a given source, for example the sound of rain on a rooftop. Sound is measured in decibels. "A-weighted" decibels (dBA) denote the frequency range for what the average human ear can sense. "A-weighted" denotes the adjustment of the frequency content of a sound-producing event to represent the way in which the average human ear responds to the audible event. Noise levels associated with construction equipment, vehicle operations, and aircraft operations are analyzed using dBA. C-weighted sound level measurement correlates well with physical vibration response of buildings and other structures to airborne sound. Impulsive noise resulting from demolition activities and the discharge of weapons are assessed in terms of C-weighted decibels (dBC).

Noise and sound share the same physical aspects, but noise is considered a disturbance while sound is defined as an auditory effect. Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Noise can be intermittent or continuous, steady or impulsive, and can involve any number of sources and frequencies. Human response to increased sound levels varies according to the source type, characteristics of the sound source, distance between source and receptor, receptor sensitivity, and time of day. Affected receptors are specific (i.e., schools, churches, or hospitals) or broad (e.g., nature preserves or

designated districts) areas in which occasional or persistent sensitivity to noise above ambient levels exists.

Most people are exposed to sound levels of 50 to 55 dBA or higher on a daily basis. Studies specifically conducted to determine noise impacts on various human activities show that about 90 percent of the population is not significantly bothered by outdoor sound levels below 65 dBA (USEPA 1974). Studies of community annoyance in response to numerous types of environmental noise show that an A-weighted day-night average sound level (ADNL) correlates well with impact assessments and that there is a consistent relationship between ADNL and the level of annoyance.

Ambient Sound Levels. Noise levels in residential areas vary depending on the housing density and location. As shown in **Figure 3.3-1**, a suburban residential area is about 55 dBA, which increases to 60 dBA for an urban residential area, and 80 dBA in the downtown section of a city.

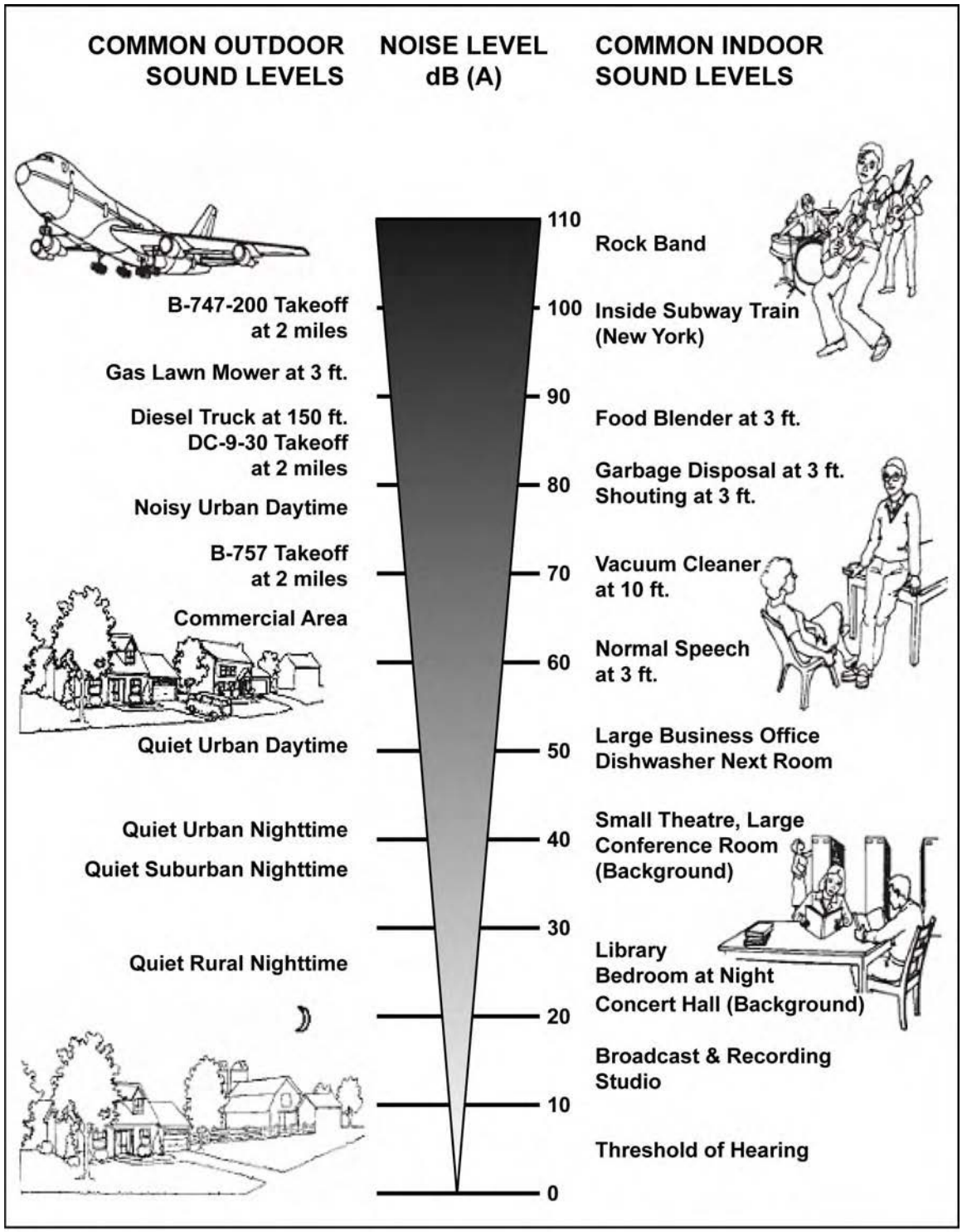
Construction Sound Levels. Building construction, modification, and demolition work can cause an increase in sound that is well above the ambient level. A variety of sounds come from graders, pavers, trucks, welders, and other work processes. **Table 3.3-1** lists noise levels associated with common types of construction equipment that are likely to be used under the Proposed Action. Construction equipment usually exceeds the ambient sound levels by 20 to 25 dBA in an urban environment and up to 30 to 35 dBA in a quiet suburban area.

Sections A-1 and A-2

Section A-1 of the proposed border fence is in a remote area along the U.S./Mexico international border between Puebla Tree and Boundary Monument 250. As such, the ambient acoustical environment in the proposed project corridor is likely to be equivalent to the noise levels in a rural area. Aircraft and vehicle traffic are likely the largest noise contributors in the vicinity of the proposed Section A-1.

The closest major transportation route in the vicinity of the proposed Section A-1 is State Route (SR) 94. SR 94 runs in a northwest-southeast direction and lies about 3.5 miles north of the U.S./Mexico international border. Direct access to the border is obtained by several small dirt roads. SR 94 passes by several residential areas.

Section A-2 is west of the city of Tecate, California. Tecate, Mexico, is heavily populated; however, an existing fence reduces the noise from Tecate, Mexico, from impacting U.S. residents in the vicinity of the proposed site. There is one residential home in the United States that is approximately 250 feet from the proposed project corridor. The ambient acoustical environment in this area is likely to be equivalent to the noise levels in a rural or suburban area.



Source: Landrum & Brown 2002

Figure 3.3-1. Common Noise Levels

Table 3.3-1. Predicted Noise Levels for Construction Equipment

Construction Category and Equipment	Predicted Noise Level at 50 feet (dBA)
Clearing and Grading	
Bulldozer	80
Grader	80–93
Truck	83–94
Roller	73–75
Excavation	
Backhoe	72–93
Jackhammer	81–98
Building Construction	
Concrete mixer	74–88
Welding generator	71–82
Pile driver	91–105
Crane	75–87
Paver	86–88

Source: COL 2001

Major transportation routes in the vicinity of proposed Section A-2 include SR 94 and SR 188. SR 94 is approximately 1.5 miles north and SR 188 is approximately 2 miles east of the proposed Section A-2. Direct access to the proposed project corridor can be obtained from Tecate Mission Road, which abuts the current sections of border fence and the city of Tecate, California. Residential buildings are approximately 0.1 mile from the current border fence.

3.4 LAND USE AND RECREATION

The term land use refers to real property classifications that indicate either natural conditions or the types of human activity occurring on a parcel. In many cases, land use descriptions are codified in local zoning laws. There is, however, no nationally recognized convention or uniform terminology for describing land use categories. As a result, the meanings of various land use descriptions, "labels," and definitions vary among jurisdictions.

Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas. Compatibility among land uses fosters the societal interest of obtaining the highest and best uses of real property. Tools supporting land use planning include written master plans/management plans and zoning regulations. In appropriate cases, the location and extent of a proposed action needs to be evaluated for its potential effects on a project site and adjacent land uses. The foremost factor affecting a

proposed action in terms of land use is its compliance with any applicable land use or zoning regulations. Other relevant factors include matters such as existing land use at the project site, the types of land uses on adjacent properties and their proximity to a proposed action, the duration of a proposed activity, and its "permanence."

Recreational resources are both natural and man-made lands designated by Federal, state, and local planning entities to offer visitors and residents diverse opportunities to enjoy leisure activities. Recreational resources are those places or amenities set aside as parklands, trails (e.g., hiking, bicycling, equestrian), recreational fields, sport or recreational venues, open spaces, aesthetically pleasing landscapes, and a variety of other locales. National, state, and local jurisdictions typically have designated land areas with defined boundaries for recreation. Other less-structured activities, like hunting, are performed in broad, less-defined locales. A recreational setting might consist of natural or man-made landscapes and can vary in size from a roadside monument to a multimillion-acre wilderness area.

Sections A-1 and A-2

The proposed primary pedestrian fence would traverse approximately 4.4 miles of public and private lands within southern San Diego County (see **Table 3.4-1**). Approximately 3.5 miles of publicly owned land consisting of 3.6 miles (17,600 feet) in Section A-1 and 0.2 miles (approximately 1,000 feet) in Section A-2, and 0.6 miles (approximately 3,100 feet) of privately owned land in Section A-2 would be traversed by the primary pedestrian fence.

Table 3.4-1. Land Ownership Along the Proposed Primary Pedestrian Fence

Fence Section	Land Ownership	Length of Fence Section (feet)	Length of Fence Section (miles)
A-1	Public	17,600	3.6
A-2	Public	820	0.2
	Privately Owned	2,900	0.6
	Total	**21,320**	**4.4**

Approximately 58 percent of the proposed project corridor within Section A-1 would be within the Federal government's 60-foot Roosevelt Reservation along the U.S./Mexico international border, and the remainder would be on land managed by the BLM, which includes the OMW. However, the entire length of fence within Section A-2 would be within the Federal government's 60-foot Roosevelt Reservation.

Land uses identified in the analysis include those uses that are traversed by or located immediately adjacent to the proposed project corridor and could be affected by construction, operation, or maintenance of the Proposed Action. The land use data presented in this EIS utilize land use designations that are compiled and maintained by the San Diego Association of Governments (SANDAG) for use in its programs and projects within San Diego County (SANDAG 2007a). The land use information is continuously updated using aerial photography, the San Diego County Assessor Master Property Records file, and other ancillary information. In addition, the land use data are reviewed by each of the local jurisdictions and the County of San Diego to ensure their accuracy. The current SANDAG land use inventory identifies more than 90 land use categories, however these categories were generalized into the following nine land use categories: Residential, Industrial, Transportation, Commercial, Office, Public Facilities, Recreation and Open Space, Agriculture, and Vacant and Undeveloped Land (see **Table 3.4-2**).

Table 3.4-2. General Land Use Categories

General Land Use Category	SANDAG General Land Use Designations	Example Land Uses
Residential	Spaced Rural Residential, Single-Family Residential, Multi-Family Residential, Mobile Home Park, Group Quarters, Hotel/Motel/ Resort	Single family houses; multi-family residences such as duplexes, townhouses, condominiums; mobile home parks; group quarters such as jails/prisons, dormitories, military barracks; hotels, motels, resorts
Public Facilities	Public Services, Hospitals, Military Use, Schools	Cemeteries, religious facilities; libraries; post offices; fire or police stations; cultural facilities; social service agencies; hospitals; health care facilities; military facilities; educational institutions
Recreation and Open Space	Commercial Recreation, Parks	Tourist attractions; stadiums/arenas; racetracks; golf courses; convention centers; marinas; fitness clubs/swim clubs; campgrounds; theaters; regional and local parks; recreation areas/centers; wildlife and nature preserves; open space lands; beaches; neighborhood landscaped open spaces
Agriculture	Agriculture	Orchards or vineyards; nurseries, greenhouses, dairies, ranches; row crops; pasture or fallow field crops
Vacant and Undeveloped Land	Vacant	Historical and existing vacant and undeveloped land not placed in another land use category

Source: SANDAG 2007a

The proposed tactical infrastructure, including access roads and staging areas, and proposed project corridor would be located on land designated as Public Facilities (Jail/Prison), Agriculture (Field Crops), Recreation and Open Space (Open Space Park or Preserve), Residential (Spaced Rural Residential), and Vacant and Undeveloped Land (see **Table 3.4-2**).

Specific land use data were gathered from various regional and local planning and environmental documents, aerial photography, and other research. **Table 3.4-3** identifies the specific land uses that occur in the vicinity of the Proposed Action. The figures displayed in **Appendix E** show the location of the proposed tactical infrastructure and the proximity of adjacent and intersecting land uses.

Table 3.4-3. Land Uses in the Vicinity of the Proposed Action

Fence Section	Jurisdiction	General Land Use Category	Specific Land Uses
A-1	Unincorporated San Diego County	Public Facilities	George F. Bailey Detention Facility, East Mesa Detention Facility, San Diego Correctional Facility
	State of California	Public Facilities	Richard J. Donovan Correctional Facility
	Unincorporated San Diego County	Agriculture/ Vacant and Undeveloped Land	Kuebler Ranch Site
	BLM	Recreation and Open Space	OMW
	USIBWC	Recreation and Open Space	Roosevelt Reservation
	City of San Diego	Recreation and Open Space	Marron Valley Preserve
A-2	USIBWC	Recreation and Open Space	Roosevelt Reservation
	BLM	Recreation and Open Space	Kuchamaa Area of Critical Environmental Concern (ACEC)
	Unincorporated San Diego County	Residential/ Vacant and Undeveloped Land	Private residence

The following is a description of the specific land uses that occur in the vicinity of the Proposed Action.

George F. Bailey Detention Facility. This is a maximum-security correctional facility operated by the San Diego County Sheriff's Department. This facility is sited within a complex that also houses the East Mesa Detention Facility and the San Diego Correctional Facility. It is the largest of all the facilities operated under the San Diego County Sheriff's jurisdiction with a rated capacity of between 1,330 and 1,670 inmates (SDCSD 2002). The facility is approximately 0.5 miles northwest of the proposed new access road at the intersection of Alta and Donovan Prison Roads.

East Mesa Detention Facility. This is a medium-security facility built in conjunction with the George F. Bailey Detention Facility for use by the San Diego County Sheriff's Department. It houses 490 inmates, but is rated for approximately 340 to 510 inmates. The facility includes a central laundry and food production for this and other facilities, and is operated with the use of inmate workers at the site (SDCSD 2007).

San Diego Correctional Facility. This is a minimum- to medium-security facility that is privately managed by Corrections Corporation of America (CCA). It includes 1,232 beds and houses male and female inmates for Immigrations and Customs Enforcement (ICE) and the U.S. Marshals Service (CCA 2007).

Richard J. Donovan Correctional Facility. This is a state correctional facility operated by the California Department of Corrections and Rehabilitation (CDCR) that houses medium- to high-security inmates (CDCR 2007). The facility is located approximately 0.8 miles west of the proposed new access road at the intersection of Alta and Donovan Prison Roads.

Kuebler Ranch Site. Kuebler Ranch is the site of an old ranch, but also includes an important archaeological site on which artifacts such as stone artifacts, drilled scallop shells, and shell beads have been found (SDAC 2007). This site is immediately north of the proposed location of the new access road at the intersection of Alta and Donovan Prison Roads.

Pack Trail. The Pack Trail is a foot-path/pack-trail along the U.S./Mexico international border within BLM land. The Pack Trail traverses the San Ysidro Mountains beginning on the west end at Puebla Tree and ends at Border Monument 250. The Pack Trail is primarily used for hiking, with limited use by all-terrain vehicles (ATVs). The proposed Pack Trail access road would generally follow the general path of the Pack Trail unless severe topography makes it unfeasible.

Otay Mountain Wilderness. This 18,500-acre wilderness area was designated by Congress in 1999 through the Otay Mountain Wilderness Act, and is managed by the BLM, Palm Springs-South Coast Field Offices. Management direction for

the area has focused on conservation of the area's flora, fauna, ecologic, geologic, cultural, and scenic values as well as the protection of its wilderness values. As part of the Border Mountains Special Recreation Management Area (SRMA), OMW provides opportunities for low-impact recreation, including hiking, backpacking, equestrian use, camping, picnicking, nature study, hunting, and motorized vehicle use including ATV use on two existing routes (BLM 1994). The OMW includes stands of rare Tecate Cypress and 15 to 20 other sensitive vegetative species. The northern end of the OMW also contains the Cedar Canyon Area of Critical Environmental Concern (ACEC) and a grazing allotment (BLM 1999). Approximately 50 percent of the primary pedestrian fence, Pack Trail access road, and staging areas would be on the OMW.

Roosevelt Reservation. This is an area of land President Theodore Roosevelt reserved from entry and set apart as a public reservation in 1907 consisting of all public lands within 60 feet of the international boundary between the United States and Mexico within the State of California and the Territories of Arizona and New Mexico. Known as the "Roosevelt Reservation," this land withdrawal was found "necessary for the public welfare ... as a protection against the smuggling of goods." The proclamation excepted from the reservation all lands, which, as of its date, were (1) embraced in any legal entry; (2) covered by any lawful filing, selection, or rights of way duly recorded in the proper U.S. Land Office; (3) validly settled pursuant to law; or (4) within any withdrawal or reservation for any use or purpose inconsistent with its purposes (CRS 2006). The portions of the proposed tactical infrastructure, including the primary pedestrian fence, Pack Trail access road, and staging areas, would be located within the Roosevelt Reservation.

Marron Valley Preserve. The Marron Valley Preserve consists of approximately 2,600 acres owned and maintained by the City of San Diego Water Department. This area has been designated "Cornerstone Lands" under the City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan because it is considered an essential building block for creating a viable habitat preserve system. Much of the area is currently leased by the city for cattle grazing, however as part of its designation as Cornerstone Lands, the city would place conservation easements on portions of the preserve, which then can be used as a Conservation Land Bank and sold as mitigation credits to public entities, public utility/service providers, and private property owners doing projects in San Diego County and needing mitigation (City of San Diego 1997). A small portion of the proposed primary pedestrian fence, Pack Trail access road, and one staging area would be within the Marron Valley Preserve near Boundary Monument 250. An additional staging area to be used during upgrades of Monument 250 Road would also be located within the Preserve, east of Mine Canyon Wash.

Kuchamaa ACEC[2]. The Kuchamaa ACEC was established for the protection of Native American religious heritage values, including lands at Tecate Peak and Little Tecate Peak (BLM 1994). The boundary of the Kuchamaa ACEC that encompasses Tecate Peak is approximately 500 feet west of the end of Section A-2.

3.5 GEOLOGY AND SOILS

Geology and soils resources include the surface and subsurface materials of the earth. Within a given physiographic province, these resources typically are described in terms of topography, soils, geology, minerals, and paleontology, where applicable.

Topography is defined as the relative positions and elevations of the natural or human-made features of an area that describe the configuration of its surface. Regional topography is influenced by many factors, including human activity, seismic activity of the underlying geological material, climatic conditions, and erosion. Information describing topography typically encompasses surface elevations, slope, and physiographic features (i.e., mountains, ravines, or depressions).

Site-specific geological resources typically consist of surface and subsurface materials and their inherent properties. Principal factors influencing the ability of geological resources to support structural development are seismic properties (i.e., potential for subsurface shifting, faulting, or crustal disturbance), topography, and soil stability.

Soils are the unconsolidated materials overlying bedrock or other parent material. They develop from weathering processes on mineral and organic materials and are typically described in terms of their landscape position, slope, and physical and chemical characteristics. Soil types differ in structure, elasticity, strength, shrink-swell potential, drainage characteristics, and erosion potential, which can affect their ability to support certain applications or uses. In appropriate cases, soil properties must be examined for compatibility with particular construction activities or types of land use.

Prime and unique farmland is protected under the Farmland Protection Policy Act (FPPA) of 1981. The implementing procedures of the FPPA and Natural Resources Conservation Service (NRCS) require Federal agencies to evaluate the adverse effects (direct and indirect) of their activities on prime and unique farmland, as well as farmland of statewide and local importance, and to consider

[2] Areas of Critical Environmental Concern (ACECs) were authorized in Section 202(c)(3) of the Federal Land Policy and Management Act of 1976. ACECs are areas where special management attention is needed to protect and prevent irreparable damage to important historic, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes; or to protect human life and safety from natural hazards. The ACEC designation indicates that the BLM recognizes that an area has significant values, and establishes special management measures to protect those values (BLM 1994).

alternative actions that could avoid adverse effects. The Visalia sandy loam (5–9 percent slopes) is designated as a prime farmland soil. However, none of the area within the proposed project corridor is being used for agricultural purposes.

Sections A-1 and A-2

Physiography and Topography. USBP San Diego Sector occupies southeastern San Diego County, California, along the U.S./Mexico international border. The sector is in the Peninsular Range Physiographic Province of California, which is characterized by the northwest-trending Peninsular Range. Specifically, USBP San Diego Sector is in the San Ysidro Mountains, a sub-section of the Laguna Mountains section of the Peninsular Range. The topographic profile of USBP San Diego Sector is characterized by steep slopes. Elevations in USBP San Diego Sector range from about 500 to 1,350 feet above mean sea level (MSL) along Section A-1 and about 1,850 to 2,300 feet above MSL along Section A-2 (TopoZone.com 2007).

Geology. USBP San Diego Sector is within the Peninsular Range geomorphic region which consists predominantly of Mesozoic Era metavolcanic, metasedimentary, and plutonic rocks. The Peninsular Range region is underlain primarily by plutonic (e.g., granitic) rocks that formed from the cooling of molten magmas generated during subduction of an oceanic crustal plate that was converging on the North American Plate between 140 and 90 million years ago. During this time period, large amounts of granitic rocks accumulated at depth to form the Southern California Batholith. The intense heat of these plutonic magmas metamorphosed the ancient sedimentary rocks which were intruded by the plutons. These metasediments became marbles, slates, schist, quartzites, and gneiss currently found in the Peninsular Range region (Demere 2007).

Soils. Nine soil map units occur in USBP San Diego Sector. Generally, the soils of USBP San Diego Sector are well-drained to excessively drained, have varying permeability, and occur on moderately steep to very steep slopes with the exception of the Riverwash map unit (0–4 percent slopes) and the Visalia sandy loam soil map unit (5–9 percent slopes). The Visalia sandy loam (5–9 percent slopes) was the only soil map unit listed as prime farmland. The soil map units within the proposed corridor are classified as nonhydric soils (NRCS 2007). Hydric soils are soils that are saturated, flooded, or ponded for long enough during the growing season to develop anaerobic (oxygen-deficient) conditions in their upper part. The presence of hydric soil is one of the three criteria (hydric soils, hydrophytic vegetation, and wetland hydrology) used to determine that an area is a wetland based on the USACE *Wetlands Delineation Manual*, Technical Report Y-87-1 (USACE 1987).

The properties of soils identified in USBP San Diego Sector are described in **Table 3.5-1**. See **Appendix G** for a map of soil units within Section A-1 and Section A-2.

Table 3.5-1. Properties of the Soil Types Found Throughout the Areas of the Proposed Action

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric*	Farmland Importance	Properties
Acid igneous rock land	AcG	NA	15–75 percent	NA	NA	NA	Found on mountain slopes and mountains and parent material consists of acid igneous rock.
Andersen	AuF	Very gravelly sandy loam	9–45 percent	Somewhat excessively drained	No	None	Found on alluvial fans. Permeability is moderately rapid.
Cieneba	CmE2	Rocky coarse sandy loam	9–30 percent	Somewhat excessively drained	No	None	Found on foothills and hills. Permeability is moderately rapid in soil, slower in weathered granite.
Cieneba-Fallbrook	CnE2	Rocky sandy loam	9–30 percent	Somewhat excessively to well-drained	No	None	Found on foothills and hills. Permeability of the Cieneba component is moderately rapid in soil, slower in weathered granite. Permeability of the Fallbrook component is moderately slow.
Cieneba-Fallbrook	CnG2	Rocky sandy loam	30–65 percent	Somewhat excessively to well-drained	No	None	Found on foothills and hills. Permeability of the Cieneba component is moderately rapid in soil, slower in weathered granite. Permeability of the Fallbrook component is moderately slow.
Metamorphic rock land	MrG	NA	30–75 percent	Excessively drained	NA	NA	Found on mountain slopes and mountains and parent material consists of metasedimentary or metavolcanic rocks.

Name	Map Unit Symbol	Type	Slope	Drainage	Hydric*	Farmland Importance	Properties
Riverwash	Rm	NA	0–4 percent	Excessively drained	NA	NA	Found on drainageways and parent material consists of sandy, gravelly, or cobbly alluvium derived from mixed sources.
San Miguel-Exchequer	SnG	Rocky silt loam	9–70 percent	Well-drained	No	None	Found on mountain slopes and mountains. Permeability is moderately to very low.
Visalia	VaC	Sandy loam	5–9 percent	Well-drained	No	Prime	Found on alluvial fans. Permeability is moderately rapid.

Source: NRCS 2007

Notes:

* No = Not sted as a hydr c so for San D ego County, Ca form a
NA = Not ava ab e

3.6 HYDROLOGY AND GROUNDWATER

Hydrology and groundwater relates to the quantity and quality of the water resource and its demand for various human purposes. Hydrology consists of the redistribution of water through the processes of evapotranspiration, surface runoff, and subsurface flow. Hydrology results primarily from temperature and total precipitation which determine evapotranspiration rates, topography which determine rate and direction of surface flow, and soil properties which determines rate of subsurface flow and recharge to the groundwater reservoir. Groundwater consists of subsurface hydrologic resources. It is an essential resource that functions to recharge surface water and is used for drinking, irrigation, and industrial processes. Groundwater typically can be described in terms of depth from the surface, aquifer or well capacity, water quality, recharge rate, and surrounding geologic formations.

The Safe Drinking Water Act (SDWA) of 1974 (42 U.S.C. 2011-300) establishes a Federal program to monitor and increase the safety of all commercially and publicly supplied drinking water. The Proposed Action has no potential to affect public drinking water supplies.

Sections A-1 and A-2

Hydrology and Groundwater. USBP San Diego Sector is in the South Coast hydrologic region of California. This area is characterized by a semi-arid climate due to low annual precipitation (15 to 20 inches [38 to 51 centimeters). Temperatures range from as low as 43 degrees Fahrenheit (°F) in the winter to almost 90 °F in the summer. Due to the semi-arid climate, vegetation consists of shrublands which can be sparse. Reduced groundcover along with steep slopes due to local topography can lead to heavy runoff and high erosion potential during precipitation events. Section A-1 surface runoff flows towards three north-to-south flowing intermittent tributaries of the Tijuana River, which runs east to west parallel to but outside the proposed project corridor and predominantly on the Mexican side of the border. These three tributaries intersect the project corridor and drain Copper, Buttewig, and Mine canyons. In Section A-2, surface runoff flows into a single north-to-south-oriented intermittent tributary of the Tijuana River. This intermittent tributary also intersects the project corridor.

USBP San Diego Sector is not in the immediate vicinity of any confined groundwater basins in the United States (CADWR 2003). Groundwater is generally present under unconfined, or water-table, conditions as is evidenced by the properties of the proposed project corridor soils. The depth to water table is greater than 80 inches on all soil map units except for the Riverwash map unit, associated with the Tijuana River Valley, which is at a depth of 60 to 72 inches. The water-yielding materials in this area consist primarily of unconsolidated alluvial fan deposits. The consolidated volcanic and carbonate rocks that underlie the unconsolidated alluvium are a source of water if the consolidated rocks are sufficiently fractured or have solution openings (NRCS 2007).

3.7 SURFACE WATER AND WATERS OF THE UNITED STATES

Surface Water. Surface water resources generally consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale.

The CWA (33 U.S.C. 1251 et seq.) sets the basic structure for regulating discharges of pollutants to U.S. waters. Section 404 of the CWA (33 U.S.C. 1344) establishes a Federal program to regulate the discharge of dredged and fill material into waters of the United States. The USACE administers the permitting program for the CWA. Section 401 of the CWA (33 U.S.C. 1341) requires that proposed dredge and fill activities permitted under Section 404 be reviewed and certified by the designated state agency that the proposed project would meet state water quality standards. The Federal permit is deemed to be invalid unless it has been certified by the state. Section 303(d) of the CWA requires states and USEPA to identify waters not meeting state water-quality standards and to develop Total Maximum Daily Loads (TMDLs) and an implementation plan to reduce contributing sources of pollution.

Waters of the United States. Waters of the United States are defined within the CWA of 1972, as amended and jurisdiction is addressed by the USEPA and the USACE. Both agencies assert jurisdiction over (1) traditional navigable waters, (2) wetlands adjacent to navigable waters, (3) nonnavigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-around or have continuous flow at least seasonally (e.g., typically 3 months), and (4) wetlands that directly abut such tributaries.

The CWA (as amended in 1977) established the basic structure for regulating discharges of pollutants into the waters of the United States. The CWA objective is restoration and maintenance of chemical, physical, and biological integrity of United States waters. To achieve this objective several goals were enacted, including (1) discharge of pollutants into navigable waters be eliminated by 1985; (2) water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by 1983; (3) the discharge of toxic pollutants in toxic amounts be prohibited; (4) Federal financial assistance be provided to construct publicly owned waste treatment works; (5) the national policy that areawide waste treatment management planning processes be developed and implemented to ensure adequate control of sources of pollutants in each state; (6) the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into navigable waters, waters of the contiguous zone, and the oceans; and (7) the national policy that programs be developed and implemented in an expeditious manner so as to enable the goals to be met through the control of both point and nonpoint sources of pollution. The USACE regulates the discharge of dredge and fill material (e.g., sand, gravel, concrete, riprap, soil, cement block) into waters of the United States including adjacent wetlands under Section 404 of the CWA and work

on/or structures in or affecting navigable waters of the United States under Section 10 of the Rivers and Harbors Act of 1899.

Wetlands are an important natural system and habitat, performing diverse biologic and hydrologic functions. These functions include water quality improvement, groundwater recharge and discharge, pollution mitigation, nutrient cycling, wildlife habitat provision, unique flora and fauna niche provision, storm water attenuation and storage, sediment detention, and erosion protection. Wetlands are protected as a subset of the waters of the United States under Section 404 of the CWA. The term "waters of the United States." has a broad meaning under the CWA and incorporates deepwater aquatic habitats and special aquatic habitats (including wetlands). The USACE defines wetlands as "those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328).

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits for the discharge of dredge and fill materials into the waters of the United States, including wetlands. Therefore, even an inadvertent encroachment into wetlands or other "waters of the United States" resulting in displacement or movement of soil or fill materials has the potential to be viewed as a violation of the CWA if an appropriate permit has not been issued by the USACE. In California, the USACE has primary jurisdictional authority to regulate wetlands and waters of the United States. However, the California Porter-Cologne Water Quality Control (Porter-Cologne) Act (California Water Code §13000) established the State Water Resources Control Board and nine Regional Water Quality Control Boards as the principal state agencies for having primary responsibility in coordinating and controlling water quality in California. The state boards and the regional boards promulgate and enforce water quality standards in order to protect water quality. The Porter-Cologne Act applies to surface waters (including wetlands), groundwater, and point and nonpoint sources of pollution. Section 401 of the CWA gives the state board and regional boards the authority to regulate, through water quality certification, any proposed federally permitted activity that could result in a discharge to water bodies, including wetlands. The state may issue, with or without conditions, or deny certification for activities that could result in a discharge to water bodies. USBP San Diego Sector is within the jurisdiction of the San Diego Regional Water Quality Control Board (Region 9). A Section 401 water quality certification application would be submitted to the San Diego Regional Water Quality Control Board.

Furthermore, wetlands are protected under EO 11990, *Protection of Wetlands* (43 *Federal Register* 6030), the purpose of which is to reduce adverse impacts associated with the destruction or modification of wetlands.

Sections A-1 and A-2

Surface Waters and Waters of the United States. Section A-1 lies parallel to and north of the Tijuana River. The Tijuana River is a 120-mile-long intermittent river that flows along the U.S./Mexico international border from east to west before terminating in the Tijuana Estuary of the Pacific Ocean. This estuary occurs on the southern edge of San Diego and is the last undeveloped wetland system in San Diego County (SDSU 2007). The Tijuana River watershed covers approximately 1,750 square miles from the Laguna Mountains in the United States to the Sierra de Juarez in Mexico (SDSU 2007). Surface waters in the proposed project corridor consist of two riparian corridors that flow intermittently north to south and intersect this section prior to discharging to the Tijuana River. These riparian corridors are, from west to east, Copper and Buttewig canyons. In addition, the Monument 250 Road crosses Mine Canyon. This crossing was recently addressed in the *Monument 250 Road Improvement Project* (CBP 2007b) and is not part of the Proposed Action. During the 2007 site survey (see **Appendix H**), biologists observed that these riparian corridors were approximately 25 to 30 feet deep and up to 60 feet wide and of an intermittent nature. The areas were dry at the time of the survey but large boulders and rocks strewn across the canyon bottoms were evidence that there is heavy flow during precipitation events. Tumbling boulders, cobble, and gravel that move with heavy storm water events are largely responsible for the sparse riparian vegetation that consists of primarily 25 to 30 foot tall trees of oak (*Quercus* sp.), western sycamore (*Platanus racemosa*), laurel sumac (*Malosma laurina*), western poison-oak (*Toxicodendron diversilobum*), and mulefat (*Baccharis* sp.). An estimated 23 washes would be crossed by the Section A-1 patrol road. An estimated 17 washes, including 2 low water crossings, would be crossed by the *Monument 250 Road improvements.* The Monument 250 Road culverts and low water crossings were recently addressed in the *Monument 250 Road Improvement Project* (CBP 2007b) and are not part of the Proposed Action.

Section A-2 contains an unnamed intermittent tributary which intersects the proposed project corridor on its way to the Tijuana River. During the site survey, botanists observed that this riparian corridor supports mature oak (*Quercus* sp.) trees and an understory of willow (*Salix* sp.), sedges (*Carex* spp.), mulefat (*Baccharis salicifolia*), and bulrush (*Scirpus* sp.), which are commonly associated with wetlands.

Delineations for wetlands and waters of the United States have not yet been conducted. The most current information available to identify wetlands is the National Wetlands Initiative (NWI) (USFWS 2007). There are no NWI wetlands in Sections A-1 or A-2. Approximately 2.4 acres of riverine wetlands are estimated by aerial photography review.

Surface Water Quality. The Tijuana River Watershed has been used as a wastewater conduit for several decades and recurring problems due to raw sewage overflows from Mexico continue to occur and are being addressed using

cross-border efforts. The *FY 2005-2006 Tijuana River Watershed Urban Runoff Management Program* prepared by San Diego County and the cities of San Diego and Imperial Beach indicated that several high priority constituents of concern (COCs) such as bacterial indicators (total/fecal coliform and enterococcus), the pesticide Diazinon, and total suspended solids (TSS)/turbidity have consistently had the highest occurrence in the Tijuana River Watershed since 2002. They occur in the upper and lower reaches of the watershed. The nutrients ammonia and phosphorus have a medium frequency of occurrence and methyelene blue active substances and copper have a low frequency of occurrence in the watershed (SeaWorld Inc. 2007). **Table 3.7-1** identifies the potential sources of COCs.

Table 3.7-1. Potential Sources of COCs

COC	Frequency of Occurrence in Watershed	Potential Sources of Contamination
Bacterial Indicators (total/fecal coliform and enterococcus)	High	Domestic animals, Sewage overflow, Septic systems, Wildlife
Pesticides (Diazinon)	High	Agriculture, Commercial and residential landscaping, Industrial waste
TSS/Turbidity	High	Agriculture, Grading/construction, Slope erosion
Nutrients (ammonia and phosphorus)	Medium	Agriculture, Sewage overflow, Septic systems
Organic Compounds	Low	Agriculture, Commercial and residential landscaping, Sewage overflow, Septic systems
Trace Metals (copper)	Low	Automobiles, Industrial waste

Source: SeaWorld Inc. 2007

3.8 FLOODPLAINS

Floodplains are areas of low-level ground and alluvium adjacent to rivers, stream channels, or coastal waters. The living and nonliving parts of natural floodplains interact with each other to create dynamic systems in which each component helps to maintain the characteristics of the environment that supports it. Floodplain ecosystem functions include natural moderation of floods, flood storage and conveyance, groundwater recharge, nutrient cycling, water quality maintenance, and a diversity of plants and animals. Floodplains provide a broad area to spread out and temporarily store floodwaters. This reduces flood peaks and velocities and the potential for erosion. In their natural vegetated state,

floodplains slow the rate at which the incoming overland flow reaches the main water body.

Floodplains are subject to periodic or infrequent inundation due to runoff of rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed upstream from the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which defines the 100-year floodplain. The 100-year floodplain is the area that has a 1 percent chance of inundation by a flood event in a given year. Certain facilities inherently pose too great a risk to be constructed in either the 100- or 500-year floodplain, including hospitals, schools, or storage buildings for irreplaceable records. Federal, state, and local regulations often limit floodplain development to passive uses, such as recreational and preservation activities, to reduce the risks to human health and safety.

EO 11988, *Floodplain Management*, requires Federal agencies to determine whether a proposed action would occur within a floodplain. This determination typically involves consultation of appropriate FEMA Flood Insurance Rate Maps (FIRMs), which contain enough general information to determine the relationship of the proposed project corridor to nearby floodplains. EO 11988 directs Federal agencies to avoid floodplains unless the agency determines that there is no practicable alternative. Where the only practicable alternative is to site in a floodplain, a specific step-by-step process must be followed to comply with EO 11988 outlined in the FEMA document *Further Advice on EO 11988 Floodplain Management*.

Section A-1

Section A-1 is addressed in the September 29, 2006, FEMA FIRM Panel No. 06073C2225F for San Diego County, California. This panel has a Zone D designation and has not been printed. Zone D is used to classify areas where there are possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted (FEMA 2006). During the 2007 survey (see **Appendix H**), it was determined that Section A-1 would cross two riparian corridors associated with Copper Canyon and Buttewig Canyon. Though intermittent and incised in the proposed project corridor, these riparian crossings might have associated floodplains.

Section A-2

According to the June 19, 1997, FEMA FIRM Panel No. 06073C2250F for San Diego County, California, Section A-2 is located in Zone X or “areas determined to be outside the 500-year floodplain” (FEMA 1997).

3.9 VEGETATION RESOURCES

Vegetation resources include native or naturalized plants and serve as habitat for a variety of animal species. Wetlands are discussed in **Section 3.7**. This section describes the affected environment for native and nonnative vegetation to support the discussion of potential impacts on those resources from each alternative in **Section 4.9**. This analysis is based on site surveys conducted in October 2007. More detailed information on vegetation resources, including descriptions of vegetation classifications, species observed, and the survey methodology is contained in the Draft Biological Survey Report prepared to support this EIS (see **Appendix H**).

Section A-1 and A-2

The proposed project corridor and associated access roads are on Otay Mountain (Section A-1) and the southeastern side of Tecate Peak (Section A-2). Both of these mountains are widely considered by botanists to be islands for endemic plants (plants with very restricted ranges). The large numbers of locally endemic species combined with more common species creates both unique vegetation assemblages and an unusually high diversity of plant species.

The Jepson Manual (Hickman 1996) describes California vegetation using combined features of the natural landscape including vegetation types, plant communities, geology, topography, and climatic variation. The Jepson Manual places the proposed project areas in the California Floristic Province, Southwestern California Region and the Peninsular Ranges Subdivision. A Flora of San Diego County (Beauchamp 1986) describes plants occurring in the proposed project areas as belonging to the Otay Mountain Floral district. This assemblage consists of very restricted plants occurring on peaks of cretaceous metavolcanic rock in an island-like fashion, with intervening areas covered by grasslands, sage scrub, and chamise chaparral.

NatureServe (2007) defines ecological systems as representing recurring groups of biological communities that are found in similar physical environments and are influenced by similar ecological processes such as fire or flooding. Ecological systems represent classification units that are readily identifiable by conservation and resource managers in the field. “Natural Communities Descriptions” (Holland 1986) incorporated a combination of abiotic factors, species composition, and geographic ranges to describe natural communities. The Holland descriptions are the most commonly used descriptions in San Diego County and the basis for vegetation analyses in all of the regional habitat management plans. A Manual of California Vegetation (Sawyer and Keeler-Wolf 1995) defines a quantitative approach to the vegetation classification in California. These quantitative descriptions are more commonly used in other parts of the State of California, outside of San Diego County.

The following vegetation associations found in the proposed project corridors were prepared with the intent of bridging all three classification systems. **Table 3.9-1** provides translation between the differing systems, and a framework for the vegetation discussed in this section. The Holland system will be used for the vegetation discussions within this section. **Appendix H** shows the location of the habitats in Section A-1 and Section A-2, and portions of the respective access roads. Access roads discussed within this section are also identified in **Figures 2-2** and **2-3**.

Southern mixed chaparral is defined as a tall chaparral without any single species dominating the habitat. The southern mixed chaparral found near Sections A-1 and A-2 is typically dominated by some combination of the following shrubs: chamise (*Adenostema fasciculatum*), lilac (*Ceanothus sp*.), laurel leafed sumac (*Malosma laurina*), mission manzanita (*Xylococcus bicolor*), chaparral pea (*Pickeringia montana*) or scrub oak (*Quercus* sp.). The under story usually consists of common rock rose (*Helianthemum scoparium*) and deerweed (*Lotus scoparius*). Southern mixed chaparral is the most abundant habitat within the Section A-1 and Section A-2 areas. In Section A-2 it is primarily found along the access roads. In Section A-1 the southern mixed chaparral is found throughout the proposed corridor and access roads.

Mafic southern mixed chaparral is similar to southern mixed chaparral, but a significant component of the chaparral consists of species with restricted ranges or soils. The dominant species in the mafic chaparral areas near Section A-1 are southern mountain misery (*Chamaebatia australis*), chaparral pea (*Pickeringia montana)*, Otay lilac (*Ceanothus otayensis)*, Ramona lilac (*Ceanothus tomentosus*), and yerba santa (*Eriodictyon trichocalyx*). Additionally Otay manzanita (*Arctostaphylos otayensis*), Cleveland's sage (*Salvia clevelandii*), Cedros island scrub oak (*Quercus cedrosensis*), and wooly blue curls (*Trichostema lanatum*) often are found in abundance within the habitat. Mafic southern mixed chaparral was not observed near Section A-2. This habitat occurs along the proposed access and patrol road in Section A-1. This habitat is one of the vegetation types associated with the rare and unusual vegetation for which the OMW is known.

Diegan coastal sage scrub was observed throughout the project areas. This was the second most common habitat observed near Sections A-1 and A-2. It is most common at the lower elevations and in areas of past disturbance. Coastal sage scrub is a low-growing chaparral-type habitat that rarely exceeds 4 feet in height. The coastal sage scrub species dominant in the project areas are San Diego sunflower (*Viguiera laciniata*), flat-topped buckwheat (*Eriogonum fasciculatum*), deerweed (*Lotus scaprius*), and coastal sage (*Artemisia californica*). Large areas of coastal sage scrub occur at the low elevations along Otay Mountain Truck Trail, throughout the east end of Marron Valley Road, and along Section A-2.

Table 3.9-1. Vegetation Communities Observed During Biological Surveys (Equivalencies Between Systems)

NatureServe	Holland	Sawyer & Keeler-Wolf
Southern California Dry Mesic Chaparral CES206.930	Southern Mixed Chaparral 37120	Chamise-Mission Manzanita-Woollyleaf Ceanothus Series
Southern California Dry Mesic Chaparral CES206.930	Southern Mixed Chaparral 37120	Scrub oak Series
Southern California Dry Mesic Chaparral CES206.930	Mafic southern mixed chaparral 37122	Chamise-Mission Manzanita-Woollyleaf Ceanothus Series
Southern California Coastal Scrub CES206.933	Diegan Coastal Sage Scrub 32500	California Encelia Series
Southern California Coastal Scrub CES206.933	Diegan Coastal Sage Scrub 32500	California sagebrush-California buckwheat series
Southern California Coastal Scrub CES206.933	Diegan Coastal Sage Scrub 32500	California buckwheat-white sage series
Baccharis salicifolia riparian shrubland CEGL003549	Mulefat scrub 63310	Mulefat Series
Quercus agrifolia/Toxicodendron diversilobum woodland CEGL002866	Southern Coast Live Oak Riparian forest 61310	Coast Live Oak Series
California maritime chaparral CES206.929	Whitethorn chaparral 37532	Chaparral whitethorn series
Bromus herbaceous alliance A.1813	Non-Native grassland 42200	California annual grassland Series
Adenostema fasciculatum shrubland CEGL002924	Chamise Chaparral 37200	Chamise series
Mediterranean California Foothill and Lower Montane Riparian Woodland CES206.944	Southern Cottonwood-Willow Riparian Forest 61330	Black willow series
No equivalent	Southern Interior Cypress Forest 83330	Tecate cypress stand
No equivalent	Disturbed 11300	No equivalent
No equivalent	Landscaped 12000	No equivalent
No equivalent	Developed 12000	No equivalent

Mulefat scrub is found in the bottom of the Puebla Tree drainage. The mulefat scrub found within the proposed project corridor is dominated by a combination of mulefat (*Baccharis salicifolia*) and San Diego marsh elder (*Iva hayesiana*). There are few willows in these areas. Mulefat scrub also occurred in the drainage along Marron Valley Road prior to the recent wildfires.

Southern coast live oak riparian forest is found along the larger drainages in the project areas and access roads. Southern coast live oak woodlands were observed patchily along every portion of the proposed project corridor except for the Otay Mountain Truck Trail access road. The canopy of this habitat can be either open or closed coast live oaks (*Quercus agrifolia*) intermixed with a diverse riparian understory. Willows, mulefat, and other more mesic plant species are found among the oak trees. The bottoms of Copper, Buttewig, and Mine canyons all supported this habitat. Southern coast live oak riparian forest is common along Marron Valley Road where the road parallels tributaries of Dulzura and Cottonwood creeks. A small unnamed drainage on the eastern edge of the Tecate fence segment supports disturbed southern coast live oak woodlands. Upstream, the same drainage later intersects the impact area of the northern access road with an undisturbed patch of this habitat.

Whitethorn chaparral is dominated by the whitethorn lilac (*Ceanothus leucodermis*). This habitat was observed in the rock outcrops at the west end of Section A-2. This occurrence had burned in 2005 and was recovering. Wild oats had invaded the area after the fire and were a co-dominant species. The Matillija poppy (*Romneya coulteri* var. unk.) is abundant in this habitat.

Nonnative grassland is a nonnative naturalized habitat that sometimes requires mitigation when impacted. Nonnative grasslands differ from disturbed areas do to being predominantly vegetated with exotic forbs or grasses. Areas of non-native grassland can differ significantly in their appearance and species composition. The nonnative grassland areas within the area are dominated by wild oats (*Avena* sp.) and bromes. A large area of nonnative grassland occurs near the west end of Section A-2. There are also areas of nonnative grasslands along Marron Valley Road.

Chamise chaparral in the proposed project areas is similar to southern mixed chaparral, but dominated by the shrub species, chamise (*Adenostema fasciculatum*). Chamise chaparral typically is less diverse than similar chaparral-type habitat. Common Rock rose (*Helianthemum scoparium*) and ashy spike moss (*Selaginella cinerescens*) are typical understory plants in chamise chaparral. This habitat was observed along Section A-1. None of the chamise chaparral occurred near Section A-2.

Southern cottonwood-willow riparian forest differs form the coast live oak woodland by having greater diversity in the tree canopy and few or no oaks. It is also a streamside habitat, but usually only along perennial streams or areas with lots of groundwater. There are only two places in the project where this habitat

was observed. Southern cottonwood-willow riparian forest parallels the northern part of Tecate Mission Road. It is also found just outside the staging area in Marron Valley Road, east of Mine Canyon.

Southern interior cypress forest in the form found near Sections A-1 and A-2 is a nearly endemic habitat to San Diego County, and the largest Tecate cypress (*Cupressus forbesii*) stands in the county occur here. The habitat is dominated by Tecate cypress, which when fully mature can reach approximately 20 feet in height. The series of recent wildfires (i.e., 1996, 2003, 2005, and 2007) have left no known mature stands of Tecate cypress in San Diego County. A handful of mature trees occur immediately along the Otay Mountain Truck Trail. The understory of Tecate cypress stands are usually very depauperate of species, but what few species occur there are often rare, including the Otay lotus and Gander's pitcher sage. The largest cypress forests are found along the Otay Mountain Truck Trail access road and the Tecate Mission Road access to Section A-2 from SR 94. Small stands of Tecate cypress (not mapped as cypress forest) can be found in the drainages along Section A-1.

Disturbed areas lack native vegetation and show evidence of soil disturbance. Disturbed areas were observed on Kuebler Ranch at Alta Road, along the Tecate Mission access road adjacent to SR 94, and along Marron Valley Road including the staging area east of Mine Canyon.

Landscaped areas are areas where exotics have been planted near existing residences. Two residential properties within Section A-2 proposed project corridor have landscaping. Several residences along Marron Valley Road also have landscaping (these were mapped as undifferentiated exotic habitat).

Developed areas are constructed, paved, or concreted, with no remaining habitat values. While not technically distinct from landscaping it is a useful distinction to make in planning. There is a set of buildings on Kuebler Ranch which qualifies as developed.

A recent wildfire (October 2007) burned through the Section A-1 and Section A-2 areas during the field survey. Prior to the wildfire, field work had been completed for Section A-2 but not the associated northern access road. Field work had also been completed for all but approximately one-half mile of Section A-1. The surveys also were completed for the part of the Monument 250 Road, and approximately one-quarter mile of the very eastern part of the access along the Puebla Tree Spur to Otay Mountain Truck Trail. After the wildfires the entire Section A-2 area had burned as well as the Marron Valley Road area. The entire Tecate Mission access road, the remainder of the Puebla Tree Spur to Otay Mountain Truck Trail, and the remaining accessible portions of Section A-1 were surveyed.

Even before the recent fire the vegetation in all proposed project areas was recovering from prior wildfires (2003, 2005). The vegetation recovery from past

wildfires had been slowed by the recent drought conditions in San Diego County. All vegetation types occurring in the proposed project area are impacted by foot traffic from illegal border crossings. The severity of impacts on the vegetation varies considerably. All areas along the fence portion of Section A-1 showed signs of impacts from cattle and horse grazing. Prior burns, drought, border activity, and grazing have degraded much of the vegetation in Section A-1. Most of the upland habitats are heavily grazed and in poor condition. The vegetation along the drainage edges and the canyon bottoms appear to be thriving even with the environmental stress.

Two kinds of existing impacts from border activities are physically evident. The first activity is the access roads used by the border patrol, which are bare of vegetation. The second impact is the large number of informal overlapping footpaths stretching north from the border. The areas most heavily impacted by footpaths have more than 10 parallel paths within approximately 100 feet. Other areas have as few as one trail approximately every 100 feet.

The vegetation near Section A-2 is not impacted by grazing. This area shows signs of recovering from recent wildfires and impacts from illegal cross-border activities. There are existing dirt access roads and numerous foot paths running south to north. Near the western end of the existing fence there is a disturbed coast live oak riparian forest associated with an unnamed drainage. This riparian area is in poor condition due to a farmhouse creating disturbance and a large number of exotic species amongst the oak trees. Additional information on existing vegetation can be found in **Appendix H**.

A total of 149 species of plants were observed in the Section A-1 area during the biological surveys conducted for this EIS, and 107 species were observed in the Section A-2 area (see **Table 3.9-2**). No federally listed threatened or endangered plant species were observed during the biological surveys conducted for this EIS.

3.10 WILDLIFE AND AQUATIC RESOURCES

This section provides a description of the habitat and wildlife and aquatic species observed and anticipated to occur in the area of the proposed project. Species addressed in this section include those which are not listed as threatened or endangered by the Federal or state government. Sensitive species are those classified by California Department of Fish and Game (CDFG) as species of special concern (SC), species included in the San Diego County MSCP, and those identified as sensitive by the BLM.

The County of San Diego has a greater number of threatened and endangered species than anywhere in the continental United Sates. More than 200 plant and animal species occur in the county that are federally or state-listed as endangered, threatened, or rare; proposed or candidate for listing; or otherwise

Table 3.9-2. Species Observed During Biological Surveys

Scientific Name	Common Name	A-1	A-2	A-1 Access Road *
Achnatherum coronatum	Giant needlegrass	X	X	X
Acourtia microcephala	Sacapellote		X	
Adenostema fasciculatum	Chamise	X	X	X
Ageratina adenophora	Sticky thorough-wort		X	
Ambrosia monogyra	Single-whorl burrow-brush	X		
Ambrosia psilostachya	Naked-spike ambrosia		X	
Antirrhinum nuttallianum	Violet snapdragon		X	
Arctostaphylos glauca	Bigberry manzanita		X	
Arctostaphylos otayensis	Otay manzanita	X		X
Artemisia californica	California sagebrush	X	X	X
Arundo donax	Giant reed		X	
Asclepias fascicularis	Narrowleaf milkweed	X		
Atriplex semibaccata	Australian saltbush	X	X	X
Avena sp.	Wild oat	X	X	X
Baccharis salicifolia	Willow-leaf false willow	X	X	X
Baccharis sarothroides	Desert broom false willow		X	
Bebbia juncea	Sweetbush	X		
Bothriochloa barbinodis	Cane bluestem	X		
Brickellia californica	California brickellbush	X	X	
Brodiaea pulchellum	Brodiaea		X	
Brodiaea sp.	Brodiaea		X	
Bromus diandrus	Ripgut brome	X	X	
Bromus madritensis	Compact brome		X	
Bromus mollis	Soft brome	X	X	
Bromus rubens	Red brome		X	
Bromus sp.	Brome	X		X
Calochortus sp.	Mariposa lily	X	X	
Calystegia macrostegia	Island false bindweed	X	X	X
Carex spissa	San Diego sedge	X	X	
Castilleja sp.	Indian paint brush		X	
Caulanthus sp.	Wild cabbage	X		
Ceanothus leucodermis	Chaparral whitethorn		X	
Ceanothus otayensis	Otay Mountain ceanothus	X		X
Ceanothus tomentosus	Woolyleaf ceanothus	X		X
Centaurea melitensis	Maltese star thistle	X	X	X
Cercocarpus minutiflorus	Smooth mountain mahogany			X
Chamaebatia australis	Southern mountain misery			X

Scientific Name	Common Name	A-1	A-2	A-1 Access Road *
Cheilanthes sp.	Cloak fern	X		
Cirsium occidentale	Cobweb thistle	X	X	
Cirsium vulgare	Bull thistle	X	X	
Clematis pauciflora	Ropevine clematis		X	
Cneoridium dumosum	Bush rue		X	
Cordylanthus rigidus	Stiffbranch bird's beak		X	
Cryptantha sp.	Cryptantha	X	X	
Cupressus forbesii	Tecate cypress	X		X
Cuscuta sp.	Dodder	X	X	
Daucus pusillus	American wild carrot	X	X	
Delphinium sp.	Larkspur		X	
Dendromecon rigida	Tree poppy	X		
Dicentra chrysantha	Golden eardrops	X	X	
Dudleya edulis	Fingertips	X		
Dudleya pulverulenta	Chalk dudleya	X	X	
Croton setigerus	Dove weed		X	
Epilobium canum	Hummingbird trumpet	X		
Erigeron foliosus	Leafy daisy		X	
Eriodictyon trichocalyx	Smoothleaf Yerba Santa	X	X	X
Eriogonum fasciculatum	Flat-top buckwheat		X	
Eriogonum fasciculatum var. polifolium	Eastern Mojave buckwheat		X	
Eriophyllum confertiflorum	Golden yarrow		X	
Erodium botrys	Long-beaked storkbill		X	
Erodium sp.	None	X		
Eucalyptus sp.	Eucalyptus		X	
Ferocactus viridescens	San Diego barrel cactus	X		
Filago sp.	Cudweed	X	X	
Foeniculum vulgare	Fennel	X	X	
Gallium sp.	Bedstraw		X	X
Gastridium ventricosum	Nit grass	X		
Gnapahalium stramineum	Cotton batting	X	X	X
Gnaphalium bicolor	Two-tone everlasting	X	X	
Gnaphalium californicum	California everlasting	X		X
Gnaphalium luteo-album	Weedy cudweed	X		
Gutierrezia californicum	California snakeweed	X		
Gutierrezia sarothrae	Broom snakeweed	X	X	
Hazardia squarrosa	Sawtooth goldenbush	X	X	X
Hedypnois cretica	Crete weed	X		
Helianthemum scoparium	Common sun rose	X	X	X

Scientific Name	Common Name	A-1	A-2	A-1 Access Road *
Helianthus sp.	Sunflower		X	
Hemizonia sp.	Tarweed	X		
Heteromeles arbutifolia	Christmas berry	X		X
Hirschfeldia incana	Mediterranean mustard	X	X	X
Hypochoeris sp.	None		X	
Isocoma menziesii	Coast goldenbush	X		
Isomeris arborea	Bladderpod			X
Iva havesiana	San Diego marsh elder	X		X
Juncus acutus	Spiny rush	X		X
Keckiella antirrhinoides	Yellow bush snapdragon		X	
Keckiella cordifolia	Climbing penstemon			X
Keckiella ternata	Summer bush penstemon			X
Lamarckia aurea	Goldentop grass	X		
Lathyrus sp.	None			X
Lepidium sp.	Pepperweed	X	X	
Lessingia filaginifolia	Common California aster	X	X	X
Lonicera subspicata	Honeysuckle	X	X	
Lotus argophyllus	Silver bird's foot trefoil		X	
Lotus scoparius	Deerweed	X	X	X
Lythrum californica	None	X		
Malocothamnus fasciculatus	Bush mallow	X	X	X
Malocothamnus sp.	Bush mallow	X		
Malosma laurina	Laurel sumac	X	X	X
Marah macrocarpus	Wild cucumber		X	
Marrubium vulgare	Horehound		X	
Melilotus sp.	Sweetclover		X	
Melica frutescens	Woody melicgrass	X		
Mellica imperfecta	Coast range melic		X	
Mimulus aurantiacus	Bush monkeyflower	X	X	X
Mimulus brevipes	Yellow monkeyflower		X	
Mimulus guttatus	Seep monkeyflower		X	
Mirabilis californica	Wishbone bush	X		
Nassella sp.	Purple needlegrass		X	
Navarretia sp.	Pincushionplant	X	X	
Nicotiana glauca	Tree tobacco		X	
Opuntia littoralis	Coast prickly pear	X		
Osmondenia tenella	None	X	X	
Paeonia californica	California peony		X	
Pellaea sp.	None	X	X	

Scientific Name	Common Name	A-1	A-2	A-1 Access Road *
Penstemon spectabilis	Showy penstemon	X		
Penstemon sp.	Penstemon		X	
Phacelia cicutaria	Caterpillar phaecelia		X	
Phacelia sp.	None		X	
Pickeringia montana	Chaparral pea	X	X	X
Pityrogramma sp.	None	X	X	X
Plantago erecta	Plantain	X	X	
Platanus racemosa	Western sycamore	X		
Polypogon monspeliensis	Annual beardgrass	X		
Populus fremontii	Western cottonwood		X	
Porophyllum gracile	Slender poreleaf	X		
Prunus ilicifolia	Hollyleaf cherry			X
Quercus agrifolia	Coast live oak		X	
Quercus berberidifolia	Scrub oak		X	
Quercus cedrosensis	Cedros oak	X		X
Rhamnus crocea	Redberry		X	X
Rhus ilicifolia	Lemonadeberry	X		
Rhus ovata	Sugarbush		X	
Ribes sp.	Gooseberry	X		X
Romneya coulteri	Matillija poppy	X	X	X
Rumex crispus	Curly dock	X		
Rumex sp.	None		X	
Salix gooddingii	Goodding's willow		X	
Salix lasiolepis	Arroyo willow		X	
Salsola tragus	Russian thistle	X		X
Salvia apiana	White sage	X	X	
Salvia clevelandii	Cleveland's sage			
Salvia columbariae	Chia		X	
Salvia munzii	Munz's sage	X		
Sambucus mexicana	Mexican elderberry		X	
Schinus molle	Peruvian peppertree		X	
Schismus barbatus	Common Mediterranean grass		X	
Scirpus sp.	None		X	
Scrophularia californica	Figwort	X	X	
Selaginella bigelovii	Spike moss	X	X	
Selaginella cinerescens	Ashy spike moss	X	X	X
Silene gallica	Small-flower catchfly			
Simmondsia chinensis	Jojoba	X		
Solanum sp.	Nightshade	X		

Scientific Name	Common Name	A-1	A-2	A-1 Access Road *
Solidago occidentallis	Goldenrod		X	X
Stachys rigida	Rough hedge-nettle		X	
Stephanomeria virgata	Virgate wire-lettuce	X		
Stylocline gnaphalioides	New-straw cotton-weed		X	
Tamarix ramosissima	salt-cedar		X	
Thysanocarpus sp.	Fringepod		X	
Toxicodendron diversilobum	Western poison-oak		X	
Trichostema sp.	Bluecurls	X		
Urtica dioica	Stinging nettle		X	
Viguiera laciniata	San Diego County viguiera	X		
Vinca major	Large-leaf periwinkle		X	
Xanthium sp.	Cocklebur		X	
Xylococcus bicolor	Mission manzanita	X	X	X
Cupressus forbesii	Tecate cypress	X		
Ornithostaphylos oppositifolia	Baja bird bush		X	
Dudleya blachmaniae ssp. *brevifolia*	Short leaved dudleya		X	
Rosa minutifolia	Small leaved rose			
Yucca whipplei	Our-lord's-candle	X	X	X
Total Number of species per section or access road:		**100**	**113**	**47**

Note: * The biological survey for the Section A-1 access road is underway but not completed. Complete results of the survey will be included in the Final EIS, BA, and BO.

considered sensitive. The MSCP was developed to provide natural resources guidance for where future development should and should not occur, to streamline and coordinate procedures for review and permitting, and to better assess impacts on biological resources (MSCP 1998).

The MSCP is a comprehensive habitat conservation planning program in San Diego which provides for a regional process to authorize incidental take of protected species for urban development and for the conservation of multiple species and their habitat within a 582,243-acre planning area in southwestern San Diego County. The MSCP planning area includes 12 local jurisdictions in southern coastal San Diego County. Local jurisdictions implement their respective portions of the MSCP Plan through subarea plans that describe specific implementing mechanisms for the MSCP Plan. This includes the City of San Diego and the County of San Diego subarea plans. Both the County and City of San Diego have finalized their respective subarea plans and have received take authorizations under the MSCP.

The MSCP Plan, and each subarea plan prepared pursuant to the MSCP Plan, is intended to serve as a multiple species habitat conservation plan (HCP) pursuant to Section 10(a)(2)(A) of the ESA. An HCP is required for issuance of a permit for incidental take of listed species pursuant to Section 10(a)(1)(B) of the Act. An HCP can also serve as a Natural Communities Conservation Plan (NCCP) pursuant to the State of California's NCCP Act of 1991, provided findings are made that the plan is consistent with the NCCP Act.

The MSCP Plan proposes the authorization of incidental take of 85 species, including 20 listed animal and plant species, 8 species currently proposed for Federal listing as endangered or threatened, and 1 candidate for Federal listing. All 85 species will hereafter be referred to as Covered Species. This proposed list of species for which take is authorized is based upon full implementation of the MSCP Plan (MSCP 1998).

The BLM Manual 6840 provides policy and guidance, consistent with appropriate laws, for the conservation of special status species of plants and animals, and the ecosystems upon which they depend. The sensitive species designation is normally used for species that occur on BLM-administered lands for which BLM has the capability to significantly affect the conservation status of the species through management.

General Affected Environment

The proposed fence alignment lies within the Peninsular Ranges Province and is part of the warm-temperate scrublands biotic community. These scrublands are dominated by the California chaparral and coastal scrub communities which provide suitable habitats for a number of species (i.e., bats, rodents, salamanders, snakes, and lizards, plus a variety of waterfowl, shorebirds, and rangeland/forest birds) adapted to this environment. The warm temperate scrublands biotic community of the Peninsular Ranges has a diversity of faunal elements to coincide with the varied coastal habitats ranging from coniferous forests to chaparral, oak woodlands, grasslands, marshes, sandy beaches, vernal pools, and the Tijuana River Estuary (USACE 1999).

The San Ysidro area, including the Otay Mountain, Cerro San Isidro, San Miguel Mountain, and Tecate Peak, supports some of the largest remaining intact patches of Diegan coastal sage scrub (including coastal sage scrub with abundant cactus patches) in the border region, supporting core populations of California gnatcatchers and coastal cactus wrens (*Campylorhynchus brunneicapillus couesi*). This area also supports mafic chaparral communities, important riparian habitat along the Tijuana and Tecate rivers, and vernal pools on the mesa tops. The Thorne's hairstreak butterfly (*Mitoura thornei*) is an endemic species here, whose larvae are obligate to Tecate cypress (CBI 2004). The chaparral along the border between Otay Mountain and Jacumba likely serves as an important dispersal corridor for some bird species including the gray vireo (*Vireo vicinior*) and sage sparrow (*Amphispiza belli*).

The native faunal components of the Peninsular Range support more than 400 species of birds, which are dominated by wood warblers, swans, geese, and ducks, sandpipers and phalaropes, gulls and terns, sparrows and towhees, and tyrant flycatchers. The majority of these species are present in the spring and fall, when neotropical migrants (e.g., flycatchers and warblers) pass through on their way to either summer breeding or wintering grounds, and during winter when summer resident birds (i.e., robins, kinglets, and sparrows) from the north arrive to spend the winter. The majority of the mammalian species found in the Peninsular Range are evening bats and rodents, with rodents being the most common. Frogs are considered the most abundant and common of the amphibian species. Iguanid lizards and colubrid snakes are the most dominant reptiles inhabiting the Peninsular Range (CBP 2007b).

Section A-1

The fence alignment would start at the Puebla Tree, a well-known border patrol landmark, and end at Boundary Monument 250. Topographically, the terrain is steep along most of the trail. The trail skirts the mid-span of the mountain, so that steep upslopes lead out of canyons, and steep downslopes lead into another canyon. There are three canyons that the Pack Trail crosses; from west to east, these are Copper, Buttewig, and Mine canyons. In addition, Wild Bill's Canyon is a drainage located at the west end of the Pack Trail, near the Puebla Tree.

Much of Section A-1 is grazed illegally by cows, and numerous cows were observed during natural resources surveys. Numerous north-south trending footpaths have been created over much of the mountain from cows and cross-border violators. Portions of the mountain burned during the 2003 Cedar fire and show signs of recovering. Much of the area where coastal sage scrub communities are dominant (a large area of the Pack Trail) are considered disturbed and of poor quality. Areas of chaparral are of moderate quality, and riparian areas dominated by coast live oak in the canyon bottoms are considered high-quality habitat.

Section A-2

High-quality coastal sage scrub habitat exists in some areas of the section that are dominated by California sagebrush (*Artemisia californica*) and laurel sumac (*Malosma laurina*). An occupied house with a fenced yard is within the section where the area is dominated by coast live oak riparian habitat. The understory of this habitat is mainly nonnative species. Much of the section is a non-native grassland, with dominant species being brome grass (*Bromus* sp.) and wild oat (*Avena* sp).

In late October 2007, most of the alignment and associated access roads were burned in the Harris fire. The alignment for Section A-2 was surveyed prior to the fire, and the access roads and staging area were surveyed after the fire.

Species Potentially Present and Observed

The California Natural Diversity Database (CNDDB) is a CDFG-maintained inventory of data on the location and status of sensitive species in California. Non-listed wildlife species (i.e., those that are not threatened or endangered) included in the CNDDB records for the Otay Mountain and Tecate quadrangles, and therefore having the potential to occur within or near the proposed project corridor, are listed in **Table 3.10-1**.

Common wildlife species observed during the October and December 2007 surveys are listed in **Appendix H.** Forty-one species of vertebrates were recorded during the October and December 2007 surveys, including 2 reptiles, 33 birds, and 6 mammals. In addition, 32 insects were observed and identified during the surveys (see **Appendix H**). Section A-1 was the most species-rich with 29 wildlife species recorded.

The following eight state species of concern were observed. Species below that are preceded by an asterisk are also covered under the Regional MSCP.

- Harbison dun skipper (larva) (*Euphyes vestris harbisoni*)
- Coast patch-nosed snake (*Salvadora hexalepis virgultea*)
- *Orange-throated whiptail lizard (*Cnemidophorus hyperythrus beldingi*)
- *Copper's hawk (*Accipiter cooperii*)
- *Golden eagle (*Aquila chrysaetos*)
- *Northern harrier (*Circus cyaneus*)
- *Rufous-crowned sparrow (*Aimophila ruficeps*)
- San Diego black-tailed jackrabbit (*Lepus californicus bennettii*).

Although the following species are not in the CNDDB database for the proposed project corridor and no individuals of these species were observed, potential habitat for them does occur within or near the project corridor:

- Hermes copper butterfly (*Lycaena hermes*) (SC)
- Thorne's hairstreak (*Callophrys thornei*) (SC, MSCP, BLM)
- Quino checkerspot butterfly (see **Section 3.11**).

Aquatic and riparian systems and the associated woodlands (i.e., oaks, willows and cottonwoods) which are important to fish, amphibian, and wildlife resources occur throughout the study area. These types of systems would occur in riparian vegetation along most of the coastal streams (i.e., San Luis Rey, San Diego, Sweetwater, Otay, and Tijuana rivers; Jamul and Campo creeks) and valley foothill and montane (areas in the mountains) regions. Vernal pools occur as small depressions in flat-topped marine terraces and occur in areas north and

Table 3.10-1. Non-Listed Sensitive Wildlife Species in the CNDDB Records near the Proposed Project Corridor

Common Name	Scientific Name	SD County Quad[1]	State Status	CDFG Status
Crustaceans				
Little mousetail	*Myosurus minimus ssp. apus*	OM	None	None
Invertebrates				
Thorne's hairstreak	*Callophrys thornei*	OM	None	None
Amphibians				
Western spadefoot	*Spea hammondii*	OM	None	SC
Reptiles				
Coast (San Diego) horned lizard	*Phrynosoma coronatum (blainvillii* population*)*	OM, T	None	SC
Coast patch-nosed snake*	*Salvadora hexalepis virgultea*	OM	None	SC
Coastal western whiptail	*Aspidoscelis tigris stejnegeri*	OM	None	None
Orange-throated whiptail*	*Aspidoscelis hyperythra*	OM, T	None	SC
Two-striped garter snake	*Thamnophis hammondii*	OM	None	SC
Birds				
Burrowing owl	*Athene cunicularia*	OM	None	SC
California horned lark	*Eremophila alpestris actia*	OM	None	SC
Coastal cactus wren	*Campylorhynchus brunneicapillus sandiegensis*	OM	None	SC
Golden eagle*	*Aquila chrysaetos*	T	None	SC
Yellow-breasted chat	*Icteria virens*	OM	None	SC
Mammals				
American badger	*Taxidea taxus*	OM	None	SC
Northwestern San Diego pocket mouse	*Chaetodipus fallax fallax*	OM	None	SC
San Diego black-tailed jackrabbit*	*Lepus californicus bennettii*	OM	None	SC
San Diego desert woodrat	*Neotoma lepida intermedia*	OM	None	SC
Townsend's big-eared bat	*Corynorhinus townsendii*	OM	None	SC

Common Name	Scientific Name	SD County Quad[1]	State Status	CDFG Status
Mammals (continued)				
Western mastiff bat	*Eumops perotis californicus*	T	None	SC

Source: CDFG 2007
Notes:
[1] OM = Otay Mountain Quadrangle Map; T = Tecate Quadrangle Map
* Denotes species also covered under the Regional MSCP
SC = Species of special concern designation (CDFG Designation)
Harbison's dun skipper is a CA DFG species of concern, but not listed on the CNDDB.

south of San Diego with more sites along the border (e.g., Otay Mesa). Being an amphibious ecosystem, the alternation of very wet and very dry contributions creates a unique ecological situation that supports a variety of fauna. Because of unique species diversity or hydrological regime, riparian systems and vernal pools are vital for maintenance of some fish and wildlife species at sustainable populations (USACE 1999).

There are no state-listed species of fish within the two quads (Otay Mountain and Tecate) along Sections A-1 and A-2. There are several riparian habitats located in canyon bottoms on Section A-1 (Copper, Buttewig, and Mine canyons), as well as an unnamed riparian area on Section A-2. These areas are important to fish resources, however, due to the seasonality of flow, most were not considered of high quality due to lack of structure or lack of pooling sites.

3.11 SPECIAL STATUS SPECIES

Special status species addressed in this EIS are Federal threatened and endangered species, state threatened and endangered species, and migratory birds. Each group has its own definitions, and legislative and regulatory drivers for consideration during the NEPA process; these are briefly described below.

The ESA provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the United States or elsewhere. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. Section 7 of the ESA outlines procedures for Federal agencies to follow when taking actions that might jeopardize listed species, and contains exceptions and exemptions. Criminal and civil penalties are provided for violations of the ESA.

Section 7 of the ESA directs all Federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with the USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to management of Federal lands as well as other Federal actions that might affect listed species, such as

Federal approval of private activities through the issuance of Federal permits, licenses, or other actions.

Under the ESA, a Federal endangered species is defined as any species which is in danger of extinction throughout all or a significant portion of its range. The ESA defines a Federal threatened species as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

The State of California has enacted the California Endangered Species Act (CESA) to protect from "take" any species that the commission determines to be endangered or threatened (Fish and Game Code; Section 2050–2085). Take is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (Fish and Game Code; Section 86) (CBI 2004).

The State of California administers 103,855 acres in the border region. The CDFG manages Ecological Reserves and Wildlife Management Areas, while the Department of Parks and Recreation manages Anza-Borrego Desert State Park, Cuyamaca Rancho State Park, and Border Field State Park. The Department of Forestry and Fire Protection administers a single property on the border, Tecate Peak (CBI 2004).

The MBTA (16 U.S.C. 703–712), as amended, implements various treaties for the protection of migratory birds. Under the Act, taking, killing, or possessing migratory birds is unlawful without a valid permit. Under EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, the USFWS has the responsibility to administer, oversee, and enforce the conservation provisions of the MBTA, which include responsibility for population management (e.g., monitoring), habitat protection (e.g., acquisition, enhancement, and modification), international coordination, and regulations development and enforcement. The MBTA defines a migratory bird as any bird listed in 50 CFR 10.13, which includes nearly every native bird in North America.

The MBTA and EO 13186 require Federal agencies to minimize or avoid impacts on migratory birds listed in 50 CFR 10.13. If design and implementation of a Federal action cannot avoid measurable negative impact on migratory birds, EO 13186 requires the responsible agency to consult with the USFWS and obtain a Migratory Bird Depredation Permit.

Sections A-1 and A-2

There are 15 federally listed taxa that have the potential to occur within or near the proposed fence corridors in southern San Diego County: 2 crustaceans, 1 butterfly, 1 amphibian, 3 birds, and 8 plants. Of these, 2 birds and 5 plants are also state-listed (see **Table 3.11-1**). A description of the biology of each federally listed species potentially occurring within the fence corridor is provided in the *Draft Biological Survey Report: USBP San Diego Sector, Brown Field Station* (see **Appendix H**). Federal- and state-listed species potentially occurring in the proposed project corridor and their potential habitats are briefly described below.

Table 3.11-1. Federal and State Threatened and Endangered Species Potentially Occurring Within the Project Corridor

Scientific Name	Common Name	Federal Status	State Status
Branchinecta sandiegonensis	San Diego fairy shrimp	E	
Streptocephalus woottoni	Riverside fairy shrimp	E	
Euphydryas editha quino	quino checkerspot butterfly	E	
Bufo californicus	arroyo toad	E	
Polioptila californica californica	coastal California gnatcatcher	T	
Vireo bellii pusillus	least Bell's vireo	E	E
Empidonax trailii extimus	Southwestern willow flycatcher	E	E
Ambrosia pumila	San Diego ambrosia	E	
Eryngium aristulatum var. parishii	San Diego button-celery	E	E
Deinandra conjugens	Otay tarplant	T	E
Pogogyne nudiuscula	Otay Mesa mint	E	E
Navarretia fossalis	spreading navarretia	T	
Fremontodendron mexicanum	Mexican flannelbush	E	
Orcuttia californica	California Orcutt grass	E	E
Baccharis vanessae	Encinitas baccharis	T	E

Note: T – Threatened, E – Endangered

The native faunal components of the Peninsular Range, in which the Proposed Action would occur, support more than 400 species of birds, which are dominated by wood warblers, swans, geese, ducks, sandpipers and phalaropes, gulls and terns, sparrows and towhees, and tyrant flycatchers. The majority of these species are present in the spring and fall, when neotropical migrants (e.g., flycatchers and warblers) pass through on their way to either summer breeding or wintering grounds, and during winter when summer resident birds (i.e., robins, kinglets, and sparrows) from the north arrive to spend the winter. A number of migratory birds are known to pass through or otherwise use the border region between California and Baja California. Some of these species fly through this general area to avoid having to cross the Gulf of California (CBI 2004). Examples of such species include olive-sided flycatcher (*Contopus cooperi*), dusky flycatcher (*Empidonax oberholseri*), yellow-rumped warbler (*Dendroica coronata*), green-tailed towhee (*Pipilo chlorurus*), and fox sparrow (*Passerella iliaca*). However, no records of these species are known from the vicinity of the potential fence corridors.

On-site inspection of habitat within the potential fence alignment was conducted by USFWS-approved species specialists in October and December 2007. Due to the timing of the surveys, and the wildfires that burned portions of the proposed project corridor in November 2007, there were no observations of state

or Federal threatened or endangered animal species. Species observed in each of the two proposed project corridors are provided in **Appendix H**. Potential habitat was evaluated to the extent possible given the wildfires and the time of year.

In addition, element occurrence data were acquired from NatureServe for inclusion in the environmental consequences analyses. These data indicate documented occurrences of several listed taxa or their habitats within the proposed project corridor (see **Table 3.11-2**).

Table 3.11-2. Listed Species for which Individuals or Habitat are Documented In or Near[a] the Proposed Project Corridor by NatureServe

Scientific Name	Common Name	Federal Status	State Status	Fence Section[b]
Branchinecta sandiegonensis	San Diego fairy shrimp	E		A-1
Euphydryas editha quino	quino checkerspot butterfly	E		A-1
Bufo californicus	arroyo toad	E		A-1
Polioptila californica californica	coastal California gnatcatcher	T		A-1
Baccharis vanessae	Encinitas baccharis	T	E	A-1

Notes:
[a] Within one mile of the project corridor, including fence alignments and access roads.
[b] A-1 = fence section south of Otay Mountain.
Note: T – Threatened, E – Endangered

Section A-2 of the Proposed Action did not present suitable habitat for any listed species during the October 2007 surveys which were completed before the area burned in November 2003. No records from the NatureServe data are in or near Section A-2. Therefore, the affected environment for Section A-2 is not described further in this section.

The remainder of this section focuses on the proposed project corridor for Section A-1. A brief description of which species are anticipated to be found within the Section A-1 proposed project corridor, based on potential habitat and historic data, is provided below. More detailed descriptions of the federally listed species can be found in **Appendix H.**

San Diego Fairy Shrimp (SDFS). This species is listed as endangered under the ESA and is covered by the Regional MSCP. The SDFS is a vernal pool specialist that is found in small, shallow vernal pools. Unlike other species associated with vernal pools, this fairy shrimp is also occasionally found in ditches and road ruts with similar conditions to those of vernal pools.

NatureServe data indicate a record for SDFS near the connection of the Otay Mountain Truck Trail to Alta Road. The record appears to have been from a road

ditch or rut as the area indicated by the record is currently an existing and active road. The only other occurrence of SDFS near the proposed project corridor is approximately 0.8 miles south of Monument 250 Road. Surveys of the proposed access roads have not been completed. If surveys indicate the presence of vernal pools within the access road corridors, this species will be considered in detail. This species is currently assumed to be absent from the project corridor and no impacts on this species would be expected; therefore, this species is not carried forward for discussion in **Section 4.11**.

Quino Checkerspot Butterfly (Quino). This species is listed as endangered under the ESA. It is considered a species of concern by CDFG, but currently does not have coverage under the Regional MSCP. Host plants are dwarf plantain (*Plantago erecta*), Purple owl's clover (*Castilleja exserta*), White snapdragon (*Antirrhinum coulterianum*), woolly plantain (*Plantago patagonica*), and bird's beak (*Cordylanthus rigidus*). The plants are annuals which thrive in clay soils but can also occur in other soil types.

Adult Quino were observed on the mesa along the Pack Trail in March 2005 just above the Puebla Tree access (Klein 2007). There is a record of adults on the hill just north of the mesa, and adults were found in March 2007 along the Monument 250 Road on the east side of the proposed project corridor (Klein 2007). In addition, NatureServe data indicate additional locations for Quino within one mile of the proposed fence corridor and access roads, primarily on the east and west ends of Section A-1's proposed project corridor. The apparent absence of locations along the central portion of the proposed alignment is undoubtedly due to the difficulty of accessing this area and not to true absence of the species in this area. Potential habitat (three of the host plant species) were observed along the 5-mile stretch proposed for Section A-1 during the October and December 2007 surveys and the species is assumed to be present. Host plant(s) occur along most of the Pack Trail, suitable habitat occurs throughout the entire mountain, and adults occur along the Otay Mountain Truck Trail which is the access to get to Puebla Tree. Therefore, the Pack Trail, Puebla Pack Trail, and Monument 250 Truck Trail are considered suitable Quino habitat and considered to be occupied. Quino checkerspot butterfly is addressed in **Section 4.11**.

Arroyo Toad. The arroyo toad is listed as endangered under the ESA, is considered a species of concern by CDFG, and is covered under the MSCP. The arroyo toad requires shallow, slow-moving stream habitats, and riparian habitats that are disturbed naturally on a regular basis, primarily by flooding. Adjacent stream banks can be sparsely to heavily vegetated with trees and shrubs such as mulefat (*Baccharis* spp.), California sycamore (*Platanus racemosa*), cottonwoods (*Poputus* spp.), coast live oak (*Quercus agrifolia*), and willows (*Salix* spp.) (USFWS 1999). For breeding, the arroyo toad uses open sites such as overflow pools, old flood channels, and pools with shallow margins, all with gravel bottoms. This species aestivates in sandy terraces adjacent to the stream habitat.

No habitat for this species was observed during the field surveys for this project. NatureServe (2007) data indicates a record south of the eastern access road. The existing access road traverses the northern boundary of the aestivation habitat associated with this record. This species is assumed to be present and is addressed in the Environmental Consequences section.

Coastal California Gnatcatcher (CAGN). This species is listed as threatened under the ESA, is considered a species of concern by CDFG, and is covered by the Regional MSCP. The CAGN occurs almost exclusively in the coastal sage scrub community with occasional populations in the chaparral. Its southern limit coincides with the southern distributional limit of this vegetation community. The coastal sage scrub community is composed of low-growing, summer deciduous, and succulent plants including coastal sagebrush (*Artemisia californica),* various species of sage (*Salvia* spp*.),* California buckwheat (*Eriogonum fasciculatum),* lemonadeberry (*Rhus integrifolia*), California encelia (*Encelia californico),* pricklypear and cholla cactus (*Opuntia* spp.), and various species of *Haplopoppus* (NatureServe 2007). CAGN is nonmigratory and its breeding season extends from late February to July.

No individuals of this species were observed during the October and December 2007 surveys. Due to the 2003 fire which burned through the proposed project corridor of Section A-1, the habitat in and near the proposed project corridor is too sparse for CAGN occupancy in its current condition (Clark 2007). However, with continued regrowth, habitat could become suitable in the future. While no impacts on individuals are anticipated, impacts on potential future habitat for CAGN are addressed in **Section 4.11**.

Least Bell's Vireo (LBV). This species is listed as endangered under both the ESA and the CESA. It is also covered by the Regional MSCP. LBV is an obligate riparian species during its breeding season and prefers early successional habitat. The woodlands it inhabits are often structurally diverse and lie along watercourses including southern willow scrub, mule fat scrub, sycamore alluvial woodland, coast live oak riparian forest, arroyo willow riparian forest, and cottonwood bottomland forest (USFWS 1998). LBV is a migratory species that arrives at its southern California breeding grounds in mid-March to early April and usually departs in September.

No records of LBV are known from in or near the project corridor. However, a narrow band of suitable riparian habitat occurs along the Tijuana River just south of the proposed project corridor. Therefore, this species is assumed to be present in that riparian habitat and potential impacts to LBV are discussed in **Section 4.11**.

Southwestern Willow Flycatcher (SWF). This species is listed as endangered by both the ESA and the CESA. It is also covered by the Regional MSCP. SWF usually breeds in dense or patchy riparian habitats along streams or other wetlands near standing water or saturated soils. Common tree and shrub

species composing nesting habitat include willows (*Salix* spp.), seepwillow (aka mulefat (*Baccharis* spp.), boxelder (*Acer negundo*), stinging nettle (*Urtica* spp.), blackberry (*Rubus* spp.), cottonwood (*Populus* spp.), arrowweed (*Tessaria sericea*), tamarisk (aka salt-cedar; *Tamarix ramosissima*), and Russian olive (*Elaeagnus angustifolia*). Habitat characteristics vary widely across its range, but some similar characteristics include distribution of open spaces within dense shrub thickets (USFWS 2002). As a neotropical migrant, the southwestern willow flycatcher only spends 3 to 4 months in the breeding grounds arriving in early May to early June and departing between mid-August and early September (USFWS 2002).

No records of SWF are known from in or near the project corridor. No suitable habitat for this species was observed in or near the project corridor. However, the riparian woodland habitat along the Tijuana River has the potential to provide suitable habitat in the future, as it reaches taller heights. Therefore, potential impacts on this species are discussed in **Section 4.11**.

San Diego Ambrosia. This species is listed as endangered under the ESA and is covered under the Regional MSCP. It primarily occupies the upper terraces of rivers and drainages as well as in open grasslands, openings in coastal sage scrub, and occasionally in the areas adjacent to vernal pools. Species found near the ambrosia include saltgrass (*Distichlis spicata*), mulefat (*Baccharis salicifolia*), desertbroom (*Baccharis sarathroides*), California buckwheat, and dove weed (*Croton setigerus*). This ambrosia primarily occupies gravelly or sterile clay soils (University of California 2007).

No records of San Diego ambrosia are known from in or near the project corridor. The closest known record for this species is miles to the north, on the other side of Otay Mountain and the wilderness area. No individuals of this species were observed during the October and December 2007 surveys. Therefore, this species is dismissed from further analysis in this EIS.

San Diego Button-Celery. This species is listed as endangered under the ESA and the CESA, and is also covered under the Regional MSCP. It is an endemic species of vernal pools of southern California and northern Mexico. Vernal pools are seasonal depressional wetlands where the proliferation of flora and fauna can be related to the Mediterranean climate that prevails throughout their range.

No records of San Diego button-celery are known from in or near the project corridor. The closest known record for this species is over a mile west of the end of the Alta Road access to Otay Mountain Truck Trail; well beyond potential impacts resulting from the Proposed Action. Surveys of the access roads have not been completed. If surveys indicate the presence of vernal pools within the access road corridors, this species will be considered in detail. This species is currently assumed to be absent from the proposed project corridor and no impacts on this species would be expected. Therefore, this species is not carried forward for discussion in **Section 4.11**.

Otay Tarplant. This species is listed as threatened under the ESA, as endangered under the CESA, and is covered under the Regional MSCP. The Otay tarplant is restricted to clay soils, subsoils, or lenses. Historically, the Otay tarplant occupied areas vegetated with native grassland, open coastal sage scrub, and maritime succulent scrub. Currently, it occupies those communities, but is also found on the margins of disturbed sites and cultivated fields.

One record of Otay tarplant is known from south of the west end of the western access road. This record is well outside the project corridor and no impacts on individuals in that area, if they still exist, would be anticipated. Therefore, this species is dismissed from further analysis in this EIS.

Otay Mesa Mint. This species is listed as endangered under both the ESA and the CESA, and is covered by the Regional MSCP. The Otay Mesa mint is an endemic species of vernal pools of Otay Mesa in southern California.

No records of Otay Mesa mint are known from in or near the project corridor. The closest known record for this species is over a mile west of the end of Otay Mountain Truck Trail; well beyond potential impacts resulting from the Proposed Action. Surveys of the access roads have not been completed. If surveys indicate the presence of vernal pools within the access road corridors, this species will be considered in detail. This species is currently assumed to be absent from the proposed project corridor and no impacts on this species would be expected. Therefore, this species is not carried forward for discussion in **Section 4.11**.

Spreading Navarretia. This species is listed as threatened under the ESA, and is covered by the Regional MSCP. It is a vernal pool specialist that is found in small, shallow vernal pools. Unlike other species associated with vernal pools, this species is also occasionally found in ditches and road ruts with similar conditions to those of degraded vernal pools.

No records of spreading navarretia are known from in or near the project corridor. The closest known record for this species is more than 4 miles west of the end of Otay Mountain Truck Trail; well beyond potential impacts resulting from the proposed action. Surveys of the access roads have not been completed. If surveys indicate the presence of vernal pools within the access road corridors, this species will be considered in detail. This species is currently assumed to be absent from the proposed project corridor and no impacts on this species would be expected. Therefore, this species is not carried forward for discussion in **Section 4.11**.

Mexican Flannelbush. This species is listed as endangered under the ESA. It is not covered by the Regional MSCP. The flannelbush occurs primarily in closed-canopy coniferous forests dominated by Tecate cypress (*Cupressus forbesii*) and southern mixed chaparral, often in metavolcanic soils. The chaparral that the flannelbush occupies has dense shrub cover of moderate

height characterized by chamise (*Adenostoma fasciculatum*), buckbrush (*Ceanothus* sp.) hollyleaf redberry (*Rhamnus ilicifolia*), manzanita (*Arctostaphylos* sp.), scrub oak (*Quercus berberidifolia*), sugar sumac (*Rhus ovate*), laurel sumac (*Malosma laurina*), toyon (*Heteromeles arbutifolia*), California buckwheat, and black sedge (*Salvia mellifera*).

No record of Mexican flannelbush is known from within or near the proposed project corridor. The nearest record is more than 2 miles north, and several ridges away from the closest portion of the project corridor. No impacts on individuals in that area, if they still exist, would be anticipated. Therefore, this species is dismissed from further analysis in this EIS.

California Orcutt Grass. This species is listed as endangered under both the ESA and the CESA, as well as covered by the Regional MSCP. This species occurs in the beds of dried vernal pools, typically in grassland or chaparral (Smith and Berg 1988).

No records of this grass are known from in or near the project corridor. The closest known record for this species is more than 4 miles west of the end of the western access road, well beyond potential impacts resulting from the Proposed Action. Surveys of the access roads have not been completed. If surveys indicate the presence of vernal pools within the access road corridors, this species will be considered in detail. This species is currently assumed to be absent from the proposed project corridor and no impacts on this species would be expected. Therefore, this species is not carried forward for discussion in **Section 4.11**.

***Encinitas Baccharis*.** This species is listed as threatened under the ESA and endangered under the CESA. It is also covered under the Regional MSCP. This species is restricted to the southern maritime chaparral which is a low, fairly open chaparral community.

No records of this species are known from in or near the proposed project corridor. The closest known record is well over a mile north of and up Copper Canyon from the project corridor. The only impacts on individuals at this location, if they still exist, would be beneficial due to reduced cross-border violator traffic through the area. Therefore, this species is dismissed from further analysis in this EIS.

Summary

The following listed species or their habitats have the potential to occur within or near the project corridor and therefore have the potential to be impacted by implementation of the Proposed Action:

- Quino checkerspot butterfly
- Arroyo toad

- Coastal California gnatcatcher
- Least Bell's vireo
- Southwestern willow flycatcher.

Potential impacts on these species, and to migratory birds as a group, are addressed in **Section 4.11**.

3.12 CULTURAL RESOURCES

Cultural resources is an umbrella term for many heritage-related resources. The NHPA focuses on "historic properties," specifically, prehistoric or historic district, site, building, or structure included in, or eligible for, the National Register of Historic Places (NRHP), including related artifacts, records, and material remains. Traditional, religious, and cultural properties holding significance for Native American tribes, and Native Alaskan and Native Hawaiian organizations may also be considered NRHP-eligible. Depending on the condition and historic use, such resources might provide insight into living conditions in previous civilizations or might retain cultural and religious significance to modern groups.

Several Federal laws and regulations govern protection of cultural resources, including the NHPA (1966), the Archaeological and Historic Preservation Act (1974), the American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and the Native American Graves Protection and Repatriation Act (NAGPRA) (1990).

Typically, cultural resources are subdivided into archaeological resources (prehistoric or historic sites where human activity has left physical evidence of that activity but no structures remain standing); architectural resources (buildings or other structures or groups of structures, or designed landscapes that are of historic or aesthetic significance); or resources of traditional, religious, or cultural significance to Native American tribes. Archaeological resources comprise areas where human activity has measurably altered the earth or deposits of physical remains are found (e.g., projectile points and bottles).

Architectural resources include standing buildings, bridges, dams, and other structures of historic or aesthetic significance. Generally, architectural resources must be more than 50 years old to be considered for the NRHP. More recent structures, such as Cold War-era resources, might warrant protection if they have the potential to gain significance in the future. Resources of traditional, religious, or cultural significance to Native American tribes can include archaeological resources, structures, neighborhoods, prominent topographic features, habitat, plants, animals, and minerals that Native Americans or other groups consider essential for the preservation of traditional culture.

Ethnographic Context. The Area of Potential Effect (APE) for the Proposed Action lies in the southern portion of San Diego County within the historical

territory of the Kumeyaay people. Kumeyaay is a native term referring to all Yuman-speaking peoples living in the region from the San Dieguito River south to the Sierra Juarez in Baja California and roughly west of present day Salton Sea. A detailed description of the ethnographic background can be found in **Appendix I**.

Prehistoric Context. Southern San Diego County contains archaeological evidence of human use and occupation that spans the known periods of prehistory. Dated to the Holocene, the earliest sites are known as the San Dieguito complex (i.e., 9,000–7,500 years ago), so-named because the culture was first defined at a site along San Dieguito River, about 20 miles north of the APE for the Proposed Action. The archaeological remains from these sites consist of large, stemmed projectile points and finely made scraping and chopping tools, which were used for hunting and processing large game animals (Moratto 1984).

The La Jolla complex (i.e., 7,500–2,000 years ago) followed the San Dieguito complex. La Jollan sites are recognized by abundant millingstone assemblages in shell middens often located near lagoons and sloughs. This complex is associated with a shift from hunting to a more generalized subsistence strategy relying on a broader range of resources, including plants, shellfish, and small game. La Jollan sites occur in larger numbers than those of the preceding San Dieguito complex, and are found across a greater range of environmental zones.

As elsewhere during late prehistory in southern California, the Yuman complex (i.e., 1,300–200 years ago) was a time of cultural transformation. Beginning about 1,000 years ago, Yuman-speaking groups moved into the San Diego area. These later populations are recognized by distinctive small projectile points, ceramic vessels, and an increase in the use of mortars. The acorn became an increasingly important component of the diet, although subsistence pursuits from earlier periods continued. The number of Yuman-complex sites dramatically outnumbers those from the earlier periods. A detailed description of the prehistoric context can be found in **Appendix I**.

Historic Context. The historical period includes Spanish expeditions of the Alta California coast. In the 1760s, spurred on by the threat to Spanish holdings in Alta California by southward expansion of the Russian sphere of influence, the Spanish government began planning for the colonization of Alta California (Rolle 1978). Mission San Diego de Alcalá was established on July 16, 1769, at the present-day location of the San Diego Presidio. For the next 50 years, mission influence grew in southern California. Mission San Luis Rey de Francia, north of San Diego in present-day Oceanside, was established on June 13, 1798. The mission economy was based on farming and open-range ranching over vast expanses of territory.

Mexican independence from Spain in 1821 was followed by secularization of the California missions in 1832. Between 1833 and 1845, the newly formed Mexican

government began to divide up the immense church holdings into land grants. By the 1840s, ranches, farms, and dairies were being established throughout the El Cajon Valley, along the Sweetwater River, and in nearby areas.

The rancho era in California was short-lived and, in 1848, Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. Growth of the region was comparatively rapid after succession. Subsequent gold rushes, land booms, and transportation development all played a part in attracting settlers to the area. San Diego County was created in 1850, the same year that the City of San Diego was incorporated. Over the next 20 years, the county's population increased sixfold and the city population more than tripled. By the late 1800s, the county was still growing and a number of outlying communities developed around the old ranchos and land grants, in particular areas in the southern limits of the county (Collett and Cheever 2002).

Throughout the early 20th century, most of San Diego County remained primarily rural. Like most of southern California, this region changed rapidly following World War II when the pace of migration and growth quickened. Today, southern San Diego County has transformed into a burgeoning metropolis with unprecedented urban expansion. The remoteness of the proposed project corridor has resulted in a generally undeveloped appearance with the exception of access roads, heavily used footpaths, and the accumulation of modern trash.

Previously Recorded Resources. An archaeological site record and archival search was conducted at the South Coastal Information Center in accordance with the requirements of NHPA Section 106 (36 CFR 800.4 [2, 3, and 4]). The archaeological site record and archival search were conducted to identify and collect data for cultural resources sites and isolates recorded within a 0.5-mile radius of the proposed project APE. A search of the National Archaeological Data Base also was completed in an effort to identify cultural resources management reports for previously completed cultural resources management activities (archaeological survey or evaluation excavations) in or near the APE. Finally, the NRHP was reviewed for information on historic properties that are or have the potential to be listed.

A letter to initiate consultation was sent to 14 tribal groups with cultural links to the proposed project corridor (**Appendix C**). This letter was provided to initiate consultation and solicit comment on traditional cultural properties and areas of concern. No responses have been received to date.

A review of the archaeological site records and archival information, including site (CA-SDI) and Primary (P-37) plot USGS maps (Otay Mountain and Tecate, California 7.5-minute quads) and the National Archaeological Data Base indicates that two cultural resources studies have been conducted within the vicinity of the APE (Foster and Jenkins 1984, Cotterman and Espinoza 2002). These studies covered large areas associated with the Otay Mountain Pack Trail (sometimes known as the Pack Trail) and with Heard Ranch.

Previously recorded archaeological resources include six prehistoric sites, five isolates, and an historic trail (see **Table 3.12-1** and **Appendix I**). Five of the recorded sites are along the Pack Trail and the sixth is near, but not within the Section A-2 proposed project corridor. The five sites along the trail are all within the APE based on site mapping information.

Table 3.12-1. Previously Recorded Archaeological Resources

Site Number	Site Description
P-37-015715	Isolate-Interior dacite flake
P-37-015716	Pack Trail
P-37-024688	Isolate-Dark gray basalt flake
P-37-024689	Isolate- Light brown dacite core and light brown dacite flake
P-37-024690	Isolate-Brown dacite flake
P-37-024691	Isolate-Gray basaltic flake
CA-SDI-16368	Sparse lithic artifact scatter
CA-SDI-16369	Small flaked lithic artifact and prehistoric ceramic scatter
CA-SDI-16370	Seasonal camp with two milling features and a sparse flaked lithic artifact scatter
CA-SDI-16371	Sparse flaked lithic artifact scatter
CA-SDI-16372	Dense flaked lithic artifact scatter
CA-SDI-9968	Extensive bedrock milling features with sparse flaked lithic artifact scatter

An intensive pedestrian survey of the entire project alignment was completed in November 2007. The survey was completed under a Fieldwork Authorization Permit granted by the BLM Palm Springs/Bakersfield Field Office (Permit No. CA-08-03). Several weeks prior to the survey a severe wildfire burned all of the Section A-2 area and affected smaller portions of the Section A-1 area (see **Appendix I**).

Section A-1

Previously Recorded Resources

The Pack Trail (P-37-015716). The Pack Trail winds over chaparral-covered slopes on the flank of the San Ysidro Mountains. The conditions are rocky and generally sloped with a series of north-south-trending ridges cut by deep canyons created by runoff to the Tijuana River from the mountain. The elevation ranges from 440 to 1,330 feet above MSL. According to Mitchell (1997) the Pack Trail averaged approximately 20 inches in width and was formed by clearing brush and pushing “conspicuous” rocks to the side. The trail was difficult to follow in its entirety as heavy vegetation, topography, and “hundreds” of footpaths from migrant human groups as well as large livestock activity, obscure the primary path. Mitchell surveyed the trail in 1996, after a wildfire cleared vegetation from a large section of the trail. The trail was resurveyed in 2002 by Chambers Group,

Inc. (2002) and found to be nearly 1 to 3 meters in width along its full length, brush-free, and easy to follow despite the many intersecting footpaths. Chambers noted the possibility that the trail had been altered through the use of picks and shovels to excavate a more suitable path along the steep ridge slopes and to form a more defined pathway. The trail ranges from a surface manifestation to a path that is excavated as much as 60 centimeters into the hillsides. The trail runs parallel to the international border and within 1 meter of the border in many areas and more than 550 meters from the border in other areas.

The research completed by Mitchell (1997) concluded that the trail was constructed in the 1930s or 1940s to bring fencing material up the steep mountain flanks to construct a fence along the border. Mitchell (1997) presented the notion that the barbed wire fence was constructed to maintain a separation of livestock and not as a means of controlling human population movement. Mitchell (1997) and the Chambers Group, Inc. (2002) both concluded that the Pack Trail is not associated with any persons or events of particular importance in regional transportation history and is not the work of a master and in Chambers view the trail has been significantly modified from the original form and, as such, the trail is not eligible for nomination to the NRHP.

The pedestrian survey completed in November 2007 confirmed both the configuration and condition of the trail. The inspection and survey followed the existing trail, beginning at the western end. There were no associated historic or prehistoric artifacts identified within the narrow confines of the trail. A more detailed discussion is provided in **Appendix I**.

CA-SDI-16368. CA-SDI-16388 was recorded by the Chambers Group in 2002 and described as a sparse lithic scatter approximately 18 meters north of the U.S./Mexico international border. CA-SDI-16368 is described as a single metavolcanic boulder measuring approximately 1.1 by 0.85 meters with several pieces of rock chipped from the surface of this boulder. The Chambers Group described the shatter as representing an opportunistic prehistoric quarry. According to the California Department of Parks and Recreation (CDPR) site record, the site is bisected by the Pack Trail. There was no evidence of flakes or shatter found at the plotted or Universal Transverse Mercator- (UTM-) based location.

CA-SDI-16369. CA-SDI-16369 is recorded as a prehistoric ceramic and stone artifact scatter approximately 8 meters north of the Otay Mountain Truck Trail and 50 meters north of the U.S./Mexico international border. As plotted, the site is outside the project alignment. The site is recorded as containing approximately 70 sherds of prehistoric pottery, approximately 10 pieces of stone shatter, and a core. In addition to the artifacts, a single granite outcrop was described as having a possible milling slick. The site record indicates that a subsurface component to this resource was not expected. As plotted, this site is on the Mexico side of the border and is outside the existing project.

CA-SDI-16370. CA-SDI-16370 is a sparse lithic scatter with two associated milling slicks. This site is recorded at the convergence of three tributaries of the Tijuana River, with materials found in both the United States and Mexico. The site is reported to be 10 meters south of the Pack Trail. During the initial survey (Chambers Group Inc. 2002), approximately 16 pieces of debitage (shatter) were found scattered over an area 18 meters by 10 meters. Two milling slicks were identified on a boulder in Mexico. As plotted, this site is in Mexico and the stone artifacts were not relocated during the current survey.

CA-SDI-16371. CA-SDI-16371 is categorized as a sparse lithic scatter with approximately 8 pieces of chipping waste and a single metavolcanic core scattered over an area 8 by 4 meters. As recorded, the site is plotted on a southeast-facing slope, 30 meters northwest of the bottom of Buttewig Canyon (Chambers Group Inc. 2002). The site form indicated that a subsurface component to the site was not expected. This site was not relocated during the current survey.

CA-SDI-16300. CA-SDI-16300 is a moderately dense stone artifact scatter at the intersection of Puebla Tree and White Cross Road. This site is not within the Otay Mountain Truck Trail route, but along an access road to the proposed project. The site is approximately 800 by 600 meters in size and is on the eastern side of a small hill. Artifacts include approximately 300 pieces of chipping waste and several cores. The site was identified during the current survey at the location plotted on the site record. Although the recorded information for this resource suggests that CA-SDI-16300 is potentially eligible for NRHP nomination, eligibility evaluations have not been conducted. This site appears to be one of several opportunistic quarries where available fine-grained metavolcanic stone was tested for suitability for prehistoric tool manufacture. There was no evidence at the site of a buried component or of formal tools such as blades, performs, or hammerstones.

Previously Recorded Isolates. Four prehistoric isolates (P-37-15715, P-37-024688, P-37-024689, and P-37-024691) were recorded by the Chambers Group in 2002. Each isolate is a single piece of metavolcanic chipping waste (flake or shatter) with no other associated artifacts or features. None of the isolates were relocated during the current survey. As defined, isolates are not eligible for National Register consideration since they do not contain the potential to address regional research questions.

Newly Recorded Resources. During the course of the pedestrian survey, two newly discovered archaeological sites and two isolated finds were identified and recorded. Both archaeological sites are small, prehistoric quarries with a limited amount of debitage scattered over the ground surface. These quarries represent opportunistic extraction and sampling of the naturally occurring metavolcanic stone to determine its overall suitability for creating flaked-stone implements. It appears that these naturally occurring outcrops were examined for quality stone material, which was reduced with the removal of cortex followed by the transport

of usable stone to various field camps and habitation areas for further reduction and tool manufacture. The locations of these field camps and habitation areas are not known, although it is likely there are a number of them in the project vicinity.

The individual artifacts found at the newly discovered sites do not represent a specific period of occupation other than an association with the broad prehistoric past. The previously recorded site CA-SDI-16300 and the two newly discovered sites CA-SDI-18578 and -18579 are representative of special use prehistoric quarry areas. The study area contains a number of exposed Santiago Peak metavolcanic cobbles or boulders that are suitable for making prehistoric tools. This is a fine-grained stone, generally blue to blue-green in color which provides a predictable fracture plane and is seen throughout the southern part of San Diego County as a source stone for flaked stone tools. Based on the current survey these small quarry locales do not include an associated buried deposit or other evidence of prehistoric settlement or use.

The appropriate CDPR forms have been completed and were submitted to the South Coastal Information Center for assignment of official trinomials and Primary designations. Those trinomials are used here.

Truck Trail – CA-SDI-18578. Truck Trail CA-SDI-18578 represents a location where a limited number of flakes were removed from small metavolcanic cobbles. This site is on a small, plateau that is bisected by the Truck Trail. The site assemblage consists of approximately 50 pieces of fine-grained metavolcanic debitage. This material appears to have been removed from several moderately sized metavolcanic cobbles. The site appears to have been created by "testing" or extraction of usable stone material for making formal tools such as scrapers and projectile points. With the exception of a few cores and the debitage, no other artifacts were found. The artifact scatter measures approximately 20 by 30 meters, with the majority of the artifacts found on the north side of the Truck Trail. Given the soil conditions and the geology of the area the potential for a subsurface deposit is considered very low for this site. Although CA-SDI-18578 is approximately 250 meters to the east of CA-SDI-16370 and contains similar artifacts, this site is believed to be a new resource. While it is possible that the plotted location of CA-SDI-16370 could be offset by 250 meters, this is not supported by the current work effort.

Truck Trail – CA-SDI-18579. Truck Trail CA-SDI-18579 is a small flake scatter with a scraper and a broken mano. The site is at the east end of the Truck Trail, on a small plateau overlooking the Tijuana River drainage. As with CA-SDI-18578, this site is defined by a number of moderate-sized metavolcanic cobbles that appear to have been tested for suitability for the creation of flaked stone tools. The resulting debitage and cores are what define this site area. The area is also used as a helicopter landing pad (Pad 33) by the Border Patrol. The Truck Trail passes approximately 20 meters to the north of the site. Surface artifacts consist of approximately approximately 15 pieces of fine-grained

metavolcanic chipping waste, a scraper, and a mano fragment, scattered over an area 20 by 30 meters. The two formal tools are a fine-grained metavolcanic scraper and a granite mano fragment.

Newly Discovered Isolates. Two isolated finds, both fine-grained metavolcanic flakes, were found along the survey route. These items were not recorded but were noted on the project maps. No additional artifacts or archaeological resources (prehistoric or historic) were found during the survey.

Section A-2

Previously Recorded Sites

CA-SDI-9101. This two-locus site is a bedrock milling complex with a scatter of flaked stone artifacts and a second locus with a scatter of flaked stone and one ground stone artifacts. This site was recorded in 1981 by the BLM as part of the Mission Park application. The site is south of Tecate Mission Road (also known as South Grape View) for Section A-2 and outside of the proposed project corridor with a sufficient buffer.

CA-SDI-9102. This site is several thousand meters to the west of CA-SDI-9102 and is a small scatter of flaked stone artifacts. This site was recorded in 1981 by the BLM during the survey for the Mission Park application. The site is south of the access road for Section A-2 (i.e., Tecate Mission Road) and is outside the proposed project corridor with a sufficient buffer.

CA-SDI-9968. This site was recorded in 1984 and is known as the Heard Ranch site. The site occupies land on both sides of the international border and surrounds an historic residence that is currently occupied. The site is at the southern end of the access road (i.e., Tecate Mission Road) for Section A-2 and is on private property. There are numerous bedrock milling features on the large granite boulders with a surface scatter of flaked and ground stone artifacts as well as pockets of dark soil which could indicate accumulated midden. Inspection of the site was limited during the current project because of private property restrictions, though surface indications did not demonstrate that this site extends to the access road.

Newly Recorded Sites. The survey of the Section A-2 proposed project corridor resulted in the recording of one new cultural resource site. This site is referred to as GV-1 and was identified along Tecate Mission Road. The site is a bedrock milling station with a light surface scatter of debitage. Three slicks were recorded on a single, large granite boulder. The site is on the edge of the existing road with no evidence that it continues into the road right-of-way.

Architectural Resources. Review of maps and land records indicate that there are no buildings or structures present within the APE, or with viewsheds that would include the construction corridor for the Proposed Action. Accordingly, the Proposed Action would have no impact on architectural resources.

Resources of Traditional, Religious, and Cultural Significance to Native American Tribes. A review of the NRHP provided information on one sacred site within the vicinity of the construction corridor for the Proposed Action. Kuchamaa/Tecate Peak is identified as an ACEC by the BLM. This area encompasses a sacred mountain (Tecate Peak) that is a spiritual center for Native American people of southern California and northern Baja California. Tecate Peak was placed on the NRHP by the County of San Diego in 1992 (#92001268). This resource is listed for religious or ceremonial reasons and it is identified as a ceremonial site.

In 1981, a proposal to build a campground on the lower slopes of Tecate Peak initiated the preparation of an Environmental Impact Report by the BLM. As a result of research into ethnographic literature and Native American consultation, the BLM sought a nomination of Kuchamaa as a NRHP district. The Tecate Peak District encompasses 510 acres of both state and Federal lands. The district was determined to be eligible for the NRHP based upon its uniqueness as a site of extreme religious significance to the Kumeyaay and other Indians throughout southern California. It should be noted that portions of Kuchamaa are still privately owned. This creates a dilemma for the Kumeyaay, who feel that they risk personal harm by divulging information about their sacred mountain, but that, should portions of it be developed, the power of the site would be diminished. A detailed discussion is included in **Appendix I**.

3.13 VISUAL RESOURCES

Visual resources include both natural and man-made features that influence the visual appeal of an area for residents and visitors. Visual resources can be defined as the visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features).

In order to meet its responsibility to maintain the scenic values of public lands, BLM has developed a Visual Resource Management (VRM) system based on human perceptions and expectations in the context of the existing landscape. Different levels of scenic values require different levels of management. Determining how an area should be managed first requires an assessment of the area's scenic values. For management purposes, BLM has developed Visual Resource Classes.

1. *Class I Objective.* The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes but also allows very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
2. *Class II Objective.* The objective of this class is to preserve the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities are allowed, but should

not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. New projects can be approved if they blend in with the existing surroundings and don't attract attention.

3. *Class III Objective.* The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities might attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. New projects can be approved that are not large-scale, dominating features.
4. *Class IV Objective.* The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities can dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements of predominant natural features (BLM 1986a).

Section A-1

As discussed in **Section 3.4**, the majority of the Proposed Action would be on Federal lands managed by the BLM. The area surrounding the Section A-1 falls into two classes. The OMW, north of the Proposed Action, is classified as a Class I Visual Resource and the BLM-managed land surrounding the OMW are designated as a Class III Visual Resource.

Section A-2

Although Section A-2 of the Proposed Action is mostly on private property, the area would be designated as a Class III Visual Resource under the BLM VRM system.

3.14 SOCIOECONOMIC RESOURCES, ENVIRONMENTAL JUSTICE, AND PROTECTION OF CHILDREN

Socioeconomic Resources. Socioeconomics is defined as the basic attributes and resources associated with the human environment, particularly characteristics of population and economic activity.

Socioeconomic data shown in this section are presented at the community and county levels to characterize baseline socioeconomic conditions in the context of regional and state trends. Data have been collected from previously published

documents issued by Federal, state, and local agencies; and from state and national databases (e.g., U.S. Census Bureau).

Environmental Justice, Protection of Children, and Safety. There are no Federal regulations on socioeconomics; however, there is one EO that pertains to environmental justice issues based on socioeconomic and racial makeup of an affected population and the health effects that could be imposed on them. On February 11, 1994, President Clinton issued EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO requires that Federal agencies' actions substantially affecting human health or the environment do not exclude persons, deny persons benefits, or subject persons to discrimination because of their race, color, or national origin. The EO was created to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, state, tribal, and local programs and policies. Consideration of environmental justice concerns includes race, ethnicity, and the poverty status of populations in the vicinity of a proposed action. Such information aids in evaluating whether a proposed action would render vulnerable any of the groups targeted for protection in the EO.

In addition to EO 12898, President Clinton issued EO 13045, *Protection of Children From Environmental Health Risks and Safety Risks*. This EO called for the protection of children from exposure to disproportionate environmental health and safety risks. This EO established that each agency has a responsibility to ensure that its policies, programs, activities, and standards address risk to children that result from environmental health risks or safety risks.

Sections A-1 and A-2

Socioeconomic Resources. The proposed tactical infrastructure of Sections A-1 and A-2 are within southern San Diego County. As of January 1, 2007, San Diego County had a population of 3,098,269, which is a 10.1 percent increase over the 2000 Census population (SANDAG 2007b). Sections A-1 and A-2 would be located in relatively sparsely populated areas of San Diego County; however the Mexican cities of Tijuana and Tecate, which have a combined population of more than 2 million people, are along the U.S./Mexico international border to the southwest and southeast, respectively, of the Proposed Action. Section A-1 is adjacent to the OMW and near the community of Otay Mesa, California. Section A-2 is just west of the community of Tecate, California, and within the Zip Code 91980. Otay Mesa and Tecate, California, were chosen as the Regions of Influence (ROIs) for the Proposed Action because they best represent the socioeconomic and demographic characteristics of the area. ROI 1

(community of Otay Mesa) is defined by the City of San Diego Otay Mesa Community Planning Area, while ROI 2 (community of Tecate) is defined by Zip Code 91980.

Otay Mesa is a community within the City of San Diego that has undergone considerable commercial and industrial development in recent years. As of January 1, 2007, Otay Mesa had a population of 13,892, which is a 698 percent increase from the 2000 U.S. Census population of 1,740 (SANDAG 2007c). Otay Mesa has become the largest commercial land border port and one of the busiest commercial land border crossings in the United States (Otay Mesa undated).

Tecate, California, is an unincorporated community in San Diego County that is directly adjacent to the Mexican City of Tecate, Baja California. The community of Tecate, California, is a relatively sparse area that had a population of 177 during the 2000 Census, but as of January 1, 2007, the population had decreased by approximately 22 percent to 139 (see **Table 3.14-1**) (SANDAG 2007d).

Table 3.14-1. State, County, and ROI Population Trends Comparison

Year	State of California	San Diego County	ROI 1 (Community of Otay Mesa)	ROI 2 (Community of Tecate)
2000	33,871,648	2,813,833	1,740	177*
2007	37,662,518	3,098,269	13,892	139
Change 2000 to 2007	11.2%	10.1%	698.4%	-21.5%

Source: U.S. Census Bureau 2000, State of California 2006, SANDAG 2007b, SANDAG 2007c, SANDAG 2007d.

Note: * Minor adjustments were made to the 2000 U.S. Census total population data for Zip Code 91980 after its initial release in order to more accurately reflect the region's true population and housing distribution. Therefore, the total population for Zip Code 91980 (Community of Tecate) in Table 3.14-1, which used data from 2007, is different from that used in Table 3.14-2, which used 2000 data.

Based on 2000 U.S. Census data, employment types in the affected ROIs vary (see **Table 3.14-2**). The largest employment type in ROIs 1 and 2, San Diego County, and California is educational, health, and social services (21.1, 25.5, 19.4, and 18.5 percent, respectively) (SANDAG 2003a, SANDAG 2003b, SANDAG 2003c, U.S. Census Bureau 2000). In 2006, the unemployment rate in San Diego County was 4 percent (Fedstats 2007).

Environmental Justice, Protection of Children, and Safety. As of January 2007, approximately 44 percent of the 13,892 people living in Otay Mesa were Hispanic. Of the non-Hispanic residents, approximately 45 percent were White; 41 percent were Black or African American; 12 percent were Asian and Pacific

Table 3.14-2. Employment Type of Residents in State, County, and ROIs

Economic and Social Indicators	State of California	San Diego County	ROI 1 (Community of Otay Mesa)	ROI 2 (Community of Tecate)
Employed Persons in Armed Forces (Percent of Employed Total Population, Age 16 and over)	0.9	6.5	3.8	0.0
Employed Persons By Industry (Percent of Employed Civilian Population, Age 16 and over)				
Agriculture, forestry, fishing and hunting, and mining	1.9	0.7	0.0	5.5
Construction	6.2	6.6	3.8	14.5
Manufacturing	13.1	11.0	12.6	3.6
Wholesale trade	4.1	3.2	3.3	5.5
Retail trade	11.2	11.3	11.8	7.3
Transportation and warehousing, and utilities	4.7	3.8	7.1	1.8
Information	3.9	3.5	4.5	1.8
Finance, insurance, real estate, and rental and leasing	6.9	7.1	5.6	0.0
Professional, scientific, management, administrative, and waste management services	11.6	13.3	6.9	5.5
Educational, health and social services	18.5	19.4	21.1	25.5
Arts, entertainment, recreation, accommodation and food services	8.2	9.6	7.9	14.5
Other services (except public administration)	5.2	5.2	4.6	7.3
Public administration	4.5	5.4	11.0	7.3

Source: U.S. Census Bureau 2000, SANDAG 2003c, SANDAG 2003a, SANDAG 2003b

Islander; 2 percent were of some other race; and 0.6 percent were American Indian. As of 2007 the median household income was $97,694 (current dollars) and the approximate median age was 38.3. The approximate percentage of the population under the age of 5 years old in Otay Mesa was 3.2 percent in 2007 (SANDAG 2007c). As of January 2007, the Zip Code 91980, containing Tecate, was 37.4 percent Hispanic, and of the non-Hispanic population, 78.2 percent were White, 8.0 were Black or African American, 5.7 percent were American

Indian, 2.3 percent were Asian or Pacific Islander, 5.7 percent were some other race. The 2007 median household income in Zip Code 91980 was $38,776 (current dollars) and the approximate median age was 35 years old (SANDAG 2007d).

Demographics in Otay Mesa and Tecate, California, are similar to those in San Diego County. As of 2007, approximately 29.3 percent of the population in San Diego County was Hispanic, and of the non-Hispanic population, 72.9 percent were White, 13.9 percent were Asian or Pacific Islander, 7.6 percent were Black or African American, 4.8 percent were some other race, and 0.7 percent was American Indian. San Diego County's 29.3 percent Hispanic population is lower than Otay Mesa and Tecate, however the 2007 median household income (in current dollars) in San Diego County and Tecate, California ($68,388 and $97,694 respectively) were lower than the median household income of Otay Mesa ($97,694) (see **Table 3.14-3**) (SANDAG 2007b). This trend is also reflected in the poverty status. Based upon 2000 U.S. Census data, 13 percent of the population in San Diego County and 8 percent in Tecate, California, lived below the poverty line, while 4 percent lived below the poverty line in Otay Mesa (see **Table 3.14-3**) (SANDAG 2003a, SANDAG 2003b).

Table 3.14-3. 2007 Demographic and Economic Characteristics of ROIs and San Diego County

	San Diego County	ROI 1 (Community of Otay Mesa)	ROI 2 (Community of Tecate)
2007 Total Population	3,098,269	13,892	139
Percent Hispanic	29.3	43.9	37.4
Percent Non-Hispanic	70.7	56.1	62.6
Percent White	72.9	44.8	78.2
Percent Black or African American	7.6	41.2	8.0
Percent American Indian	0.7	0.6	5.7
Percent Asian or Pacific Islander	13.9	11.5	2.3
Percent "Some other race"	4.8	1.9	5.7
Median Household Income	$68,388	$97,694	$38,776

Source: SANDAG 2007b, SANDAG 2007c, SANDAG 2007d

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SECTION 4

Environmental Consequences

4. ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter presents an analysis of the potential direct and indirect impacts each alternative would have on the affected environment, as characterized in **Section 3**. Alternatives were evaluated against their potential impact on environmental resources; including social, natural, cultural, and visual resources.

In developing this EIS, the proponent agencies adhered to the procedural requirements of NEPA, the CEQ regulations for implementing NEPA (40 CFR 1500–1508), and *National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts*. The following discussion elaborates on the nature of the characteristics that might relate to various impacts:

- *Short-term or long-term.* These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period or only during the time required for construction or installation activities. Long-term impacts are those that are more likely to be persistent and chronic.
- *Direct or indirect.* A direct impact is caused by a Proposed Action and occurs at or near the location of the action. An indirect impact is caused by a Proposed Action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action.
- *Negligible, minor, moderate, or major.* These relative terms are used to characterize the magnitude or intensity of an impact. Negligible impacts are generally those that might be perceptible but are at the lower level of detection. A minor impact is slight, but detectable. A moderate impact is readily apparent. A major impact is one that is severely adverse or exceptionally beneficial.
- *Significance.* Significant impacts are those that, in the specific context within which they occur and due to their intensity (severity), meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27). This EIS meets the agencies' requirements to prepare a detailed statement on major Federal actions significantly affecting the quality of the human environment (42 U.S.C. 102.2(c)).
- *Adverse or beneficial.* An adverse impact is one having adverse, unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.

- *Context.* The context of an impact can be localized or more widespread (e.g., regional). While the definition of the term "local" (or localized) can vary by resource, it can be broadly defined as one that occurs within an established regulatory limit (e.g., 100-meter mixing boundary) or within approximately 10 kilometers (6 miles) of the source. "Regional" impacts are broadly defined as those that occur on the order of 100 kilometers (62 miles) or more from the source.
- *Intensity.* The intensity of an impact is determined through consideration of several factors, including whether the Proposed Action might have an adverse impact on the unique characteristics of an area (e.g., historical resources, ecologically critical areas), public health or safety, or endangered or threatened species or designated critical habitat. Impacts are also considered in terms of their potential for violation of Federal, state, or local environmental law; their controversial nature; the degree of uncertainty or unknown effects, or unique or unknown risks; if there are precedent-setting effects; and their cumulative impact (see **Section 6**).

For each resource area, the evaluation criteria provide a framework for establishing whether an impact would be negligible, minor, moderate, or major. Although some evaluation criteria have been designated based on legal or regulatory limits or requirements, others are based on best professional judgment and BMPs. The evaluation criteria include both quantitative and qualitative analyses, as appropriate to each resource.

4.2 AIR QUALITY

4.2.1 No Action Alternative

Under the No Action Alternative, USBP would not construct or maintain new tactical infrastructure in the USBP San Diego Sector and operational activities would remain unchanged. Therefore, the No Action Alternative would not create any additional impacts on air quality beyond those that are already occurring, as described in **Section 3.2**.

4.2.2 Proposed Action

Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with the NAAQS. The Proposed Action would generate air pollutant emissions during construction and maintenance of the proposed tactical infrastructure.

Proposed Construction Projects

Major, short-term, adverse impacts would be expected from construction emissions and land disturbance associated with the Proposed Action.

The construction projects would generate total suspended particulate and PM_{10} emissions as fugitive dust from ground-disturbing activities (e.g., grading, trenching, soil piles) and from combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment. These emissions would be of a temporary nature. The NAAQS emissions factors and estimates were generated based on guidance provided in USEPA AP-42, Volume II, *Mobile Sources*. Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 Section 11.9.

For purposes of this analysis, the project duration and affected proposed project corridor that would be disturbed (presented in **Section 2**) were used to estimate fugitive dust and all other pollutant emissions. The construction emissions presented in **Table 4.2-1** include the estimated annual construction PM_{10} emissions associated with the Proposed Action. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. However, the impacts would be temporary, and would fall off rapidly with distance from the proposed construction sites. As seen in **Table 3-1**, the emissions of NAAQS pollutant is not high; would not contribute to the deterioration of the air quality in the region; does not exceed the *de minimis* threshold limits for nitrogen oxide (NO_x), volatile organic compounds (VOCs), and $PM_{10/2.5}$; and does not exceed 10 percent of the regional values.

The construction emissions presented in **Table 4.2-1** include the estimated annual emissions from construction equipment exhaust associated with the Proposed Action in Calendar Year 2008 and operation of diesel-powered generators. Early phases of construction projects involve heavier diesel equipment and earthmoving, resulting in higher NO_x and PM_{10} emissions. Later phases of construction projects involve more light gasoline equipment, resulting in more CO and VOC emissions. However, the impacts would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term impacts.

Haul Truck Emissions

Minor, short-term, adverse impacts would be expected from haul truck emissions to transport the required cut-and-fill materials along the proposed project corridor.

Table 4.2-1. Estimates of Total Proposed Construction Emissions from the Proposed Action in Tons Per Year

Description	NO_x	VOC	CO	SO_x	PM_{10}
Construction Emissions	56.743	8.459	66.291	1.135	56.739
Haul Truck Emissions	0.572	0.176	0,959	0.045	0.680
Generator Emissions	14.702	1.200	3.167	0.967	1.034
Total Proposed Action Emissions	**72.017**	**9.835**	**70.417**	**2.147**	**58.453**
Federal *de minimis* Threshold	100	50	100	NA	100
SDIAQCR Regional Emissions	76,343	95,371	605,178	2,007	72,011
Percent of SDIAQCR Regional Emissions	0.094	0.010	0.012	0.107	0.081

Source: USEPA 2007b

Large amounts of cut-and-fill are required from both onsite and offsite for the Proposed Action. It is assumed that approximately 291,222 cy of cut material, and 306,268 cy of fill material would be required from the proposed project corridor in order to construct Sections A-1 and A-2. In addition, approximately 60,000 cy of fill materials would be needed from off site and another 60,000 cy of cut waste would have to be removed from the project. Each haul truck is assumed to transport 30 cy of material. Furthermore, all onsite haul trucks would travel approximately 2 miles round trip and all offsite fill and waste materials would be transported an average of 10 miles round trip. This equates to approximately 23,913 haul truck loads traveling 79,826 miles (average of 83.15 miles per working days). Emissions factors for these heavy-duty diesel vehicles were taken from AP-42, Volume II, *Mobile Sources* to estimate emissions. Details of these emissions calculations can be found in **Appendix F**.

Generators

The Proposed Action's activities would require six diesel-powered generators to power construction equipment. It is assumed that these generators would be approximately 75 horsepower and operate approximately 8 hours per day for 190 working days. The emissions factors and estimates were generated based on guidance provided in USEPA AP-42, Volume I, *Stationary Internal Combustion Sources*. The generators to be used under the Proposed Action would be registered with the CARB under the Portable Equipment Registration Program (PERP), or would be operated under stationary source operating permits issue by the SDCAQCD. The CBP would coordinate with the SDCAQCD to ensure that all necessary registrations/operating permits for these generators are in place.

Proposed Operations and Maintenance Activities

After construction is completed, the USBP San Diego Sector would begin patrols along Sections A-1 and A-2. The vehicles used for surveillance of the existing border area are currently generating criteria pollutants and would not introduce new pollutant sources. Therefore, no net increase of criteria pollutant emissions would be expected.

The construction of new tactical infrastructure would increase maintenance activities. Maintenance activities associated with the Proposed Action would be comparable to current maintenance within the USBP San Diego Sector. Future maintenance might be conducted by contractors. The air emissions associated with maintenance would be a negligible contribution to overall air quality in the SDIAQCR. No long-term adverse impacts on air quality would be expected.

Greenhouse Gases

The Proposed Action would result in CO_2 emissions from the operation of construction vehicles, including haul trucks, and generators. Using emissions coefficients reported by the Energy Information Administration (EIA 2007), operation of construction vehicles would result in an estimated 66 tons of CO_2, and operation of generators would result in an estimated 274 tons CO_2. Therefore, short-term greenhouse gas emissions associated with construction activities would total approximately 340 tons of CO_2. These emissions estimates are included in **Appendix F**.

After construction is completed, USBP San Diego Sector would begin patrols along Sections A-1 and A-2. The vehicles used for surveillance of the existing border area are currently generating CO_2; therefore, no net increase of criteria pollutant emissions would be expected. Maintenance activities associated with the Proposed Action would be comparable to ongoing maintenance with other similar fence sections, which are summarized under *Proposed Operations and Maintenance Activities* above. The Proposed Action would result in negligible CO_2 emissions associated with maintenance activities.

The USEPA has estimated that the total greenhouse emissions for California were 427 million metric tons of carbon dioxide equivalent (MMTCE) in 1990 (CARB 2007b). The short-term CO_2 emissions associated with construction (340 tons) represent less than 0.0001 percent of the total estimated California CO_2 inventory. Long-term increases in CO_2 emissions would result from increased maintenance activities. The Proposed Action would be expected to have a negligible contribution to CO_2 and greenhouse gases.

Summary

Since San Diego County, including the area associated with the Proposed Action, is within a Federal Subpart 1 (Basic) and state nonattainment area for 8-hour O_3, the Federal moderate maintenance area for CO, and state

nonattainment area for PM_{10} and $PM_{2.5}$, the General Conformity Rule requirements are applicable to the Proposed Action. **Table 4.2-1** illustrates that the Proposed Action's NO_x, VOCs, and PM_{10} emissions would be less than the *de minimis* thresholds for the SDIAQCR. In addition, emissions from the Proposed Action would be much less than 10 percent of the emissions inventory for SDIAQCR (USEPA 2007b). Therefore, major, adverse impacts on regional or local air quality are not anticipated from implementation of the Proposed Action.

4.3 NOISE

4.3.1 No Action Alternative

Under the No Action Alternative, there would not be any construction of tactical infrastructure. Therefore, no impacts on existing noise conditions would occur.

4.3.2 Proposed Action

Short-term moderate adverse impacts are expected under the Proposed Action. Sources of noise from the Proposed Action would include blasting, the operation of construction equipment, noise from construction vehicles, and USBP activity such as vehicle noise.

Blast Noise

As discussed in **Section 2**, two sections of primary pedestrian fence along the U.S./Mexico international border would be constructed. As part of the construction, particularly for Section A-1, blasting would need to occur to enable construction of the fence and related infrastructure.

Blast noise was modeled with the Blast Noise Prediction computer program, BNoise 2.0, using an application that estimates single event noise levels. The noise from blasting activities varies depending on the type of explosive, the amount, and the type of material that would be subject to the explosion. To estimate the noise from blasting under the Proposed Action, several different amounts of TNT were used, ranging from 2.2 pounds to 8.8 pounds. Noise from blasting generates an average noise level of approximately 117 to 126 dBC at 100 feet. Blasting activities would only occur during the construction period. As such, short-term moderate adverse noise impacts would be anticipated as a result of the blasting during construction activities.

Construction Noise

The construction of the access road, fence, and related tactical infrastructure would result in noise impacts on the populations in the vicinity of the proposed fence.

- The closest residence between Puebla Tree and Boundary Monument 250, proximate to Valle Redondo, California, is approximately 7,000 feet south of Section A-1. Populations in this area would experience noise levels of approximately 43 dBA from construction activities.
- The closest residence between Puebla Tree and Boundary Monument 250, in the town of Dulzura, California, is approximately 14,000 feet north of Section A-1. Populations in this area would experience noise levels of approximately 37 dBA from construction activities.
- The closest residence west of Tecate is approximately 250 feet from Section A-2. Residences in this area would experience noise levels of approximately 72 dBA from construction activities.

Implementation of the Proposed Action would have temporary, minor, adverse effects on the noise environment from the use of heavy equipment during construction activities. However, noise generation would last only for the duration of construction activities and would be isolated to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.).

Vehicular Noise

Noise impacts from increased construction traffic would be temporary in nature. These impacts would also be confined to normal working hours and would last only as long as the construction activities were ongoing. However, SR 94 and SR 188 pass by several residential areas. It is anticipated that the Proposed Action would have short-term moderate adverse noise impacts as a result of the increase in traffic, most notably in the areas around Dulzura and Tecate.

USBP Operations

The construction of the border fence and related infrastructure would make the area around Section A-1 more accessible to vehicles. However, given that the closest population is about 7,000 feet away, and the USBP already operates in this area, the increase in noise from USBP traffic is not expected to be significant. USBP traffic is also not anticipated to significantly increase around Section A-2.

Impacts of noise to wildlife are further discussed in **Section 4.10**.

4.4 LAND USE AND RECREATION

4.4.1 No Action Alternative

Under the No Action Alternative, CBP would not implement the Proposed Action. No new fencing or access roads would be constructed. The affected environment described in **Section 3.4** would remain unchanged. In areas of private property, concerns about safety and security would still hold down

property values in the absence of increased tactical infrastructure. Recreational value of BLM land would continue to be limited due to public concerns over safety due to the continuing presence of illegal foot traffic from cross-border violators. In addition, other land uses in the vicinity of the Proposed Action could continue to be disrupted by the presence of cross-border violators.

4.4.2 Proposed Action

Constructing the proposed fence and access roads could result in short- and long-term, minor, adverse and beneficial impacts on land use. The severity of the adverse impacts would vary depending on the disruption to land uses and the need for rezoning to accommodate the fence and access road. Short-term, minor, adverse impacts would occur from construction and use of staging areas during the construction. Impacts on land use would vary depending on potential changes in land use and the land use of adjacent properties. USBP might be required to obtain a permit or zoning variance based on local restrictions and ordinances. USBP would adhere to all local zoning laws and ordinances to lessen impacts on land use conditions of areas affected. In addition, special permits might be required to traverse railroads, roadways, streams, and state and Federal lands.

Short-term, minor, adverse impacts due to construction activities and long-term, minor, adverse impacts due to the presence of the primary pedestrian fence and the associated preclusion of use of the affected land would occur on residential land uses. There is no residential land use along Section A-1; however the eastern end of the proposed project corridor of Section A-2 would traverse residential land with several structures. Therefore, Section A-2 would affect landowners whose property would be traversed or is adjacent to the proposed alignment.

Construction along the border usually requires the government to acquire some interest in the land. The Secretary of DHS is authorized (8 U.S.C. 1103) to contract for and buy any interest in land adjacent to or in the vicinity of the international land border when the Secretary deems the land essential to control and guard the border against any violation of immigration law. The acquisition of land is a negotiable process that would be carried out between USBP and individual landowners on a case-by-case basis.

The proposed fence and access roads would traverse both public and private lands. Various methods could be used to acquire the necessary interests in land. These methods include, among other things, acquiring permanent easements, ROW, or outright purchase.

For those proposed tactical infrastructure sections that are on Federal lands, the most likely means of acquisition would be an ROW obtained from the relevant Federal land manager. On private land, the government would likely purchase the land or some interest in land from the relevant landowner. Acquisition from

private landowners is a negotiable process that is carried out between the government and the landowner on a case-by-case basis. The government also has the statutory authority to acquire such interests through eminent domain.

No long-term changes to land use within the Roosevelt Reservation would occur because this area is designated for border enforcement. However, use of construction staging areas would result in temporary and short-term changes to land use, but upon completion of construction, the staging areas would be rehabilitated and returned to their original condition.

Short-term, minor, indirect, adverse impacts on recreation and open land uses, including the recreation and open space uses of the OMW, Pack Trail, and Marron Valley Preserve, would occur during construction of Section A-1. These impacts would be short-term and localized to staging and construction areas. No adverse impacts on recreation would be expected after construction, during operation of the Proposed Action. Additional long-term adverse land use impacts could occur if the Proposed Action precludes use of some portion of the Marron Valley Preserve as a conservation land bank. This impact could be lessened by coordination with the City of San Diego during the land acquisition process, and possibly compensating the city for removal or disturbance of the lands in the land bank.

There would be adverse impacts related to the Proposed Action's inconsistency with regulations governing the management of the OMW. The Wilderness Act of 1964 specifically prohibits several uses within wilderness areas, including use of motorized vehicles, equipment, or mechanical transport; or the erection of a structure or installation (P.L. 88-577, 88th Congress, Section 4[c]). However, the Act includes a special provision that allows the President to authorize within wilderness areas in national forests the establishment and maintenance of "other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area would better serve the interests of the United States and the people thereof than will its denial" (P.L. 88-577, Section 4[d]).

Long-term, indirect, beneficial impacts on recreational and open space areas could occur as a result of decreased illegal cross-border activity onto the OMW. In addition, by reducing the amount of illegal cross-border activity within and adjacent to the proposed project corridor, disturbance to lands north of this corridor would be reduced or possibly eliminated.

No impacts would occur on land use of the Kuchamaa ACEC or the Kuebler Ranch Site.

No impacts would occur on the public facility land uses, including the detention and correctional facilities, in the vicinity of the Proposed Action.

Within Section A-1, portions of U.S. land would be south of the fence, therefore since this land would be difficult and possibly unsafe to access, its value would decrease significantly.

A Minimum Tool Analysis for the OMW will be conducted in accordance with BLM Manual 8560, Management of Designated Wilderness.

4.5 GEOLOGY AND SOILS

4.5.1 No Action Alternative

The No Action Alternative would result in the continuation of existing conditions for geologic resources, as characterized in **Section 3.5**. Soil resources would continue to be degraded by cross-border violators who often damage habitat, cut vegetation, and increase erosion through repeated use of footpaths (CRS 2006).

4.5.2 Proposed Action

Physiography and Topography. Short- and long-term, minor, adverse impacts on the natural topography would occur as a result of implementing the Proposed Action. Grading, blasting, contouring, and trenching associated with the installation of the fence, patrol roads, access roads, and other tactical infrastructure would impact approximately 61.5 acres for Section A-1 and 12.9 acres for Section A-2, which would alter the existing topography.

Geology. Short- and long-term, negligible to minor adverse impacts on geologic resources could occur at locations where bedrock is at the surface and blasting would be necessary to grade for fence placement or patrol and access road development. Geologic resources could affect the placement of the fence or patrol and access roads due to the occurrence of bedrock at the surface, or as a result of structural instability. In most cases, it is expected that project design and engineering practices could be implemented to mitigate geologic limitations to site development.

Soils. Short-term, minor, direct, adverse impacts on soils in USBP San Diego Sector would be expected as a result of implementing the Proposed Action. Soil disturbance and compaction due to grading, contouring, and trenching associated with the installation of the fence, patrol roads, and access roads would impact approximately 36 acres for Section A-1 and 5 acres for Section A-2.

The proposed construction activities would be expected to result in an increase in soil erosion due to the steep topography. Soil disturbance on steep slopes has the potential to result in excessive erosion due to instability of the disturbed soils and high storm water runoff energy and velocity. An SWPPP and sediment and erosion control plans would be developed to minimize sediment runoff. Wind erosion has the potential to impact disturbed soils where vegetation has been

removed due to the semi-arid climate of the region. Construction activities would be expected to directly impact the existing soils as a result of grading, excavating, placement of fill, compaction, and mixing or augmentation necessary to prepare the site for development of the fence, patrol and access roads, and associated utility lines.

Because proposed construction would result in a soil disturbance of greater than 1 acre, authorization under the Cal/EPA State Water Resources Control Board (SWRCB) General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ) would be required. Construction activities subject to this permit include clearing, grading, and disturbances to the ground, such as stockpiling or excavation, but do not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of an SWPPP to include BMPs.

Additional soil disturbance could occur during and following construction as a result of periodic patrols. Compaction and erosion of soil would be expected as a result of patrol operations and possible off-road vehicle use that could decrease vegetation cover and soil permeability.

The Visalia sandy loam (5–9 percent slopes) is designated as a prime farmland soil. However, none of the area within the fence corridor in the United States is being used for agricultural purposes. The corridor selected for border fence and patrol road development would be linear and limited in extent; therefore any impacts as a result of the Proposed Action to designated prime farmland soils would be considered negligible to minor.

4.6 HYDROLOGY AND GROUNDWATER

4.6.1 No Action Alternative

Under the No Action Alternative, CBP would not implement the Proposed Action. As a result, there would be no change from the baseline conditions and no effects on surface hydrology, groundwater, surface water, or floodplains would be expected to occur.

The No Action Alternative would result in continuation of the existing condition of water resources, as discussed in **Section 3.6**. Water resources would also continue to be degraded by cross-border violators from the increase in sedimentation caused by erosion of repeatedly used footpaths.

4.6.2 Proposed Action

Hydrology and Groundwater. Short- and long-term, minor, direct, adverse impacts on surface hydrology would be expected as a result of implementing the Proposed Action. Under the Proposed Action, blasting, grading, and contouring

would be expected to alter the topography and remove vegetation, cobble, and gravel which could potentially increase erosion and runoff during heavy precipitation events. SWPPPs and sediment and erosion control plans would be developed to minimize sediment runoff. Revegetating the area with native vegetation following construction could reduce the impacts of erosion and runoff due to the changes in hydrological potential dependant on the success of vegetation establishment.

Water would be required for pouring concrete, for soil compaction associated with cut-and-fill operations, and watering of road and ground surfaces for dust suppression during construction. Because of the remote location of the proposed project corridor, the drilling of up to two wells might be required. However, water would be used for construction only and water use would be temporary. Once construction is complete, it is likely that both wells would be maintained for fire suppression and operational dust control. Based on 100 gallons of water per cubic yard of cut-and-fill, approximately 35 million gallons of water would be required for soil compaction associated with cut-and-fill operations. Additional water would be needed for pouring concrete and dust suppression. The Proposed Action is not expected to affect any water supplies (municipal or otherwise). If it is determined that the unconfined aquifer is not sufficient to supply water for construction, additional sources of water would be identified. Water not lost to evaporation during watering of surfaces during construction would potentially contribute to aquifer recharge through downward seepage.

Implementation of storm water and spill prevention BMPs developed consistent with the SWPPP and other applicable plans and regulations would minimize potential runoff or spill-related impacts on groundwater quality during construction.

4.7 SURFACE WATER AND WATERS OF THE UNITED STATES

4.7.1 No Action Alternative

Under the No Action Alternative, CBP would not implement the Proposed Action. As a result, there would be no change from the baseline conditions and no effects on surface hydrology, groundwater, surface water, or floodplains would be expected to occur.

The No Action Alternative would result in the continuation of existing conditions associated with water resources, as discussed in **Section 3.7**. Water resources would also continue to be degraded by cross-border violators from the increase in sedimentation caused by erosion of repeatedly used footpaths.

4.7.2 Proposed Action

Surface Waters and Waters of the United States. Long-term, minor, adverse impacts on waters of the United States would be expected as a result of Section

A-1 crossing intermittent tributaries associated with Copper and Buttewig Canyons and Section A-2 crossing an intermittent tributary of the Tijuana River. Fence design (**Appendix E**), meant to allow small animals to pass, would also allow water to flow unimpeded. Necessary permits from the USACE-Los Angeles District would be obtained prior to construction into drainages. If constructed, these fence locations would need to be inspected following runoff events to remove any debris and to maintain the integrity of the primary pedestrian fence and ensure that there is sufficient passage to allow water to flow unimpeded.

Section A-1 contains areas of riparian corridor (Copper and Buttewig canyons) and Section A-2 contains an intermittent tributary of the Tijuana River. Delineations for wetlands and waters of the United States have not yet been conducted. The most current information available to identify wetlands is the National Wetlands Initiative (NWI) (USFWS 2007). There are no NWI wetlands in Sections A-1 or A-2. Approximately 2.4 acres of riverine wetlands are estimated within the proposed project corridor by review of aerial photography. A wetland delineation would be conducted followed by a jurisdictional determination by the USACE prior to any construction activities.

If wetland impacts cannot be avoided, any necessary CWA Section 404 permits and Rivers and Harbors Act Section 10 Permits would be obtained. As part of the permitting process, a wetlands identification, mitigation, and restoration plan would be developed, submitted, and implemented to reduce and compensate for unavoidable impacts. The plan would be developed in accordance with USACE guidelines and in cooperation with USEPA. The plan would outline BMPs from preconstruction to post-construction activities to reduce impacts on wetlands and water bodies. A Section 401 (a) CWA Permit would also be obtained to ensure that action would comply with state water quality standards.

Water Quality. Short-term, negligible, adverse impacts on water quality would be expected as a result of the Proposed Action. The Proposed Action would cumulatively increase impervious surface area and runoff potential in the proposed project corridor. Approximately 82.4 acres of soil disturbance would occur during construction activities for Section A-1 and approximately 10 acres for Section A-2. The soil disturbance associated with the Proposed Action would disturb more than 1 acre of soil, therefore authorization under the Cal/EPA SWRCB *Construction General Permit* (99-08-DWQ) would be required. Erosion and sediment control and storm water management BMPs during and after construction would be implemented consistent with the SWPPP developed under the Construction General Permit. Based on these requirements, adverse impacts on surface water quality would be reduced to negligible.

4.8 FLOODPLAINS

4.8.1 No Action Alternative

Under the No Action Alternative, CBP would not implement the Proposed Action. As a result, there would be no change from the baseline conditions and no effects on surface hydrology, groundwater, surface water, or floodplains would be expected to occur.

The No Action Alternative would result in the continuation of existing conditions associated with water resources, as discussed in **Section 3.8**. Water resources would also continue to be degraded by cross-border violators from the increase in sedimentation caused by erosion of repeatedly used footpaths.

4.8.2 Proposed Action

During the 2007 biological survey to support this EIS (see **Appendix H**), it was observed that Section A-1 would cross intermittent washes associated with Copper and Buttewig canyons. Based on field observations, these intermittent washes might have narrow associated floodplains. Analysis using FEMA FIRMs was inconclusive. This panel has not been printed due to its Zone D designation. Zone D is used by FEMA to designate areas where there are possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted (FEMA 2006). Prior to construction, hydraulic modeling would be conducted to determine impacts on floodplains.

Should the canyons in question be determined to be floodplains, a specific eight-step process must be followed to comply with EO 11988 outlined in the FEMA document *Further Advice on EO 11988 Floodplain Management*. The eight steps, which are summarized below, reflect the decisionmaking process required:

1. Determine if a proposed action is in the base floodplain (that area which has a one percent or greater chance of flooding in any given year)
2. Conduct early public review
3. Identify and evaluate practicable alternatives to locating in the base floodplain, including alternative sites outside of the floodplain
4. Identify impacts of the Proposed Action
5. If impacts cannot be avoided, develop measures to minimize the impacts and restore and preserve the floodplain, as appropriate
6. Reevaluate alternatives
7. Present the findings and a public explanation
8. Implement the action.

No impacts associated with the 100-year or 500-year floodplains are expected as a result of the construction of Section A-2. According to the FEMA FIRM Panel No. 06073C2250F for San Diego County, California, Section A-2 is in Zone X or "areas determined to be outside the 500-year floodplain." However, Section A-2 would cross an intermittent tributary of the Tijuana River with potential for minor adverse effects associated with erosion and sedimentation in the event of a high-volume storm event or flooding during site construction. Properly designed erosion and sediment controls and storm water management practices implemented during construction activities would minimize potential for adverse impacts. Fences installed in washes/arroyos would be designed and constructed in a manner to ensure that water flow during excessive rain events would not be impeded or ponded.

4.9 VEGETATION

4.9.1 No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border. Under the No Action Alternative, the environmental stresses currently impacting the vegetation resources in the area would continue. Existing illegal cross-border activities and cattle grazing activities are adversely affecting existing vegetation. The adverse impacts are most severe along the south slope of the OMW from Puebla Tree to Monument 250.

The most significant impact of the No Action Alternative is that cows from Mexico would continue to trample and graze on the southern slopes of the OMW. The remoteness of the area, steepness of the terrain, and cross-border violator destruction of existing barbed-wire fencing makes it difficult to stop cross border grazing. Impacts would continue from trampling and new foot path creation caused by the cross-border violators along both the Section A-1 and A-2 areas. Risk of increased fire frequency would continue from illegal camping on the OMW.

Impacts from the No Action Alternative along the proposed access roads include the potential for increased fire frequency and increase in foot path creation. These impacts affect all areas around Sections A-1 and A-2. There is also an increased risk to the vegetation resources from the introduction of new invasive species unintentionally being brought to the area by the continued levels of illegal cross-border violator traffic and grazing cattle.

The current impacts on vegetation beyond the existing fence west of Tecate and along the areas of improved access roads near Tecate would continue under the No Action Alternative. These areas would have an increased risk of fire resulting in greater fire frequency and an increased risk of the introduction of invasive plant species. The recovery of the recently burned vegetation in the Section A-2

area also would be affected by continued trampling and footpath creation from current levels of illegal cross-border traffic.

In summary, anticipated continuation or potential increases in illegal cross-border traffic and illegal grazing would be expected to have short- and long-term, moderate adverse impacts on vegetation in the region.

4.9.2 Proposed Action

Construction of Section A-1 and A-2 tactical infrastructure would have long-term, adverse impacts on vegetation resources. Impacts from construction of Section A-1 would include cut-and-fill required to build the fence and a permanent impact area adjacent to the fence. The total permanent impact on vegetation from fence construction is expected to be 26.8 acres. Six types of habitat representing 21.4 acres would be adversely impacted by Section A-1 construction (**Table 3.9-2**). Also impacted would be 5.4 acres of undifferentiated habitat. This undifferentiated habitat is expected to include southern cottonwood-willow riparian forest, southern mixed chaparral, mafic southern mixed chaparral, and Diegan coastal sage scrub.

The proposed Section A-1 patrol road would parallel the fence as closely as possible, but would deviate where topography does not allow. Permanent impacts from the patrol road include a 24-foot-wide road and required cut-and-fill areas. The impacts described here are only for those areas that do not overlap impacts from fence construction. Approximately 31 acres would be permanently impacted by construction of the patrol road (see **Table 4.9-1**).

Improvements to the Otay Mountain Truck Trail (between Alta Road and the Puebla Tree Spur) and the Puebla Tree Spur would have long-term, adverse impact on four habitats totaling 13.7 acres (**Table 4.9-1**). The remainder of the Otay Mountain Truck Trail is developed, undifferentiated exotic habitat, and undifferentiated native habitat. The estimated 2.5 acres of impacts on developed and undifferentiated exotic habitats are found in the Kuebler Ranch Area. A permanent paved road roughly a half mile long would be built to County of San Diego standards at the west end of the Otay Mountain Truck Trail in the area known as Kuebler Ranch. Construction would have a long-term, adverse impact on an estimated 26 acres of undifferentiated native vegetation, which consists of southern closed cone coniferous forest, southern mixed chaparral, mafic southern mixed chaparral, chamise chaparral, and Diegan coastal sage scrub.

Improvements to Marron Valley Road (SR 94 to Boundary Monument 250 Road) would permanently impact an estimated 65.6 acres, consisting of 15.1 acres of mapped habitat between Mine Canyon and Boundary Monument 250 and 41.5 acres of undifferentiated habitat. The 6.3 acres of undifferentiated exotic habitats

Table 4.9-1. Acreage of Estimated Impacts of Proposed Action

Habitat	Section A-1					Section A-2		Total
	Fence Section	Patrol Road	Staging Areas (temporary impacts)	Otay Mtn. Truck Trail	Marron Valley Road	Fence Section	Tecate Access Road	
Southern Mixed Chaparral 37120	10.1	11.8	4.5	3.3	1.2	4.2	22.0	57.1
Mafic southern mixed chaparral 37122	0.2	0.4	5.1	7.0	0.0	0.0	0.0	12.7
Diegan Coastal Sage Scrub 32500	9.3	12.2	3.2	2.7	12.9	0.0	3.5	43.8
Mulefat scrub 63310	0.2	0.1	0.5	0.0	0.0	0.0	0.0	0.8
Southern Coast Live Oak Riparian forest 61310	0.9	0.9	1.0	0.0	0.8	0.3	0.4	4.3
Whitethorn chaparral 37532	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
Non-Native grassland 42200	0.0	0.0	0.0	0.0	0.0	0.9	0.5	1.4
Chamise Chaparral 37200	0.7	0.0	0.0	0.7	0.2	0.0	0.0	1.6
Southern Cottonwood-Willow Riparian Forest 61330	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5
Southern Interior Cypress Forest 83330	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4
Disturbed 11300	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Landscaped 12000	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Developed 12000	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0

Habitat	Section A-1					Section A-2		Total
	Fence Section	Patrol Road	Staging Areas (temporary impacts)	Otay Mtn. Truck Trail	Marron Valley Road	Fence Section	Tecate Access Road	
Undifferentiated native vegetation	5.4	5.3	0.0	26.3	35.2	0.0	0.0	72.2
Undifferentiated exotic vegetation	0.0	0.0	0.0	1.5	6.3	0.0	0.0	7.8

Note: Estimates of potential impacts to access roads are based on a 60 foot wide impact corridor.

occur at the residences along Marron Valley Road, and near the former ranch in Marron Valley. The undifferentiated native habitat predominantly consists of southern mixed chaparral, mafic southern mixed chaparral, chamise chaparral and Diegan coastal sage scrub, mulefat scrub, southern cottonwood-willow riparian forest, and southern coast live oak riparian forest.

Construction staging areas would temporarily impact five habitats totaling 14.3 acres (**Table 4.9-1** and **Figure 2-2**). One staging area is proposed for Section A-2. Staging areas within the proposed project corridor are discussed above.

Construction of Section A-2 tactical infrastructure would permanently impact approximately 5.6 acres of vegetation, including three native habitats and 0.9 acres of non-native grassland (**Table 4.9-1**). The proposed A-2 access road from SR 94 Tecate Mission Road would permanently impact an estimated 28.5 acres of vegetation. There are 22 acres of burned southern mixed chaparral, consisting of eight vegetation types (**Table 4.9-1**).

The proposed construction, operation, and maintenance of tactical infrastructure in Sections A-1 and A-2 would have a permanent, adverse impact on 190.7 acres of vegetation, and a temporary adverse impact on 14.3 acres. These impacts represent short- and long-term, minor to moderate, adverse impacts on vegetation resources.

Potential beneficial impacts from the Proposed Action would occur from reduced foot traffic across Sections A-1 and A-2. The Proposed Action would reduce the potential risk of fire frequency by reducing the number of people crossing and camping on OMW. This is a beneficial impact on all vegetation resources in and around Otay Mountain and Tecate Peak. The vegetation has suffered a higher-than-average fire frequency over the past 12 years, with four catastrophic wildfires affecting one or both those mountains. Reduction of fire hazard would represent short- and long-term, moderate to major, beneficial impacts on vegetation.

The Proposed Action would also reduce adverse impacts on vegetation from trampling and the creation of informal footpaths by reducing cross-border violator traffic through the OMW. Cross border grazing impacts north of the tactical infrastructure would be eliminated, resulting in short- and long-term, minor to moderate, beneficial impacts on vegetation resources. Cross border grazing impacts would increase south of the proposed fence line, resulting in short- and long-term, minor to moderate, adverse impacts on vegetation resources in that area.

The reduction in foot traffic and grazing would have an indirect, long term beneficial impact on OMW vegetation from reducing the potential for and rate of introduction of invasive exotic species. This represents a short- and long-term, minor to moderate beneficial impact on native vegetation.

In summary, implementation of the Proposed Action would result in short- and long-term minor to moderate, adverse impacts, and short- and long-term minor to major beneficial impacts on the vegetation resources.

4.10 WILDLIFE AND AQUATIC RESOURCES

4.10.1 No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP San Diego Sector. Anticipated continuation or even increases in cross-border violator traffic would be expected to have some adverse impacts on wildlife and aquatic resources.

4.10.2 Proposed Action

Temporary impacts on wildlife (disturbances by noise and dust) would occur along the access roads, within and adjacent to staging areas, and along the alignment during constructions. Access roads would require moderate to substantial improvements, specifically the Otay Mountain Truck Trail and the BLM Road leading to Puebla Tree. In order for ingress/egress by trucks and heavy equipment, significant road widening would be required to safely accommodate truck traffic.

Potential threats to wildlife in San Diego County include barrier to movement, interruption of corridors, increased human activity, and loss of habitat. Some wildlife deaths, particularly reptiles and amphibians could increase due to the improved accessibility of the area and increased vehicle traffic. Although some incidental take might occur, wildlife populations within the proposed project corridor would not be significantly impacted through the implementation of the Proposed Action.

Noise created during construction would be anticipated to result in short-term, moderate, adverse effects on wildlife. Noise levels after construction are anticipated to return to close to current ambient levels. Elevated noise levels during construction could result in reduced communication ranges, interference with predator/prey detection, or habitat avoidance. More intense effects on wildlife resulting with intense pulses of noise associated with blasting, could potentially result in behavioral change, disorientation, or hearing loss. Predictors of wildlife response to noise include noise type (i.e., continuous or intermittent), prior experience with noise, proximity to a noise source, stage in the breeding cycle, activity, and age. Prior experience with noise is the most important factor in the response of wildlife to noise, because wildlife can become accustomed (or habituate) to the noise. The rate of habituation to short-term construction is not known, but it is anticipated that wildlife would be displaced from the areas where the habitat is cleared and the fence and associated tactical infrastructure constructed, and temporarily dispersed from areas adjacent to the proposed project corridors during construction periods. See **Section 4.3** for additional details on expected noise levels associated with the Proposed Action.

The Tijuana River is considered a migration corridor for many species. The fence would be constructed well above the river, however there could still be side canyon crossing issues through live oak riparian vegetation and habitat (e.g., Copper, Buttewig, Mine canyons and smaller ones). Side canyons are from 10 to 60 meters across and the larger ones have channels incised to 5 to 8 meters deep. They are strewn with boulders up to 2 meters diameter. Riparian bottoms in the areas along the Pack Trail consist of mature oaks. There are several areas of coastal sage scrub observed along the Pack Trail. Areas slated for cut-and-fill would fill in two riparian corridors (in the bottoms of Copper Canyon and Buttewig Canyon). These direct impacts on wildlife species associated with these canyons would be adverse and permanent where the cut-and-fill would occur.

There is good potential for Herme's copper, Thorne's hairstreak, and Harbison dun skipper to occur along the access roads that lead to the Puebla Tree (west side of the Pack Trail). These three species rely on a host plant, the Tecate cypress (*Cupressus forbserii*), San Diego sedge (*Caryx spisa*), and redberry (*Rhamas crocea*), respectively (Klein 2007). Loss of habitat by implementation of the Proposed Action would have short and long-term, negligible to major adverse impacts on these butterflies in the areas disturbed by the proposed construction.

Impacts on mammals are expected to be indirect, adverse, and minor, due to their ability to disperse. Impacts on reptiles are expected to be indirect, adverse, and moderate. This is due to their inability to disperse as quickly as other wildlife.

Implementation of the Proposed Action would be anticipated to have short- and long-term, negligible to major, adverse impacts on wildlife due to habitat

conversion; short-term, minor to moderate, adverse impacts on wildlife due to construction noise; and minor to moderate, adverse impacts on aquatic habitats due to siltation from construction activities. Minor to moderate beneficial impacts would result from protection of wildlife and habitats U.S. side of the fence.

There would be no direct adverse impact on aquatic resources in the proposed project corridor. However, fish species and their habitat would continue to be indirectly impacted in the short term through habitat alteration and loss due to illegal trails and erosion. In the long term, the fence would reduce or eliminate cross-border violator traffic through this area. This would allow the slopes to revegetate and the riparian habitat to return to a more natural state. These changes would be anticipated to result in long-term, minor to moderate, beneficial impacts on aquatic species.

4.11 SPECIAL STATUS SPECIES

Section 7 of the ESA requires Federal agencies to consult with the USFWS when actions might affect federally listed species or designated critical habitat. Pre-consultation coordination with USFWS is underway for this project. The USFWS has provided critical feedback on the location and design of fence sections to avoid, minimize, or mitigate potential impacts on listed species or designated critical habitat. CBP is developing the BA in coordination with the USFWS. Potential effects of fence construction, operation, and maintenance would be analyzed in both the BA and BO to accompany the Final EIS.

Potential impacts on federally listed species and migratory birds are based on currently available data. Impacts are developed from a NEPA perspective and are independent of any impact determinations made for the Section 7 consultation process. Impact categories used in this document cannot be assumed to correlate entirely to potential impact determinations which have not yet been made under the Section 7 consultation process.

4.11.1 No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be built and there would be no change in fencing, access roads, or other facilities along the U.S./Mexico international border in the proposed project locations within the USBP San Diego Sector. Anticipated continuation or even increases in cross-border violator traffic would be expected to have short- and long-term adverse impacts on special status species and their habitats in the region.

4.11.2 Proposed Action

Quino Checkerspot Butterfly (Quino)

This species occupies grasslands, remnant forblands, juniper woodlands, and open scrub and chaparral communities that support the larval host plants and

provide a variety of adult nectar resources. The larval host plants are annuals that thrive in clay soils but can also occur in other soil types.

Adult Quino have been observed in numerous locations within and near the east and west ends of the project corridor. The apparent absence of locations along the central portion of the proposed alignment is undoubtedly due to the difficulty of accessing this area and not to true absence of the species in this area. Potential habitat (three of the host plant species) were observed along the 5-mile stretch proposed for Section A-1 during the October and December 2007 surveys and the species is assumed to be present throughout.

Based on the known locations and observed potential habitat for this species, implementation of the Proposed Action is anticipated to result in the permanent loss of approximately 75 acres of suitable habitat for this species, resulting in moderate adverse impacts on the species in the project area.

Although BMPs would be implemented to avoid and minimize impacts on individuals during construction, there is a relatively high likelihood that some individual of the species would be killed during construction. This butterfly's biology is somewhat unique for butterflies in general in that the 3rd or 4th larval growth (instar) will enter into its winter stasis (diapause) sometime in May. It remains this way until sufficient winter rains stimulate plant growth. If sufficient plant growth occurs, then the caterpillars come out of diapause and continue their feeding until they reach larval maturity, pupate, and then finally emerge as adults. If the winter rains are appropriate, caterpillars could emerge from diapause sometime in January. Pupation would occur sometime in February and adults would emerge in March. Once adults emerge, the cycle begins all over. Depending on the amount and timing of the rains the timeline would shift either earlier or later. Diapause typically occurs in or near the host plant patch upon which the larvae were feeding prior to entering diapause. Adults will disperse to suitable habitat and are known to disperse anywhere from 1 to 3 kilometers a year. Sometimes dispersal could be further if wind assisted.

The best scenario to reduce impacts on individual Quino checkerspot butterflies would be for construction (i.e., clear or remove host plants from the 60-foot impact corridor) to start immediately after emergence of the adults in March. However, since individual variation in time of emergence occurs, some Quino would likely still be in pupation and would be unable to disperse away from the impact area. Therefore, even under this best-timing scenario, some individuals would still likely be killed. Numbers of individuals lost to construction would increase from this minimum, depending upon the timing of land clearing for the construction effort. As such, direct impacts of construction activities on this species would be short-term, major, and adverse, while long-term impacts would be moderately adverse.

Indirect impacts from construction and subsequent operation of the access and patrol roads include dust impacts on individuals and habitat that would extend

beyond the boundaries of the project corridor. Increased settling of dust on larval host species and on nectar-providing species for the adults, could reduce palatability of larval host plants and reduce availability of nectar to adults. With the use of BMPs to reduce dust emissions during construction, these impacts are anticipated to be short- and long-term, minor to moderate, and adverse in the project area. An unexpected benefit of dust layers on vegetation is that it apparently provides some minimal resistance to fire. Bands of vegetation along the access roads that were coated with dust from operations on those access roads were not as severely burned during the wildfires of 2003 as was vegetation farther from the roads that was less dust-coated (Dossey 2007). This effect might result in short- and long-term, negligible to minor, beneficial impacts on this species.

A second beneficial impact anticipated to result from implementation of the Proposed Action is the reduction of foot traffic and grazing impacts on habitat for and individuals of this species. This area currently receives heavy foot traffic and illegal cattle grazing. These activities undoubtedly result in adverse impacts due to reduction of habitat quantity and quality, and to crushing of individuals. The potential cessation of these illegal activities in this area could result in short- and long-term, minor to major, beneficial impacts on this species.

In summary, for Quino checkerspot butterfly, direct and indirect impacts of construction, operation, and maintenance associated with implementation of the Proposed Action would include short- and long-term impacts in the project area and range from negligible to major beneficial and major adverse.

Arroyo Toad

The arroyo toad occupies shallow, slow-moving stream habitats, and riparian habitats that are disturbed naturally on a regular basis, primarily by flooding. Adjacent stream banks can be sparsely to heavily vegetated with trees and shrubs such as mulefat (*Baccharis* spp.), California sycamore (*Platanus racemosa),* cottonwoods (*Poputus* spp.), coast live oak (*Quercus agrifolia),* and willows *(Salix* spp.) (USFWS 1999) but must be sandy enough for the toads to burrow into the substrate. For breeding, the arroyo toad uses open sites such as overflow pools, old flood channels, and pools with shallow margins, all with gravel bottoms. This species aestivates in sandy terraces adjacent to the stream habitat.

No habitat for this species was observed during the field surveys for this project. NatureServe data indicate a record approximately 0.8 miles south of the eastern access road. The existing access road traverses the northern boundary of the aestivation habitat associated with this record. The portion of the existing access road that intersects the aestivation habitat is straight such that upgrades, if any are required, would be minimal. As such, conversion of habitat and impacts on individual arroyo toads as a result of implementing the Proposed Action are anticipated to be short- and long-term, negligible to minor, adverse. Beneficial

impacts similar to those described for Quino checkerspot butterfly would be anticipated due to reduced foot traffic and grazing in this area.

In summary, for arroyo toad, direct and indirect impacts of construction, operation, and maintenance associated with implementation of the Proposed Action would include short- and long-term impacts and range from negligible to minor adverse, and negligible to major beneficial.

Coastal California Gnatcatcher

This species occurs almost exclusively in mature coastal sage scrub habitat with occasional populations in chaparral. Due to the wildfires of 2003 which burned through the proposed project corridor, suitable habitat does not currently occur within or near the project corridor and no impacts on individual birds are anticipated from construction. However the coastal sage scrub and chaparral vegetation that is in the proposed project corridor might become suitable habitat if it is allowed to mature. Removal of approximately 75 acres of potential future habitat would represent a long-term minor adverse impact on this species in the project area.

A beneficial impact anticipated to result from implementation of the Proposed Action is the reduction of foot traffic and grazing impacts on habitat for and individuals of this species. This area currently receives heavy foot traffic and illegal cattle grazing. Cross-border violators sometimes set wildfires in this area. These activities undoubtedly result in adverse impacts due to reduction of habitat quantity and quality, interference with breeding and nesting behaviors, and potentially even direct mortality of eggs or young in nests. Reduction and potentially even cessation of these illegal activities in this area could result in short- and long-term, minor to major, beneficial impacts on this species.

In summary, for Coastal California gnatcatcher, direct and indirect impacts of construction, operation, and maintenance associated with implementation of the Proposed Action would include long-term minor adverse impacts, and short- and long-term, minor to major beneficial impacts.

Least Bell's Vireo

LBV is a migratory species that requires early-successional riparian habitat during its breeding season which extends from mid-March to September in southern California. No records of LBV are known from in or near the project corridor. However, a narrow band of suitable riparian habitat occurs along the Tijuana River just south of the project corridor. Therefore, this species is assumed to be present in that riparian habitat.

The riparian woodlands south of the project corridor would be directly impacted by increased noise levels during construction; noise from operation and maintenance activities are anticipated to return to ambient. If breeding pairs of LBV occur within this strand of habitat, the elevated noise level could interfere

with communication and breeding behaviors. This would represent a short-term, minor adverse impact on this species in the project area.

Implementation of the Proposed Action could reduce or even terminate the use of this riparian corridor as a staging area for cross-border violators, allowing the habitat to flourish and LBV to conduct normal behaviors in this habitat without human disturbance.

This would represent a short- and long-term, minor, beneficial impact on LBV as a result of implementing the Proposed Action.

In summary, for LBV, direct impacts of construction associated with implementation of the Proposed Action would be short-term, minor, and adverse. Beneficial impacts of implementing the Proposed Action would be short- and long-term, minor, and beneficial.

Southwestern Willow Flycatcher

This neotropical migrant usually breeds in dense or patchy riparian habitats along streams or other wetlands near standing water or saturated soils. The breeding season can extend from early May to early September.

No records of SWF are known from in or near the project corridor. No suitable habitat for this species was observed in or near the project corridor. However, the riparian woodland habitat along the Tijuana River has the potential to provide suitable habitat in the future, as it reaches taller heights.

The strand of potential future habitat along the Tijuana River would receive no direct impacts from construction, operation, or maintenance activities associated with implementation of the Proposed Action. Implementation of the Proposed Action could reduce or even terminate the use of this riparian corridor as a staging area for cross-border violators, allowing the habitat to mature and future SWF to conduct normal behaviors in the mature habitat with reduced or no human disturbance. This would represent a long-term, minor, beneficial impact on SWF as a result of implementing the Proposed Action.

In summary, for SWF there would be no direct impacts of construction associated with implementation of the Proposed Action. Beneficial impacts of implementing the Proposed Action would be long-term, minor, and beneficial.

Migratory Birds

Proposed construction would adversely affect migratory birds by disturbing habitat, habitat conversion, increased mortality during construction, and subsequent disturbance from the use of patrol roads and noise. Approximately 75 acres of vegetation would be cleared along the corridor for the Proposed Action. Impacts on migratory birds could be substantial, given the potential timing of fence construction. However, implementation of BMPs to avoid or

minimize adverse impacts could markedly reduce their intensity. The following is a list of BMPs normally recommended for reduction or avoidance of impacts on migratory birds:

- Any groundbreaking construction activities should be performed before migratory birds return to the area (approximately 1 March) or after all young have fledged (approximately 31 July) to avoid incidental take.
- If construction is scheduled to start during the period in which migratory bird species are present, steps should be taken to prevent migratory birds from establishing nests in the potential impact area. These steps could include covering equipment and structures, and use of various excluders (e.g., noise). Birds can be harassed to prevent them from nesting on the site. Once a nest is established, they cannot be harassed until all young have fledged and left the nest site.
- If construction is scheduled to start during the period when migratory birds are present, a supplemental site-specific survey for nesting migratory birds should be performed immediately prior to site clearing.
- If nesting birds are found during the supplemental survey, construction should be deferred until the birds have left the nest. Confirmation that all young have fledged should be made by a competent biologist.

Because not all of the above BMPs can be fully implemented due to time constraints of fence construction, a Migratory Bird Depredation Permit would be obtained from the USFWS.

Assuming implementation of the above BMPs to the fullest extent feasible, impacts from the Proposed Action on migratory birds is anticipated to be short- and long-term, minor, and adverse due to construction disturbance and associated loss of habitat, and long-term, minor, and beneficial due to reduction of foot traffic through migratory bird habitat north of the impact corridor.

4.12 CULTURAL RESOURCES

4.12.1 No Action Alternative

Under the No Action Alternative, proposed tactical infrastructure would not be constructed and there would be no change in fencing, or access roads along the border sections in USBP San Diego Sector. Since there would be no tactical infrastructure built, there would be no change to cultural, historical, and archaeological resources. No historic properties would be impacted.

4.12.2 Proposed Action

For assessing the impacts of the Proposed Action on archaeological resources, the APE is confined to the construction corridor for each alternative, as well as the access roads and staging areas. The APE for analysis of impacts on

resources of traditional, religious, or cultural significance to Native American tribes includes both those areas that would be impacted directly by ground disturbance as well as the viewshed and general setting of those resources.

Potential impacts on cultural resources associated with the project are limited to ground-disturbing construction and future maintenance and patrolling activities and indirect impacts from increased access. Based on the results of a cultural resources survey of the proposed project corridor (see **Appendix I**) and data provided on the site records, archaeological monitoring is recommended at five specific locations (CA-SDI-18578, CA-SDI-18579, CA-SDI-16300, CA-SDI-16388, and CA-SDI-16371) during all ground-disturbing activities associated with the project. All ground-disturbing activity within this portion of the study area would be monitored by a professional archaeologist who meets the requirements for archaeological monitors set by the reviewing agency.

Evaluations for eligibility to the National Register have not been conducted on newly recorded sites CA-SDI-18578 and CA-SDI-18579; or for CA-SDI-16300, -16388, or -16371 on Section A-1; or GV-1 on Section A-2. Prior to construction of the proposed fence or use of the Truck Trail and Tecate Mission Road in the vicinity of these site areas, the boundaries of the sites would be clearly marked with flagging or protective fencing to avoid inadvertent impacts on the resources. Alternatively CBP could evaluate these sites to determine their significance. The evaluation program would include additional mapping and excavation of exploratory units to determine the nature and character of any subsurface deposits. In addition, evaluation would result in more accurate definitions of the extent and nature of these site areas. If the individual sites are determined not to be eligible, monitoring would not be required.

Since no cemeteries, isolated Native American or other human remains have been documented within the study area, the potential for impacts on unrecorded Native American or other human remains during the project appears to be relatively low. If Native American or other human remains are inadvertently discovered during the course of project actions, there would be no further excavation or disturbance of the remains or the vicinity until the remains and the vicinity have been evaluated in accordance with CEQA Section 10564.5, California Health and Safety Code (CHSC) Section 7050.5, Public Resources Code (PRC) Section 5097.98, and the NAGPRA, as appropriate.

The impacts on Kuchamaa have not been defined and the development of protective measures has not been accomplished. Consultation with associated tribal groups has been initiated and is ongoing; additional consultation will be necessary to arrive at appropriate project protocols. Additional information regarding design and project limits should be developed to facilitate the presentation of this project to concerned parties with respect to traditional cultural property concerns.

4.13 VISUAL RESOURCES

Degree of Contrast Criteria

To properly assess the contrasts between the existing conditions and the Proposed Action, it is necessary to break each down into the basic features (i.e., landform/water, vegetation, and structures) and basic elements (i.e., form, line, color, and texture) so that the specific features and elements that cause contrast can be accurately identified.

General criteria and factors used when rating the degree of contrast are as follows:

- *None.* The element contrast is not visible or perceived
- *Weak.* The element contrast can be seen but does not attract attention
- *Moderate.* The element contrast begins to attract attention and dominate the characteristic landscape
- *Strong.* The element contrast demands attention, cannot be overlooked, and is dominant in the landscape.

When applying the contrast criteria, the following factors are considered :

1. *Distance*. The contrast created by a Proposed Action usually is less as viewing distance increases.
2. *Angle of Observation*. The apparent size of a Proposed Action is directly related to the angle between the viewer's line-of-sight and the slope upon which the Proposed Action is to take place. As this angle nears 90 degrees (vertical and horizontal), the maximum area is viewable.
3. *Length of Time the Project Is In View*. If the viewer can only view the Proposed Action for a short period of time, the contrast might not be of great concern. If the Proposed Action can be viewed for a long period of time, the contrast could be very significant.
4. *Relative Size or Scale*. The contrast created by the Proposed Action is directly related to its size and scale as compared to the immediate surroundings.
5. *Season of Use.* Contrast ratings should consider the physical conditions that exist during the heaviest or most critical visitor-use season, such as snow cover and tree defoliation during the winter, leaf color in the fall, and lush vegetation and flowering in the spring.
6. *Light Conditions*. The amount of contrast could be substantially affected by the light conditions. The direction and angle of light can affect color intensity, reflection, shadow, form, texture, and many other visual aspects

of the landscape. Light conditions during heavy periods must be a consideration in contrast ratings.

7. *Recovery Time*. The amount of time required for successful revegetation should be considered. Few projects meet the VRM management objectives during construction activities. Recovery usually takes several years and goes through several phases (e.g., bare ground to grasses, to shrubs, to trees).
8. *Spatial Relationships*. The spatial relationship within a landscape is a major factor in determining the degree of contrast.
9. *Atmospheric Conditions*. The visibility of a Proposed Action due to atmospheric conditions such as air pollution or natural haze should be considered.
10. *Motion.* Movements such as waterfalls, vehicles, or plumes draw attention to a Proposed Action (BLM 1986b).

4.13.1 No Action Alternative

Under the No Action Alternative, no primary pedestrian fence and supporting infrastructure would be constructed, resulting in no construction-related changes to the current landscape. However, under the No Action Alternative, cross-border violators would continue to impact the area. Without improved USBP patrol efficiency and effectiveness provided by road improvements, the area's natural vistas would continue to be degraded by trash, trails, and wildfires associated with cross-border violators. Indirect impacts from continued cross-border violators would permanently degrade the visual character of the area. Additionally, the illegal grazing of cattle herded into the area by Mexican farmers would continue to degrade vegetative stands with the potential for the introduction of unwanted and unsightly invasive species.

4.13.2 Proposed Action

The construction activity associated with the Proposed Action would result in both temporary and permanent moderate contrasts to both Class I and Class III Visual Resources.

The construction of access roads and fences in a Class I Visual Resource area is a strong contrast to the OMW and also represents a moderate to strong contrast in areas of lesser class designation. The following paragraphs discuss factors that may offset the strong contrasts.

In most areas of Section A-1 the fence would be screened from view by elevation and undulating terrain. **Figure 4.13-1** displays the degree to which the tactical infrastructure is visible from various trailheads within the OMW. Public viewing is also limited in this area because of low visitation frequency.

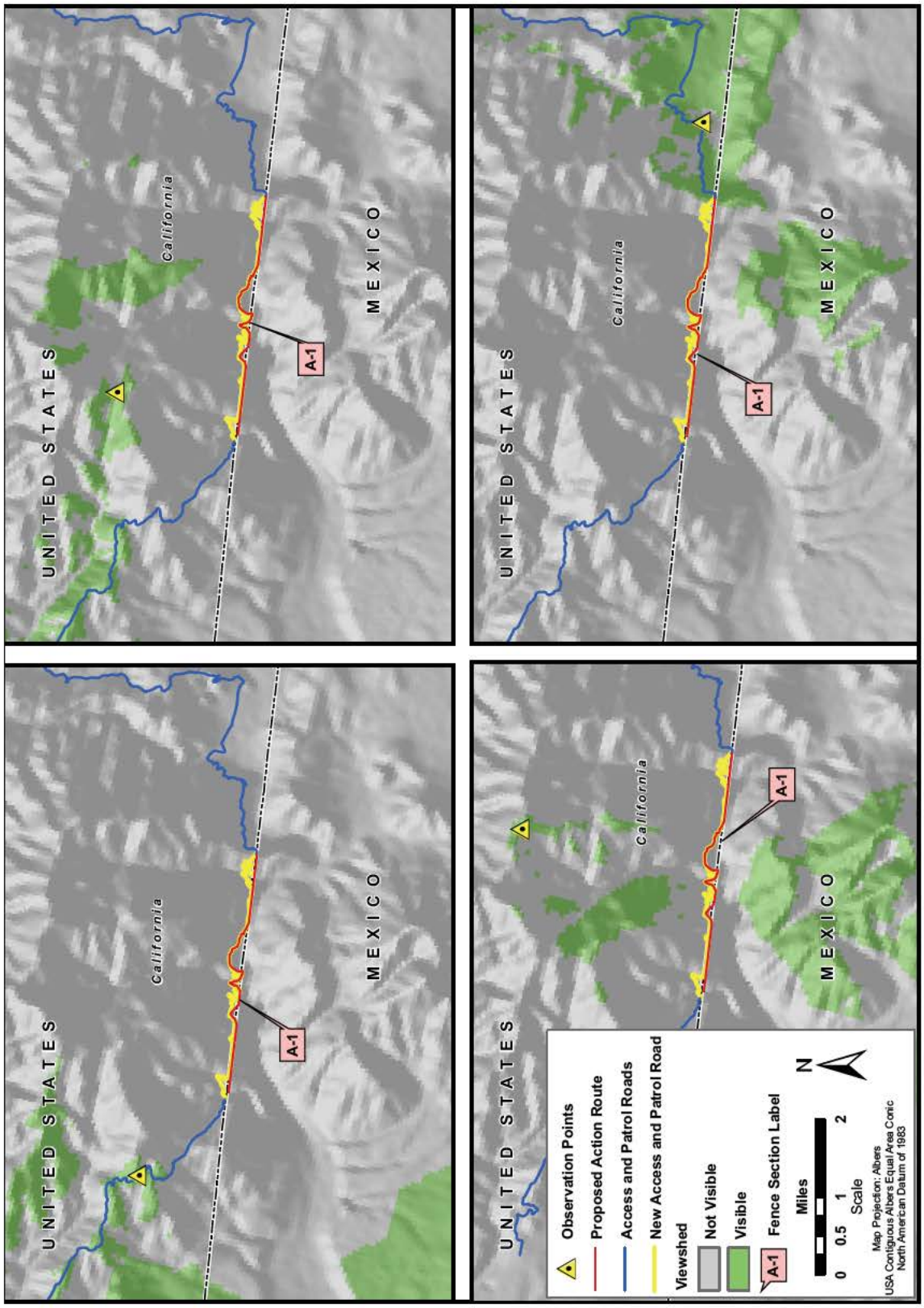

Figure 4.13-1. Viewsheds Associated with Section A-1

In Section A-2, the fence would connect to an existing fence and patrol roads, which greatly reduces the overall contrast created by the Proposed Action. **Figure 4.13-2** demonstrates that, although visibility is high from certain elevated vantage points (by design for observation of the border), there is limited line of sight from other locations. Line of sight from Tecate Peak appears to be negligible.

Over time, the changes to the landscape caused by construction and repair of access roads would dissipate significantly, therefore reducing the contrast of viewable sections of both sections. Additionally, the presence of the fence would protect the area's natural vistas from continuing degradation by trash, foot trails, and potential wildfires associated with cross-border violators. The illegal grazing of cattle herded into the area by Mexican farmers would also be prevented, therefore reducing the potential for the introduction of unwanted and unsightly invasive species.

There are numerous design techniques and construction practices that can be used to reduce the visual impacts from surface-disturbing projects. These methods would be used in conjunction with BLM's visual resource contrast rating process wherein both the existing landscape and the Proposed Action are analyzed for their basic elements of form, line, color, and texture. The design techniques and construction practices include:

- Partial clearing of the limits of construction rather than clearing the entire area – leaving islands of vegetation results in a more natural look
- Using irregular clearing shapes
- Feathering/thinning the edges of the cleared areas. Feathering edges reduces strong lines of contrast. To create a more natural look along an edge, a good mix of vegetation species and sizes should be retained
- Hauling in or hauling out excessive earth cut or fill in sensitive viewing areas
- Rounding or warping slopes (shaping cuts and fills to appear as natural forms)
- Bending slopes to match existing landforms
- Retaining existing rock formations, vegetation, and drainage whenever possible
- Split-face rock blasting (cutting rock areas so that the resulting rock forms are irregular in shape, as opposed to making uniform "highway" rock cuts)
- Toning down freshly broken rock faces through the use of asphalt emulsions and rock stains
- Using retaining walls to reduce the amount and extent of earthwork

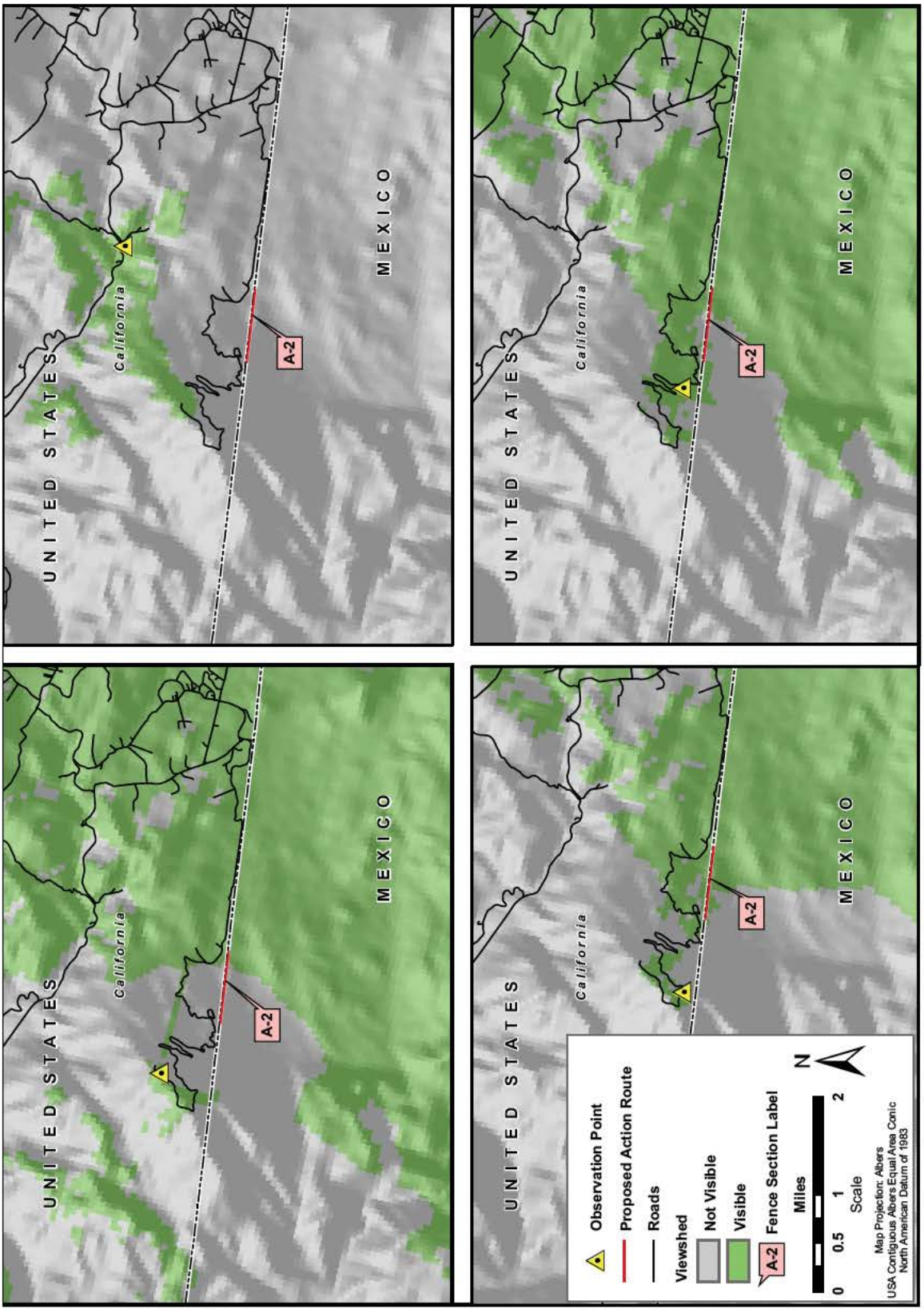

Figure 4.13-2. Viewsheds Associated with Section A-2

- Retaining existing vegetation by using retaining walls, reducing surface disturbance, and protecting roots from damage during excavations
- Avoiding soil types that would generate strong contrasts with the surrounding landscape when they are disturbed
- Prohibiting dumping of excess earth and rock on downhill slopes
- Striping, saving, and replacing topsoil (6-inch surface layer) on disturbed earth surfaces
- Mulching cleared areas
- Furrowing slopes
- Using planting holes on cut-and-fill slopes to retain water
- Choosing native plant species
- Fertilizing, mulching, and watering vegetation
- Replacing soil, brush, rocks, and forest debris over disturbed earth surfaces when appropriate, thus allowing for natural regeneration rather than introducing an unnatural looking grass cover.

4.14 SOCIOECONOMIC RESOURCES, ENVIRONMENTAL JUSTICE, AND PROTECTION OF CHILDREN

4.14.1 No Action Alternative

Under the No Action Alternative, there would be no change from the baseline conditions. There would be no tactical infrastructure constructed. Under the No Action Alternative, illegal immigration, narcotics trafficking, and opportunities for terrorists and terrorist weapons to enter the United States would remain. Over time, the number of crimes committed by smugglers and some cross-border violators would increase, and an increase in property damage would also be expected. Short-term local employment benefits from the purchase of construction materials and the temporary increase in construction jobs would not occur. Furthermore, money from construction payrolls that would circulate within the local economy would not be available.

Because the types of jobs obtained by cross-border violators generally are low-skilled and pay at or below minimum wage, some American workers have been displaced by undocumented workers willing to work for less pay and fewer benefits. Children of cross-border violators born in the United States are entitled to public assistance programs and education at a substantial cost to the American taxpayer. Implementation of the No Action Alternative would see these problems continue. One potential benefit of the No Action Alternative might be that cheap labor would be available to area farmers during harvesting (DHS 2004).

4.14.2 Proposed Action

Construction of proposed tactical infrastructure would have short-term, minor, direct and indirect, beneficial impacts on socioeconomics through increased employment and the purchase of goods and services. Project impacts related to employment, temporary housing, public services, and material supplies would be minor, temporary, and easily absorbed within the existing USBP San Diego Sector regional resource and socioeconomics infrastructure. Construction would occur over approximately 9 months in 2008, with a construction workforce peaking at about 200 workers. No permanent workers would be needed to maintain the access roads and fence sections.

Construction costs associated with the Proposed Action are estimated to be approximately $50 million. As stated in **Section 2.2.8**, if approved, design/build contracts would be issued to construct the fence.

Short-term moderate increases to populations would be expected in construction areas. Construction is expected to be drawn primarily from the regional workforce. Due to the temporary nature of the Proposed Action, there would be no change in population size or distribution and a relatively small increase in employment and contribution to the local economy. Therefore, demand for new housing units and other social services would not be expected.

No permanent or long-term effects on employment, population, personal income, or poverty levels; or other demographic or employment indicators would be expected from construction and operation of the tactical infrastructure. Since the Proposed Action would not measurably affect the local economy or workforce, no social effects are expected. There would be a net short-term increase in income to the region, as the funding for the project would come from outside the area, and, as a Federal project, construction workers would be paid the “prevailing wage” under the Davis-Bacon Act, which might be higher than the average wage in the construction industry locally.

No effects are expected on environmental justice populations or children. The construction area is localized and does not have the potential to disproportionately affect low-income, minority populations, or children. Although Otay Mesa and the zip code containing Tecate (91980) have a higher Hispanic population than San Diego County, potential impacts on low-income or minority populations would not be disproportionate. The proposed project corridor of Section A-1 is in the unpopulated OMW and Section A-2 is along a remote area, therefore there is little potential to affect environmental justice populations.

The proposed tactical infrastructure under this alternative would have short- to long-term, indirect, beneficial effects on children and safety in the ROIs and surrounding areas. The USBP San Diego Sector features no natural barriers to entry, therefore cross-border violators and smugglers are largely undeterred in this area (CRS 2006). The addition of tactical infrastructure would increase the

safety of USBP agents in the USBP San Diego Sector and would help to secure the OMW for visitors. The Proposed Action would help to deter illegal border crossings in the immediate area, which in turn could prevent drug smugglers, terrorists, and cross-border violators from entering the surrounding area. Previous fencing sections built in 1994 under Operation Gatekeeper have resulted in increased property values and new commercial growth in the USBP San Diego Sector.

However, minor, indirect, adverse impacts on human safety could result from the Proposed Action. Previous fencing built in the USBP San Diego Sector under Operation Gatekeeper pushed cross-border violators to adjacent more remote desert areas while many attempted to jump the fence and were injured in doing so. Hospitals in the San Diego County routinely treat cross-border violators that have sustained injuries, such as broken bones. Hospitals in adjacent Imperial County had an increase in the number of dehydration and exhaustion cases from apprehended cross-border violators who were forced to attempt crossing in more remote areas in the USBP San Diego Sector (Berestein 2004). Implementation of Sections A-1 and A-2 could result in similar effects from the additional tactical infrastructure.

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SECTION 5

Mitigation and CEQA Findings

5. MITIGATION AND CEQA FINDINGS

CBP has applied special design criteria to reduce adverse environmental impacts associated with the Proposed Action, including selecting a corridor for the tactical infrastructure that would avoid or minimize impacts on environmental and cultural resources. CBP has determined that construction, operation, and maintenance of tactical infrastructure in the USBP San Diego Sector would result in adverse environmental impacts. These impacts would be most significant during the period of construction. However, CBP has concluded, that the severity of impacts could be significantly reduced through the following course of action:

- BMPs would be used to avoid, minimize, or mitigate impacts on environmental, cultural, and historical resources.
- CBP would implement a Construction Mitigation and Restoration (CM&R) Plan, Storm Water Pollution Prevention Plan (SWPPP), Spill Prevention Control and Countermeasure (SPCC) Plan, Blasting Specifications, Dust Control Plan, Fire Prevention and Suppression Plan, and Unanticipated Discovery Plan for Cultural Resources.
- CBP would complete a ROD that discusses the results of appropriate consultations and mitigation measures with the USFWS, the CDFG, the SHPO, and Native American tribes before construction would begin in any given area.
- An environmental inspection process implemented according to a Mitigation and Monitoring Plan (MMP) would be prepared to ensure compliance with all mitigation measures.

In addition, CBP developed resource area-specific mitigation measures to further reduce the potential environmental impacts that would otherwise result from construction of the Proposed Action.

Table 5.1-1 presents a summary of the Proposed Action's potential environmental impacts and the mitigation measures identified to avoid or reduce each impact. The impacts are classified before and after mitigation in accordance with the CEQA significance classifications. The recommended mitigation would reduce potential environmental impacts to less than significant levels in most cases. However, the Quino Checkerspot Butterfly habitat would be impacted and mitigation is not available to reduce impacts to less than significant levels. **Table 5.1-1** is the basis for the mitigation and monitoring that would be implemented during construction, operation, and maintenance of the USBP San Diego Sector Tactical Infrastructure.

Table 5.1-1. Mitigation Monitoring Program for the USBP San Diego Tactical Infrastructure

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
AIR QUALITY					
Air Quality 1	The construction activities that would generate emissions including clearing, grounding excavation, and cut and fill operations. The intermittent and short-term emissions generated by these activities would include dust from soil disruption and combustion emissions from the construction equipment. These emissions could result in minor, temporary impacts on air quality in the vicinity of fence installation.	Significant (CEQA Class II)	Construction equipment would be operated on an as-needed basis, and the emissions from gasoline and diesel engines would be minimized because the engines must be built to meet the standards for mobile source emissions regulations including Tier 40 CFR Part 85. Most of the construction equipment would be powered by diesel engines and would be equipped with typical control equipment (e.g., catalytic converters), and project-related vehicles and construction equipment would be required to use the newest ultra-low-sulfur diesel fuel as soon as it is commercially available. In addition, CBP would implement the following measures to minimize impacts on air resources: minimize idling time for diesel equipment whenever possible; ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use; prohibit engine tampering to increase horsepower; use California Air Resources Board-certified low-sulfur diesel fuel (less than 15 parts per million [ppm]); and reduce construction-related trips as feasible for workers and equipment, including trucks.	Less than significant (CEQA Class III)	CBP

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
AIR QUALITY (continued)					
A r Qua ty 2	Construct on of the Proposed Act on wou d generate em ss ons of nonregu ated greenhouse gas (GHG). CO_2 wou d be formed as a pr mary product of combust on of the d ese and gas eng nes used to power construct on equ pment and veh c es.	Less than s gn f cant (CEQA III)	Increases n em ss ons of GHG wou d occur dur ng construct on. These em ss ons wou d be m n m zed by observ ng the equ pment operat on BMPs d scussed n A r Qua ty 1, and wou d be neg g b e.	Less than s gn f cant (CEQA III)	CBP
A r Qua ty 3	Construct on of the Proposed Act on wou d generate em ss ons of PM_{10}.	Less than s gn f cant (CEQA III)	Fug t ve dust generated by construct on act v t es wou d be m n m zed by the mp ementat on of CBP's Projectw de Dust Contro P an. The Projectw de Dust Contro P an nc udes contro measures dent f ed as BMPs by some of the regu at ng agenc es. The measures that wou d be mp emented nc ude the fo ow ng: take every reasonab e precaut on to m n m ze fug t ve dust em ss ons from construct on act v t es; take every reasonab e measure to m t v s b e dens ty (opac ty) of em ss ons to ess than or equa to 20 percent; app y water one or more t mes per day to a affected unpaved roads, and unpaved hau and access roads; reduce veh c e speeds on a unpaved roads, and unpaved hau and access roads; c ean up track-out and carry-out areas at paved road access po nts at a m n mum of once every 48 hours; f bu k transfer operat ons are requ red, spray hand ng and transfer po nts w th water at east 15 m nutes before use.	Less than s gn f cant (CEQA III)	CBP

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
NOISE					
No se 1	Ind v dua s n the mmed ate v c n ty of the construct on act v t es cou d exper ence an ncrease n no se.	S gn f cant (CEQA C ass II)	No se assoc ated w th construct on act v t es wou d be both temporary and nterm ttent. Equ pment wou d be operated on an as-needed bas s. A major ty of the act v t es wou d occur away from popu at on centers. The durat on of construct on n the few popu ated areas wou d be m ted to a few days.	Less than s gn f cant (CEQA C ass III)	CBP
GEOLOGY AND SOILS					
Geo ogy and So s 1	D sturbances to the natura topography a ong the construct on easement w be mpacted by grad ng act v t es.	S gn f cant (CEQA C ass II)	After comp et on of construct on, topograph c contours and dra nage cond t ons wou d be restored as c ose as prac cab e to the r preconstruct on cond t on.	Less than s gn f cant (CEQA C ass III)	CBP and BLM
Geo ogy and So s 2	B ast ng m ght be necessary a ong Sect on A-1. B ast ng cou d adverse y affect geo og ca resources.	S gn f cant (CEQA C ass II)	The Proposed Act on was deve oped to avo d geo og c format ons that wou d requ re b ast ng to the extent poss b e.	Less than s gn f cant (CEQA C ass III)	CBP and BLM

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
GEOLOGY AND SOILS (continued)					
Geo ogy and So s 3	Construct on of the tact ca nfrastructure cou d expose so s to eros ona forces, compact so s, affect so fert ty, cause m x ng of so hor zons, and fac tate the d spersa and estab shment of weeds.	S gn f cant (CEQA C ass II)	CBP wou d m t gate mpacts on so s by mp ement ng ts CM&R P an deve oped n consu tat on w th the BLM, the USFWS, and the CDFG, and ts Project-w de Dust Contro P an. Fug t ve dust generated by construct on act v t es wou d be m n m zed by the mp ementat on of CBP's Project-w de Dust Contro P an. The Project-w de Dust Contro P an nc udes contro measures dent f ed as BMPs by some of the regu at ng agenc es. The measures that wou d be mp emented nc ude the fo ow ng: take every reasonab e precaut on to m n m ze fug t ve dust em ss ons from construct on act v t es; take every reasonab e measure to m t v s b e dens ty (opac ty) of em ss ons to ess than or equa to 20 percent; app y water one or more t mes per day to a affected unpaved roads, and unpaved hau and access roads; reduce veh c e speeds on a unpaved roads, and unpaved hau and access roads; c ean up track-out and carry-out areas at paved road access po nts at a m n mum of once every 48 hours; f bu k transfer operat ons are requ red, spray hand ng and transfer po nts w th water at east 15 m nutes before use. CBP wou d a so adhere to BMPs dent f ed n the project SWPP P an.	Less than s gn f cant (CEQA C ass III)	CBP
Geo ogy and So s 4	Contam nat on from sp s or eaks of fue s, ubr cants, and coo ant from construct on equ pment cou d have an mpact on so s.	S gn f cant (CEQA C ass II)	CBP wou d m t gate mpacts on so s by mp ement ng ts SPCC P an for Hazardous Mater a s and Wastes.	Less than s gn f cant (CEQA C ass III)	None requ red.

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
WATER RESOURCES					
Hydro ogy and Groundwater 1	Refue ng of veh c es and storage of fue , o , and other f u ds dur ng the construct on phase of the project cou d create a potent a ong-term contam nat on hazard to groundwater resources. Sp s or eaks of hazardous qu ds cou d contam nate groundwater and affect users of the aqu fer.	S gn f cant (CEQA C ass II)	CBP wou d comp y w th ts SPCC P an. Th s nc udes avo d ng or m n m z ng potent a mpacts by restr ct ng the ocat on of refue ng act v t es and storage fac t es and by requ r ng mmed ate c eanup n the event of a sp or eak. Add t ona y, the SPCC P an dent f es emergency response procedures, equ pment, and c ean-up measures n the event of a sp .	Less than s gn f cant (CEQA C ass III)	None requ red.
Surface Waters 1	Spo p es p aced n f oodp a ns dur ng trench ng or excavat on for nfrastructure foundat on construct on cou d cause an ncrease n f ood eve s or cou d be washed downstream or be de eter ous to aquat c fe.	S gn f cant (CEQA C ass II)	CBP wou d manage spo p es to avo d p acement n f oodp a ns. Dry washes are a so regu ated by the SWRCB. CBP w eave gaps n the spo p es n dry washes so the washes rema n open dur ng construct on. CBP wou d prepare and subm t an updated CM&R P an to the Agency Staffs before construct on f necessary to ncorporate any add t ona requ rements of Federa , state, and oca perm ts. CBP wou d adhere to BMPs dent f ed w th n the project SWPP P an to avo d sed mentat on ssues.	Less than s gn f cant (CEQA C ass III)	CBP

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
WATER RESOURCES (continued)					
Surface Waters 2	Refue ng of veh c es and storage of fue , o , or other hazardous mater a s near surface waters cou d create a potent a for contam nat on f a sp were to occur. Immed ate downstream users of the water cou d exper ence degradat on n water qua ty. Acute chron c tox c effects on aquat c organ sms cou d resu t from such a sp .	S gn f cant (CEQA C ass II)	CBP wou d comp y w th ts SPCC P an. Th s nc udes avo d ng or m n m z ng potent a mpacts by restr ct ng the ocat on of refue ng act v t es and storage fac t es and by requ r ng mmed ate c eanup n the event of a sp or eak. Add t ona y, the SPCC P an dent f es emergency response procedures, equ pment, and c ean-up measures n the event of a sp .	Less than s gn f cant (CEQA C ass III)	None requ red.
Waters of the Un ted States 1	The pr mary mpact of the Proposed Act on on wet ands wou d be the temporary and permanent a terat on of wet and vegetat on. Other mpacts cou d nc ude temporary changes n wet and hydro ogy and water qua ty, m x ng of topso and subso , and compact on and rutt ng of so s.	S gn f cant (CEQA C ass II)	CBP wou d adhere to ts CM&R P an, and comp y w th the USACE's Sect on 404 and the SDRWQCB's Sect on 401 Water Qua ty Cert f cat on perm t cond t ons. Wet ands wou d be restored to preconstruct on contours. Construct on of the project wou d resu t n no net oss of wet ands because no wet ands wou d be permanent y dra ned or f ed. Some of the m t gat on measures perta n ng to wet and cross ngs nc ude the fo ow ng: m n m z ng construct on t me n wet and areas, requ r ng nonessent a construct on to avo d cross ng wet and areas, and stor ng and return ng the top foot of so from wet and areas to preserve root stock for regrowth.	Less than s gn f cant (CEQA C ass III)	CBP

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
CULTURAL RESOURCES					
Cu tura Resources 1	Construct on of tact ca nfrastructure cou d mpact upon the presence of archaeo og ca s tes.	S gn f cant (CEQA C ass II)	To address potent a mpacts on pa eonto og ca resources resu t ng from the Proposed Act on, CBP w deve op an Archaeo og ca Resource M t gat on and Mon tor ng (ARMM) P an. The ARMM P an nc udes a summary of the terature and museum arch va rev ew, f e d survey resu ts, and assessment of potent a mpacts on archaeo og ca resources; project-w de and s te-spec f c m t gat on and mon tor ng measures; and curat on and report ng procedures. In accordance w th the ARMM P an, CBP wou d have an archaeo og ca mon tor ons te n areas where archaeo og ca resources have been dent f ed. Known s tes wou d be f agged and c ear y dent f ed. Add t ona measures of the p an nc ude ava ab ty of a qua f ed project archaeo og st to be ca ed to the proposed project corr dor to respond to construct on-re ated ssues and tra n ng of construct on personne and Env ronmenta Inspectors (EIs) regard ng the poss b ty that archaeo og ca resources cou d be encountered dur ng construct on. Consu tat on w th Nat ve Amer can Tr bes wou d be ongo ng throughout the project t me ne.	Less than s gn f cant (CEQA C ass III)	CBP

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
BIOLOGICAL RESOURCES					
Vegetat on 1	The pr mary mpact of the Proposed Act on on vegetat on wou d be the cutt ng, c ear ng, or remova of ex st ng vegetat on w th n the construct on work area. The remova of desert vegetat on wou d have onger-term mpacts than n agr cu tura areas where vegetat on reestab shes qu ck y.	S gn f cant (CEQA C ass II)	CBP wou d m n m ze the area of new d sturbance and the mpacts on vegetat on. CBP wou d mp ement ts CM&R P an to reduce mpacts on vegetat on w th n the construct on and permanent ROWs and mprove re-vegetat on potent a . Some of the measures that wou d be mp emented nc ude the fo ow ng. Crush or sk m vegetat on w th n the construct on corr dor n areas where grad ng s not requ red, wh ch wou d resu t n ess so d sturbance. The rema n ng root crowns wou d a d n so stab zat on, he p reta n organ c matter n the so , a d n mo sture retent on, and have the potent a to re-sprout fo ow ng construct on. Preserve nat ve vegetat on removed dur ng c ear ng operat ons. The cut vegetat on wou d be w ndrowed a ong the ROW dur ng construct on and then respread over the d sturbed areas as part of restorat on act v t es.	Less than s gn f cant (CEQA C ass III)	CBP
Vegetat on 2	Remova of ex st ng vegetat on and the d sturbances of so s dur ng construct on cou d create cond t ons for the nvas on and estab shment of exot c-nu sance spec es.	S gn f cant (CEQA C ass II)	CBP wou d reduce the potent a to spread nox ous weeds and so pests by mp ement ng the measures nc uded n ts CM&R P an. These measures nc ude, survey by a qua f ed b o og st, f agg ng or treatment before construct on, dent f cat on of popu at ons of p ants sted as nvas ve exot cs by the Ca forn a Invas ve P ant Counc and the BLM Nat ona L st of Invas ve Weed Spec es of Concern, not a ow ng for d sposa of so and p ant mater a s from nonnat ve areas to nat ve areas, wash ng a construct on equ pment before beg nn ng work on the project, use of grave or f mater a from weed-free sources for re at ve y weed-free areas, use of cert f ed weed-free hay ba es, mp ementat on of post-construct on mon tor ng and treatment of nvas ve weeds.	Less than s gn f cant (CEQA C ass III)	CBP

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
BIOLOGICAL RESOURCES (continued)					
Vegetation 3	Fires inadvertently started by construction activities (e.g., welding), equipment, or personnel could affect wildfire by igniting vegetation along the ROW.	Significant (CEQA Class II)	CBP would implement its Fire Prevention and Suppression Plan to minimize the potential for wildfires. Some of the measures contained in the plan include requiring the contractor to train all personnel on fire prevention measures, restricting smoking and parking to cleared areas, requiring all equipped with a spark arrestor, and requiring vehicles and equipment to maintain a supply of fire suppression equipment (e.g., shovels and fire extinguishers).	Less than significant (CEQA Class III)	None required.
Wildfire 1	Some impacts on migratory birds could result from habitat loss associated with construction of the project. Clearing of vegetation could also destroy nests and cause mortality of nestlings and nestlings adults.	Significant (CEQA Class II)	CBP would attempt to schedule construction initiative habitats outside of the breeding season for migratory birds. If, however, construction activities are necessary during the bird breeding season, in accordance with its CM&R Plan, CBP would remove vegetation that could provide nesting substrate from the ROW before the breeding season, thus eliminating the possibility that birds could nest on the ROW. Qualified biologists would conduct preconstruction surveys to confirm the absence of nesting birds before construction begins. CBP would, in consultation with the USFWS, the BLM, and the CDFG, develop Pre-clearing Plans to protect migratory birds species during construction. These plans would include specific details of the pre-clearing methods to be implemented, the specific location where pre-clearing would occur, and the dates pre-clearing would be initiated and completed	Less than significant (CEQA Class III)	CBP

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
BIOLOGICAL RESOURCES (continued)					
W d fe 2	Construct on wou d temporar y mpact Qu no checkerspot butterf y cr t ca hab tat at work areas, temporary access roads, and a ong the construct on corr dor.	S gn f cant (CEQA C ass II)	CBP wou d m t d sturbance of prev ous y unaffected areas to the narrowest extent pract cab e. Further, CBP wou d compensate for the oss of cr t ca hab tat. C ear ng of vegetat on n the affected areas wou d ke y resu t n destruct on of arva stage butterf es. Add t ona BMPs and M t gat on Strateg es are be ng deve oped n conjunct on w th USFWS pursuant to the Sect on 7 consu tat on process.	S gn f cant (CEQA C ass II)	None requ red.
VISUAL RESOURCES					
V sua Resources 1	Insta at on of tact ca nfrastructure wou d mpact v sua resources.	S gn f cant (CEQA C ass II)	CBP w adopt techn ques out ned n BLM's V sua Resources Management System. Examp es of suggested methods nc ude but wou d not be m ted to: round ng and/or warp ng s opes (shap ng cuts and f s to appear as natura forms); proh b t ng dump ng of excess earth/rock on downh s opes; us ng reta n ng wa s to reduce the amount and extent of earthwork; Rep ac ng so , brush, rocks, forest debr s, etc., over d sturbed earth surfaces when appropr ate, thus a ow ng for natura regenerat on rather than ntroduc ng an unnatura ook ng grass cover; Part a c ear ng of the m ts of construct on rather than c ear ng the ent re area – eav ng s ands of vegetat on resu ts n a more natura ook.	Less than s gn f cant (CEQA C ass III)	None requ red.
SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE AND SAFETY					
Soc oeconom cs 1	Construct on of the project cou d temporar y ncrease the popu at on n the area by about 200 peop e.	Less than s gn f cant (CEQA C ass III)	No m t gat on s proposed dur ng construct on. Th s neg g b e short-term ncrease n popu at on wou d not s gn f cant y affect hous ng ava ab ty or ncrease the demand for pub c serv ces n excess of ex st ng and projected capab t es.	Less than s gn f cant (CEQA C ass III)	None requ red.

Mitigation Number	Impact	Significance Before Mitigation	Mitigation Measure	Significance After Mitigation	Monitoring Responsibility
SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE AND SAFETY (continued)					
Env ronmenta Just ce 1	The project cou d resu t n a d sproport onate y h gh and adverse effect or mpact on a m nor ty or ow- ncome port on of the popu at on.	Less than s gn f cant (CEQA C ass III)	No m t gat on s proposed. U.S. Bureau of Census data show that m nor ty and ow- ncome popu at ons are present a ong the proposed nfrastructure routes, but there s no potent a for d sproport onate adverse mpacts on these popu at ons. CBP w conduct open houses n the proposed project corr dor n January 2008 to nform the pub c about the project and prov de an opportun ty for the pub c to ask quest ons and express concerns. These pub c nput opportun t es w be announced n the oca newspapers n Eng sh and Span sh, and Span sh trans ators w be present.	Less than s gn f cant (CEQA C ass III)	None requ red.

SECTION 6

Cumulative Impacts

6. CUMULATIVE IMPACTS

CEQ defines cumulative impacts as the "impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decisionmaking is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future projects in accordance with CEQ regulations implementing NEPA and CEQ guidance on cumulative effects (CEQ 1997, 2005). The geographic scope of the analysis varies by resource area. For example, the geographic scope of cumulative impacts on noise, visual resources, soils, and vegetation is very narrow and focused on the location of the resource. The geographic scope of air quality, wildlife and sensitive species, and socioeconomics is much broader and considers more county- or regionwide activities. Projects that were considered for this analysis were identified by reviewing USBP documents, news releases, and published media reports; and through consultation with planning and engineering departments of local governments, and state and Federal agencies.

Projects that do not occur in close proximity (i.e., within several miles) to the proposed tactical infrastructure would not contribute to a cumulative impact and are generally not evaluated further.

Cumulative Fencing, Southern Border. There are currently 62 miles of landing mat fence at various locations along the U.S./Mexico international border (CRS 2006); 14 miles of single, double, and triple fence in San Diego, California; 70 miles of new pedestrian fence approved and currently under construction; and fence adjacent to POEs throughout the southern border. In addition, 225 miles of fence (including the approximately 4.4 miles proposed under the action considered in this EIS) are proposed. The implementation of proposed fence initiatives are being studied for specified areas in Texas, New Mexico, Arizona, and California.

Past Actions. Past actions are those within the cumulative effects analysis areas that have occurred prior to the development of this EIS. The effects of these past actions are generally included in the affected environment described in **Section 3**. For example, development throughout San Diego County has shaped the existing conditions described in **Section 3**.

Present Actions. Present actions include current or funded construction projects, USBP or other agency operations in close proximity to the proposed fence locations, and current resource management programs and land use activities within the cumulative effects analysis areas. Ongoing actions considered in the cumulative effects analysis include extensive construction activities in the East Otay Mesa area.

Reasonably Foreseeable Future Actions. Reasonably foreseeable future actions consist of activities that have been approved and can be evaluated with respect to their effects. The following activities are reasonably foreseeable future actions:

- SBI. SBI is a comprehensive program focused on transforming border control through technology and infrastructure. The goal of the program is to field the most effective proven technology, infrastructure, staffing, and response platforms, and integrate them into a single comprehensive border security suite for USBP. Potential future SBI projects include deployment of sensor technology, communications equipment, command and control equipment, fencing, barriers capable of stopping a vehicle, and any required road or components such as lighting and all-weather access roads (Boeing 2007). Within the next 2 years, 225 miles of primary fence are proposed for construction (including the approximately 4.4 miles addressed in this EIS).
- East Otay Mesa Specific Plan. San Diego County has developed the East Otay Mesa Specific Plan to promote development of the area into a comprehensive industrial and business district. The plan calls for the area to be divided into the following land use categories: heavy industrial (289 acres), light industrial (410 acres), a Technology Business Park (937 acres), conservation/limited use (241 acres), and regional circulation corridors (130 acres) (City of San Diego 2007).
- South Coast Resource Management Plan Amendment for the San Diego County Border Mountains. The BLM is proposing to prepare an amendment to the South Coast Resource Management Plan for BLM-administered public lands in the Border Mountains area of San Diego County, including Otay Mountain. The plan amendment proposes to establish management guidelines for lands acquired since 1994 and designate a travel network.
- BLM Upgrade of the Border Pack Trail. The trail runs east-west along the border below the OMW. The wilderness boundary is actually 100 feet north of the edge of the trail. The existing trail is mainly a hiking trail, but ATVs can access the trail at this time with some difficulty. The BLM is proposing to upgrade the trail to better accommodate ATVs safely. This would include widening the trail and constructing turnarounds and pull-outs. The primary obstacle with upgrading the trail is that it supports the endangered Quino checkerspot butterfly and habitat (CBP 2007b).

- San Diego Gas & Electric (SDG&E) Transmission Line. SDG&E has proposed to construct a new 150-mile transmission line between the cities of El Centro and San Diego. The stated purpose of the project is to bring renewable energy sources into San Diego from Imperial County, reduce energy costs, and improve reliability of electrical service in the San Diego area. SDG&E has filed an application with the California Public Utilities Commission (CPUC) to construct the Sunrise Powerlink Project (SRPL). A joint EIS/Environmental Impact Report (EIR) is being prepared (BLM 2007).

- Construction of Tactical Infrastructure. USBP is currently constructing a border tactical infrastructure system along the U.S./Mexico international border within San Diego County. The tactical infrastructure system project spans 14 miles and includes secondary and tertiary fences, patrol and maintenance roads, lights, and integrated surveillance and intelligence system resources. Approximately 9 miles of the 14-mile project have been completed or are currently under construction. These projects approved for this infrastructure initiative were addressed under several individual EAs as pilot projects for the tactical infrastructure system. When completed, the tactical infrastructure system would impact approximately 297 acres, consisting of disturbed/developed lands, coastal sage scrub, maritime succulent scrub, and grasslands.

Seven road and tactical infrastructure projects are proposed that include construction, repair, maintenance, and upgrade of existing roads and infrastructure within the Brown Field Station Area of Operations (AO).

In addition, ongoing maintenance of approximately 104 miles of patrol roads throughout the Brown Field, El Cajon, and Campo Stations AOs is proposed. The roads adjacent to or nearest the proposed project corridor are the Marron Valley Road (6.6 miles) and Barrett Truck Trail (9.6 miles) (CBP 2007b).

The FY 2007 DHS Appropriations Act provided $1.2 billion for the installation of fencing, infrastructure, and technology along the border (CRS 2006). USBP is proposing to construct up to 225 miles of primary fence in the Rio Grande Valley, Marfa, Del Rio, and El Paso, Texas; Tucson and Yuma, Arizona; and El Centro and San Diego, California, sectors. Proposed Section A-2 which is evaluated in this EIS, would connect to existing fence west of Tecate, California.

Table 6.0-1 presents the potential cumulative effects that might occur from implementation of the Proposed Action.

Table 6.0-1. Summary of Potential Cumulative Effects

Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Air Quality	State nonattainment for 8-hour O_3; Federal moderate maintenance for CO; state nonattainment for PM_{10} and $PM_{2.5}$.	Existing emissions sources continue to adversely affect regional air quality.	Construction activities would temporarily contribute to PM and combustion emissions.	Proposed new construction and business development in East Otay Mesa area would contribute to emissions and adverse regional air quality.	Construction activities would temporarily contribute to CO and PM emissions. Continued attainment.
Noise	Commercial and residential development, vehicles dominate ambient noise.	Commercial and residential development, vehicles dominate ambient noise near urban areas. Remote areas temporarily impacted by ATV recreational activities.	Short-term noise impacts from construction.	None.	Current activities would be the dominant noise source. Negligible cumulative impacts.
Land Use and Recreation	Establishment of OMW. Commercial and residential development, infrastructure improvements on natural areas.	Development of natural area.	USBP purchase of land or easements to construct tactical infrastructure. Natural areas developed for tactical infrastructure. Development inconsistent with Wilderness Act.	Residential and commercial development permanently alters natural areas.	Moderate adverse impacts on natural areas.

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Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Geology and Soils	Intrusions by border-cross violators have modified soils.	Continued illegal border crossings adversely affect soils.	Grading, excavating, and recontouring would significantly disturb soils.	Continued illegal border crossings adversely affect soils.	Grading, excavating, and recontouring would significantly disturb geology.
Water Resources: Hydrology and Groundwater	Degradation of aquifers due to pollution; changes in hydrology due to increased impervious areas.	Continued degradation of aquifers from pollution; changes in hydrology due to increased impervious areas.	Short-term minor adverse effects from groundwater use for dust suppression during construction.	Minor to moderate short- and long-term impacts from development and increased impervious areas.	Minor short-term impact from groundwater use during construction.
Surface Waters and Waters of the United States	Degradation of water resources due to pollution.	Surface water quality adversely impacted by development.	Soil disturbance, erosion during construction, impacts on wetlands.	Construction erosion and sediment runoff, potential oil spills and leaks.	Nonpoint discharges, construction erosion and sediment runoff, potential oil spills and leaks.
Floodplains	Increase in impervious surfaces near Section A-2 increase runoff flood hazards.	Increase in impervious surfaces near Section A-2 increase runoff and flood hazards.	None.	Increase in impervious surfaces near Section A-2 increases runoff and flood hazards.	None.
Vegetation	Degraded historic habitat of sensitive and common wildlife species.	Continued urbanization results in loss of native species.	Habitat fragmentation. Minor to moderate loss of native species and habitat.	Continued urbanization results in loss of native species and habitat.	Moderate to major adverse impacts on vegetation and habitats.
Wildlife and Aquatic Resources	Loss of native habitat due to development; loss of wildlife corridors; impacted habitat and food sources.	Development continues to impact biological resources and wildlife habitat.	Minor to moderate loss of habitat and wildlife corridors, and habitat fragmentation.	Minor to moderate loss of habitat and wildlife corridors.	Minor to moderate loss of habitat and wildlife corridors.

Resource	Past Actions	Current Background Activities	Proposed Action	Known Future Actions	Cumulative Effects
Special Status Species	Habitat loss and degraded water quality impacted sensitive species.	Development continues to adversely impact and reduce potential habitat.	Moderate to major loss of habitat due to construction disturbance and fragmentation.	Development continues to adversely impact, reduce, and fragment potential habitat.	Fragmentation of suitable habitat might significantly reduce available habitat for certain sensitive species.
Cultural Resources	Possible destruction of unknown artifacts.	Identification and recordation of historic and cultural resources.	Minor adverse impacts on archaeological resources.	Proposed new construction and expansion into eastern San Diego County might adversely affect cultural resources.	Long-term adverse impacts from past destruction of unknown artifacts.
Visual Resources	Degradation of visual appeal due to illegal foot traffic, causing extensive littering and other blemishes to the landscape.	Development of natural areas for community and industry infrastructure.	Constant static visual interruption at fixed points. Loss of recreational area.	Continued moderate to severe impacts on Class I and Class III Visual Resources.	Major long-term impacts from tactical infrastructure.
Socioeconomic Resources, Environmental Justice, and Protection of Children	Urban development throughout county.	Strong local economy and high land values.	Minor, temporary contribution to local construction	Continued strong local economy, high land values, and expansion into eastern county.	Minor stimulation of local economies from construction activities.

6.1 AIR QUALITY

Proposed construction and USBP patrolling along the new fence Section A-1 would combine with past actions (current severe nonattainment for PM_{10} and moderate nonattainment for 8-hour O_3), and ongoing or future construction activities in the East Otay Mesa area to produce both temporary and long-term adverse cumulative impacts on regional air quality. USBP operational activities along the patrol road would produce minor adverse impacts on air quality due to increased vehicle emissions and PM_{10} emissions due to driving on the dirt patrol road. Emissions from construction, operation, and maintenance activities would not be expected to significantly affect local or regional air quality.

6.2 NOISE

Negligible cumulative effects on ambient noise would be expected. The Proposed Action would result in noise from construction, operation, and maintenance of tactical infrastructure. The Proposed Action would combine with existing noise sources to produce negligible cumulative effects along Section A-2.

6.3 LAND USE AND RECREATION

USBP purchase of land or easements to construct tactical infrastructure, when combined with past, current, and reasonably foreseeable future development, would result in long-term, adverse impacts on lands classified as “undeveloped” or “natural.” The Proposed Action might be inconsistent with the Wilderness Act relative to OMW.

6.4 GEOLOGY AND SOILS

Moderate localized impacts on geology and soils would be from the additive effects of current or ongoing actions, the Proposed Action, and other reasonably foreseeable future actions. Additive effects include some minor changes in topography, disturbance to surface bedrock, and increases in erosion. Potential impacts of the Proposed Action would include minor changes in topography and surface bedrock due to grading, contouring, blasting, and trenching; minor soil disturbance; and a minor increase in erosion. However, the impacts associated with the Proposed Action would be negligible in comparison to the impacts of current and future actions.

6.5 HYDROLOGY AND GROUNDWATER

Moderate impacts on hydrology and groundwater would be expected from the cumulative effects of current or ongoing actions, the Proposed Action, and other reasonably foreseeable future actions. Cumulative impacts would include changes in hydrology from increases in impervious surfaces and reductions in

the quantity and quality of groundwater in local aquifers. The Proposed Action would result in minor adverse impacts in hydrology from changes on topography and minor use of groundwater.

6.6 SURFACE WATER AND WATERS OF THE UNITED STATES

Moderate impacts on surface water and waters of the United States would be expected from the cumulative effects of current or ongoing actions, the Proposed Action, and other reasonably foreseeable future actions. Cumulative impacts would occur from soil disturbance reducing water quality resulting in indirect adverse impacts on wetlands. The Proposed Action would result in minor to moderate impacts on riparian areas and wetlands. An estimated 2.4 acres of Riverine wetlands would be permanently impacted by construction of the tactical infrastructure. USBP would obtain CWA Section 404 permits and mitigate the loss of wetlands. Since wetlands have not been delineated, acres potentially impacted could be higher. Cumulative impacts on wetlands would be long-term and adverse.

6.7 FLOODPLAINS

Moderate impacts on floodplains are expected from the additive effects of current or ongoing actions, the Proposed Action, and other reasonably foreseeable future actions. Additive effects would include an increase in the quantity and velocity of storm water runoff caused by an increase in impervious surface, which in turn causes an increase in flood hazards. Potential impacts of the Proposed Action would include an increase in impervious surface in the floodplain by placing a portion of a fence across an intermittent wash in Section A-1. This wash could potentially be a floodplain. If it is determined that this area is a floodplain, impacts would be avoided and minimized to the maximum extent practicable. However, the impacts associated with the Proposed Action would be negligible in comparison to the impact of current and future actions.

6.8 VEGETATION

Conversion of land for development is reducing the areal extent of native chamise chaparral and riparian communities in this portion of San Diego County. These habitats and their component species become rarer with each acre lost to development. Clearing for fence construction and long-term USBP operational activities might combine with these activities to produce a long-term adverse cumulative effect. Border-cross violators have created a large number of footpaths through the chaparral shrublands on the OMW. Fence construction might concentrate border-cross violators into corridors which, if left unchecked, would create wider unvegetated paths and produce a major adverse impact on those areas. Closing the maze of footpaths in the interior of the OMW would allow some land recovery outside of areas associated with permanent maintenance roads and patrol roads. Cumulative impacts would be long-term and adverse.

6.9 WILDLIFE AND AQUATIC RESOURCES

Minor to moderate impacts on wildlife and species are expected from the additive effects of the past, present, and reasonably foreseeable future actions. Cumulative impacts would mainly result from fragmentation of degraded habitat, disturbance and degradation of native vegetation, and construction traffic. Indirect impacts would result from noise during construction, and loss of potential food web species. Species would also be impacted by spills and leaks form mobilized equipment.

6.10 SPECIAL STATUS SPECIES

As discussed in **Section 4.11** CBP began Section 7 preconsultation coordination with the USFWS regarding potential impacts on listed species or designated critical habitat. The potential effects of fence construction, operation, and maintenance associated with the Proposed Action will be analyzed in the BA and BO. Special status species are commonly protected because their historic range and habitat has been reduced and will only support a small number of individuals. Past, present, and future activities which have impacted or have the potential to impact special status species in the vicinity of the Proposed Action include illegal livestock grazing, cross-border violator traffic, and residential and commercial development. If continued as currently occurring, these activities are anticipated to have major adverse cumulative impacts on special status species in the area of the Proposed Action through further reduction of habitat quantity and quality. If implemented, the Proposed Action would reduce or halt both illegal livestock grazing and cross-border violator traffic in the analyzed impact area and beyond. This would represent major long-term beneficial impacts. However, implementation of the Proposed Action would also have major adverse impacts from habitat alteration and loss. The past, present, and reasonably foreseeable future activities described above in combination with the impacts of the Proposed Action would result in major adverse and major beneficial cumulative impacts. The Proposed Action would provide a relatively small proportion of the adverse impacts and all of the beneficial impacts.

6.11 CULTURAL RESOURCES

No cumulative impacts on known historic and cultural resources are expected from the additive effects of past, present, and reasonably foreseeable future actions. Planning and consultation with BLM and the California SHPO would limit the possibility of future impacts on unknown historical and cultural resources.

6.12 VISUAL RESOURCES

Moderate to severe impacts on visual resources are possible from the additive effects of current or ongoing actions, the Proposed Action, and other reasonably

foreseeable future actions. The presence of construction equipment would produce a short-term adverse impact on visual resources. Once installed, the tactical infrastructure would create a permanent and fixed visual interruption in the viewscape. Adverse cumulative effects could include adverse impacts from the fence and patrol road combined with paths created by illegal cross-border activities. Over time, the visual contrast of the Proposed Action might diminish through re-establishment of vegetation and the softening of the edges of the area impacted by construction. The encroachment of overall development of the area would degrade vistas from various vantage points.

6.13 SOCIOECONOMIC RESOURCES, ENVIRONMENTAL JUSTICE, AND PROTECTION OF CHILDREN

Fence and road construction has the potential for minor beneficial effects from temporary increase in construction jobs and purchase of goods and services. Construction activities are negligible compared to substantial construction activities in East Otay Mesa area. The proposed tactical infrastructure would have short- to long-term indirect beneficial effects on children and safety by reducing the number of border-cross violators, smugglers, terrorists, and terrorist weapons. Indirect minor adverse impacts on human safety would occur from border-cross violators attempting to cross the border in more remote or hazardous areas.

6.14 SIGNIFICANT UNAVOIDABLE IMPACTS/STATEMENT OF OVERRIDING CONSIDERATIONS

Effects on all resources were evaluated to determine any significant impact that would remain so after mitigation. The USFWS and CDFG have not yet issued conclusions regarding the impact of the Proposed Action on Federal- and state-listed species.

6.15 IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES; SHORT- AND LONG-TERM USES OF THE ENVIRONMENT

The major nonrenewable resources that would be consumed by the Proposed Action are fossil fuels used to power construction vehicles and patrol vehicles over the life of the project. There would be a number of irretrievable resources committed to the proposal. The primary irretrievable resources potentially lost would include the following:

- Soils (water and wind erosion could occur in disturbed areas)
- Wildlife habitat (construction activities would result in the long-term loss of native desert habitats)

- Land use (aboveground facilities and permanent access roads would replace native desert vegetation and urban vegetation communities for the life of the Project)
- Visual resources (the presence of the tactical infrastructure would permanently affect viewsheds).

CBP has concluded that overall the Proposed Action would result in limited unmitigated adverse environmental impacts. While the losses described above would occur, the majority would be minimized and compensated for by USBP's mitigation plans. For these reasons, the irreversible and irretrievable resource commitments are considered acceptable.

The physical materials required to construct the proposed tactical infrastructure would be irretrievably lost. These materials could include concrete, metals, or plastics depending on the type of tactical infrastructure constructed (refer to **Appendix A** for examples of pedestrian fence design). This would be a minor irretrievable lost because none of these materials are considered scarce.

CBP would not begin construction activities until the following occur:

- USFWS issues a BO on Federal-listed species and issues incidental take permits, if required.
- The CDFG makes a consistency determination on the USFWS' BO pursuant to Section 2080.1 of the California Fish and Game Code or issues an Incidental Take Permit that covers both federally and state-listed species that could be affected.
- CBP obtains an Incidental Take Permit under Section 2081 of the California Fish and Game Code for all state-listed species that could be affected, or receives concurrence from the CDFG that an Incidental Take Permit is not required.
- CBP prepares a revised Projectwide Dust Control Plan.
- CBP prepares an MMP consistent with the identified mitigation measures.

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SECTION 7

Acronyms and Abbreviations

7. ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADNL	A-weighted day-night average sound level
AO	Area of Operations
APE	Area of Potential Effect
AQCR	air quality control region
ARMM	Archaeological Resource Mitigation and Monitoring
ATV	all-terrain vehicle
BA	Biological Assessment
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
CAA	Clean Air Act
CAGN	Coastal California gnatcatcher
Cal/EPA	California Environmental Protection Agency
CARB	California Air Resources Board
CBP	Customs and Border Protection
CCA	Corrections Corporation of America
CCR	California Code of Regulations
CDCR	California Department of Corrections and Rehabilitation
CDFG	California Department of Fish and Game
CDPR	California Department of Parks and Recreation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHSC	California Health and Safety Code
CM&R	Construction Mitigation and Restoration
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CO_2	carbon dioxide
COC	constituent of concern
CPUC	California Public Utilities Commission
CRS	Congressional Research Service
CWA	Clean Water Act
cy	cubic yards
CZMA	Coastal Zone Management Act
dBA	A-weighted decibels
dBC	C-weighted decibels
DHS	U.S. Department of Homeland Security
EA	Environmental Assessment

EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPPA	Farmland Protection Policy Act
FY	Fiscal Year
GHG	greenhouse gas
HCP	Habitat Conservation Plan
IBWC	International Boundary and Water Commission
ICE	Immigrations and Customs Enforcement
LBV	least Bell's vireo
MBTA	Migratory Bird Treaty Act
MD	Management Directive
MMP	Mitigation and Monitoring Plan
MMTCE	million metric tons of carbon equivalent
MSCP	Multiple Species Conservation Program
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCCP	Natural Communities Conservation Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOA	Notice of Availability
NOI	Notice of Intent
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
OMW	Otay Mountain Wilderness
P.L.	Public Law
Pb	lead
PERP	Portable Equipment Registration Program
PM_{10}	particles equal to or less than 10 microns in diameter
$PM_{2.5}$	particles equal to or less than 2.5 microns in diameter
POE	Port of Entry
ppm	parts per million
PRC	Public Resources Code
ROD	Record of Decision
ROI	Region of Influence
ROW	right-of-way
SAAQS	State Ambient Air Quality Standards

SANDAG	San Diego Association of Governments
SBI	Secure Border Initiative
SC	species of special concern
SDAPCD	San Diego County Air Pollution Control District
SDFS	San Diego fairy shrimp
SDG&E	San Diego Gas & Electric
SDIAQCR	San Diego Interstate Air Quality Control Region
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SPCC	Spill Prevention Control and Countermeasure
SR	State Route
SRMA	Special Recreation Management Area
SRPL	Sunrise Powerlink Project
SWF	southwestern willow flycatcher
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Loads
TSS	total suspended solids
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USIBWC	United States Section, International Boundary and Water Commission
UTM	Universal Transverse Mercator
VOC	volatile organic compound
VRM	Visual Resources Management

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SECTION 8

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SECTION 9

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APPENDIX A

Standard Design for Tactical Infrastructure

APPENDIX A

STANDARD DESIGN FOR TACTICAL INFRASTRUCTURE

A properly designed tactical infrastructure system is an indispensable tool in deterring those attempting to illegally cross the U.S. border. Tactical infrastructure is also integral to maintaining USBP's flexibility in deploying agents and enforcement operations. A formidable infrastructure acts as a force multiplier by slowing down illegal entrants and increasing the window of time that agents have to respond. Strategically developed tactical infrastructure should enable USBP managers to better utilize existing manpower when addressing the dynamic nature of terrorists, illegal aliens, and narcotics trafficking (INS 2002).

USBP apprehension statistics remain the most reliable way to codify trends in illegal migration along the border. Based on apprehension statistics, in a 2006 report on border security, the Congressional Research Service concluded that "the installation of border fencing, in combination with an increase in agent manpower and technological assets, has had a significant effect on the apprehensions made in the San Diego sector" (CRS 2006).

Since effective border enforcement requires adequate scope, depth, and variety in enforcement activity, any single border enforcement function that significantly depletes USBP's ability to satisfactorily address any other enforcement action creates exploitable opportunities for criminal elements. For example, the intense deployment of personnel resources necessary to monitor urban border areas without tactical infrastructure adversely affects the number of agents available for boat patrol, transportation check points, patrolling remote border areas, and other tasks. Tactical infrastructure reduces this effect by reinforcing critical areas, allowing the agents to be assigned to other equally important border enforcement roles (INS 2002).

Fencing

Two applications for fencing have been developed in an effort to control illegal cross-border traffic: primary pedestrian fences that are built on the border, and secondary fences that are constructed parallel to the primary pedestrian fences. These fences present a formidable physical barrier which impede cross-border violators and increases the window of time USBP agents have to respond (INS 2002).

There are several types of primary pedestrian fence designs USBP can select for construction depending on various site conditions and law enforcement tactics employed. Each option offers relative advantages and disadvantages. Fencing composed of concrete panels, for example, is among the more cost-effective options, but USBP agents cannot see through it. USBP prefers fencing

structures offering visual transparency, allowing observation of activities developing on the other side of the border.

Over the past decade, USBP has deployed a variety of types of fencing, such as primary pedestrian fence (see **Figures A-1** through **A-4**), primary pedestrian fence with wildlife migratory portals (see **Figures A-5** and **A-6**), and bollard fencing (see **Figure A-7**).

Figure A-1. Typical Primary Pedestrian Fence Foundation

Figure A-2. Typical Primary Pedestrian Fence Design

Figure A-3. Typical Primary Pedestrian Fence Design

Figure A-4. Typical Primary Pedestrian Fence Design

Figure A-5. Primary Pedestrian Fence with Wildlife Migratory Portals

Figure A-6. Wildlife Migratory Portals

Figure A-7. Bollard Fence

Bollard fencing has been effective in its limited deployment and can also be seen through. However, it is expensive to construct and to maintain. Landing mat fencing is composed of Army surplus carbon steel landing mats which were used to create landing strips during the Vietnam War. Chain-link fencing is relatively economical, but more easily compromised. In selecting a particular fencing design, USBP weighs various factors such as its effectiveness as a law enforcement tool, the costs associated with construction and maintenance, potential environmental impacts, and other public interest concerns. USBP continues to develop fence designs to best address these objectives and constraints.

Patrol Roads

Patrol roads provide USBP agents with quick and direct access to anyone conducting illegal activity along the border, and allow agents access to the various components of the tactical infrastructure system. Patrol roads typically run parallel to and a few feet north of the primary pedestrian fence. Patrol roads are typically unpaved, but in some cases “all-weather” roads are necessary to ensure continual USBP access (INS 2002).

Lighting

Two types of lighting (permanent and portable) might be constructed in specific urban locations. Illegal entries are often accomplished by using the cover of darkness, which would be eliminated by lighting. Lighting acts as a deterrent to cross-border violators and as an aid to USBP agents in capturing illegal aliens, smugglers, terrorists, or terrorist weapons after they have entered the United States (INS 2001). Lighting locations are determined by USBP based on projected operational needs of the specific area.

The permanent lighting would be stadium-type lights on approximately 30- to 40-foot high poles with two to four lights per pole. Each light would have a range of 400 to 1,000 watts, with lower-wattage bulbs used where feasible. Wooden poles, encased in concrete and steel culvert pipe to prevent them from being cut down, would most often be used, although steel poles with concrete footings might also be used. The poles might be existing poles or they might need to be installed. Electricity would be run in overhead lines unless local regulations require the lines to be underground (DHS 2004). Lights would operate from dusk to dawn. Light poles adjacent to U.S. IBWC levees would be coordinated with and approved by the U.S. IBWC. The final placement and direction of lighting has been and would continue to be coordinated with the USFWS, with the USFWS having final review over both placement and direction along each fence section.

Portable lights are self-contained units with generators that can be quickly moved to meet USBP operational requirements. Portable lights are powered by a 6-kilowatt self-contained diesel generator. Portable lights would generally operate continuously every night and would require refueling every day prior to the next night's operation. The portable light systems can be towed to the desired location by USBP vehicles, but they are typically spaced approximately 100 to 400 feet apart, depending upon topography and operational needs. Each portable light would have a light fan directed toward the fence to produce an illuminated area of 100 ft^2. The lighting systems would have shields placed over the lamps to reduce or eliminate the effects of backlighting. Effects from the lighting would occur along the entire corridor where they could be placed; however, in reality, only parts of the fence would be illuminated at a given time since the portable lights would be periodically relocated to provide the most effective deterrent and enforcement strategy (INS 2001).

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APPENDIX B

Applicable Laws and Executive Orders

1 **Table of Applicable Laws and Executive Orders** [1]

Title, Citation	Summary
Archaeological and Historical Preservation Act, 16 U.S.C. 469	Protects and preserves historical and archeological data. Requires Federal agencies to identify and recover data from archeological sites threatened by a proposed action(s).
Clean Air Act, 42 U.S.C. 7401–7671q, as amended	Establishes Federal standards for air pollutants. Prevents significant deterioration in areas of the country where air quality fails to meet Federal standards.
Clean Water Act, 33 U.S.C. 1251–1387 (also known as the Federal Water Pollution Control Act)	Comprehensively restores and maintains the chemical, physical, and biological integrity of the nation's waters. Implemented and enforced by the U.S. Environmental Protection Agency (USEPA).
Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601–9675 (also known as "Superfund")	Provides for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and cleanup of inactive hazardous substances disposal sites. Establishes a fund financed by hazardous waste generators to support cleanup and response actions.
Endangered Species Act of 1973, 16 U.S.C. 1531–1543, as amended	Protects threatened, endangered, and candidate species of fish, wildlife, and plants and their designated critical habitats. Prohibits Federal action that jeopardizes the continued existence of endangered or threatened species. Requires consultation with U.S. Fish and Wildlife Service (USFWS) and National Oceanic and Atmospheric Administration (NOAA) Fisheries and a biological assessment when such species are present in an area affected by government activities.
Fish and Wildlife Coordination Act, 16 U.S.C. 661–667e, as amended	Authorizes the Secretaries of the Interior and Commerce to provide assistance to and cooperate with Federal and state agencies to protect, rear, stock, and increase the supply of game and fur-bearing animals, as well as to study the effects of domestic sewage, trade wastes, and other polluting substances on wildlife. The 1946 amendments require consultation with the USFWS and the state fish and wildlife agencies involving any waterbodies that are proposed or authorized, permitted, or licensed to be impounded, diverted, or otherwise controlled or modified by any agency under a Federal permit or license.
Migratory Bird Treaty Act, 16 U.S.C. 703–712	Implements various treaties for protecting migratory birds; the taking, killing, or possession of migratory birds is unlawful.

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Table of Applicable Laws and Executive Orders [1] (continued)

Title, Citation	Summary
National Environmental Policy Act of 1969, 42 U.S.C. 4321–4370e, as amended	Requires Federal agencies to use a systematic approach when assessing environmental impacts of government activities. Proposes an interdisciplinary approach in a decisionmaking process designed to identify unacceptable or unnecessary impacts to the environment.
National Historic Preservation Act, 16 U.S.C. 470–470x-6	Requires Federal agencies to consider the effect of any federally assisted undertaking or licensing on any district, site, building, structure, or object eligible for inclusion, or listed in the National Register of Historic Places (NRHP). Provides for the nomination, identification (through NRHP listing), and protection of significant historical and cultural properties.
Noise Control Act of 1972, 42 U.S.C. 4901–4918	Establishes a national policy to promote an environment free from noise that jeopardizes health and welfare. Authorizes the establishment of Federal noise emissions standards and provides relevant information to the public.
Occupational Safety and Health Act of 1970, 29 U.S.C. 651–678	Establishes standards to protect workers, including standards on industrial safety, noise, and health standards.
Resource Conservation and Recovery Act, 42 U.S.C. 6901–6992k	Establishes requirements for safely managing and disposing of solid and hazardous waste and underground storage tanks.
Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, July 14, 1982, 47 FR 30959 (6/16/82), as supplemented	Requires Federal agencies to consult with state and local governments when proposed Federal financial assistance or direct Federal development impacts interstate metropolitan urban centers or other interstate areas.
EO 12898, *Environmental Justice,* February 11, 1994, 59 FR 7629 (2/16/94), as amended	Requires certain Federal agencies, to the greatest extent practicable permitted by law, to make environmental justice part of their missions by identifying and addressing disproportionately high and adverse health or environmental effects on minority and low-income populations.

Table of Applicable Laws and Executive Orders [1] (continued)

Title, Citation	Summary
EO 13148, *Greening the Government Through Leadership in Environmental Management*, April 21, 2000, 65 FR 24595 (4/26/00)	Designates the head of each Federal agency to ensure that all necessary actions are taken to integrate environmental accountability into agency day-to-day decision making and long-term planning processes, across all agency missions, activities, and functions. Establishes goals for environmental management, environmental compliance, right-to-know (informing the public and their workers of possible sources of pollution resulting from facility operations) and pollution prevention, and similar matters.
EO 13175*, Consultation and Coordination with Indian Tribal Governments,* November 6, 2000, 65 FR 67249 (11/09/00)	Requires Federal agencies to establish an accountable process that ensures meaningful and timely input from tribal officials in developing policies that have tribal implications.
EO 13186*, Responsibilities of Federal Agencies to Protect Migratory Birds,* January 10, 2001, 66 FR 3853 (1/17/01)	Requires each agency to ensure that environmental analyses of Federal actions (required by the National Environmental Policy Act or other established environmental review processes) evaluate the effects of actions and agency plans on migratory birds, emphasizing species of concern. Agencies must support the conservation intent of migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities, and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.
EO 11593, *Protection and Enhancement of the Cultural Environment*, May 13, 1971, 36 FR 8921 (5/15/71)	Requires all Federal agencies to locate, identify, and record all cultural resources, including significant archeological, historical, or architectural sites.

Note: [1] This table only reflects those laws and EOs that might reasonably be expected to apply to the Proposed Action and alternatives.

Other laws and Executive Orders relevant to consideration of the construction, maintenance, and operation of tactical infrastructure include, but are not limited to:

- American Indian Religious Freedom Act, 42 U.S.C. 1996, et seq.
- Antiquities Act, 16 U.S.C. 433, et seq.; Archeological Resources Protection Act, 16 U.S.C. 470 aa-ll, et seq.
- Architectural Barriers Act, 42 U.S.C. 4151, et seq.

- Community Environmental Response Facilitation Act, 42 U.S.C. 9620, et seq.
- Department of Transportation Act, P.L. 89-670, 49 U.S.C. 303, Section 4(f), et seq.
- Emergency Planning and Community Right-to-Know Act, 42 U.S.C. 11001–11050, et seq.
- Environmental Quality Improvement Act, P.L. 98-581, 42 U.S.C. 4371, et seq.
- Farmlands Protection Policy Act, P.L. 97-98, 7 U.S.C. 4201, et seq.
- Federal Insecticide, Fungicide, and Rodenticide Act, P.L. 86-139, 7 U.S.C. 135, et seq.
- Federal Records Act, 44 U.S.C. 2101-3324, et seq.
- Fish and Wildlife Act of 1956, P.L. 85-888, 16 U.S.C. 742, et seq.
- Flood Disaster Protection Act, 42 U.S.C. 4001, et seq.
- Native American Graves Protection and Repatriation Act, 25 U.S.C. 3001, et seq.
- Otay Mountain Wilderness Act of 1999. P.L.106-145
- Pollution Prevention Act of 1990, 42 U.S.C. 13101-13109, et seq.
- Safe Drinking Water Act, P.L. 93-523, 42, U.S.C. 201, et seq.
- Toxic Substances Control Act, 7 U.S.C. 136, et seq.
- Wild and Scenic Rivers Act, P.L. 90-542, 16 U.S.C. 1271, et seq.
- Wilderness Act of 1964. P.L. 88-577
- EO 12114, dated January 9, 1979, *Environmental Effects Abroad of Major Federal Actions*, 44 FR 1957
- EO 12088, dated October 13, 1978, *Federal Compliance with Pollution Control Standards*, 43 FR 47707, as amended by EO 12580, dated January 23, 1987, and revoked (in part) by EO 13148, dated April 21, 2000
- EO 13132, dated August 4, 1999, *Federalism*, 64 FR 43255
- EO 11988, dated May 24, 1977, *Floodplain Management and Protection*, 42 FR 26951, as amended by EO 12148, dated July 20, 1979, 44 FR 43239
- EO 13007, dated May 24, 1996, *Historic Sites Act*, 16 U.S.C. 46, et seq.; Indian Sacred Sites, 61 FR 26771

- EO 12372, dated July 14, 1982, *Intergovernmental Review of Federal Programs*, 47 FR 30959, as amended by EO 12416, April 8, 1983, 48 FR 15587; supplemented by EO 13132, August 4, 1999, 64 FR 43255
- EO 13112, dated February 3, 1999, *Invasive Species*, 64 FR 6183, as amended by EO 13286, February 28, 2003, 68 FR 10619
- EO 11514, dated March 5, 1970, *Protection and Enhancement of Environmental Quality*, 35 FR 4247, as amended by EO 11541, July 1,1970, 35 FR 10737 and EO 11991, May 24, 1977, 42 FR 26967
- EO 13045, dated April 21, 1997, *Protection of Children from Environmental Health and Safety Risks*, 62 FR 19885, as amended by EO 13229, October 9, 2001, 66 FR 52013 and EO 13296, April 18, 2003, 68 FR 19931
- EO 11990, dated May 24, 1977, *Protection of Wetlands*, 42 FR 26961, as amended by EO 12608, September 9, 1987, 52 FR 34617

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APPENDIX C

Draft Scoping Summary Report

SCOPING REPORT

FOR THE

SAN DIEGO SECTOR PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE ENVIRONMENTAL IMPACT STATEMENT

Prepared for:

U.S. Customs and Border Patrol

Prepared by:

OCTOBER 2007

SCOPING REPORT
SAN DIEGO SECTOR TACTICAL INFRASTRUCTURE EIS

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APPENDICES

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1. INTRODUCTION

This report documents comments and recommendations gathered from the public scoping and other outreach activities conducted by the U.S. Customs and Border Protection (CBP) on the San Diego Sector Proposed Construction, Operation, and Maintenance of Tactical Infrastructure Environmental Impact Statement (EIS).

CBP proposes to construct, operate, and maintain approximately 4 miles of tactical infrastructure. Proposed tactical infrastructure would consist of pedestrian fence, patrol roads, and access roads in two sections along the U.S./Mexico international border in San Diego County, California. The first section would be approximately 3.6 miles in length and would start at the Puebla Tree and end at boundary monument 250. The proposed section would be on and adjacent to the Otay Mountain Wilderness (OMW), would follow the Pak Trail, and would not connect to any existing fence. The OMW is on public lands administered by the Bureau of Land Management (BLM). The second section would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate, Mexico. This fence section is an extension of existing fence up Tecate Peak and would pass through a riparian area. Some portions of the fence sections would be on multiple privately owned land parcels.

The EIS process will serve as a planning tool to assist agencies with decisionmaking authority associated with the Proposed Action and ensure that the required public involvement under the National Environmental Policy Act (NEPA) is accomplished. When completed, the EIS will present potential environmental impacts associated with the Proposed Action and alternatives and provide information to assist in the decisionmaking process about whether and how to implement the Proposed Action.

2. THE NEPA PROCESS AND THE EIS

NEPA requires Federal agencies to evaluate the potential environmental impacts of proposed projects and policies. The primary goal of NEPA is to provide sufficient information for the decisionmakers to make an informed decision. During the NEPA process, agencies consider issues ranging from air quality and biological impacts on cultural resources and socioeconomic impacts. CBP has determined that the most appropriate NEPA process for the San Diego Sector Tactical Infrastructure is an EIS, which is the most detailed analysis prescribed by the Council on Environmental Quality (CEQ). Public involvement is a vital component of the NEPA for vesting the public in the decisionmaking process and allowing for full environmental disclosure. Guidance for implementing public involvement is codified in Title 40 Code of Federal Regulations (CFR) 1506.6, thereby ensuring that Federal agencies make a diligent effort to involve the public in preparing NEPA documents. The public involvement process for this proposed project is outlined in the following steps:

- ***Conduct Public Scoping.*** In this phase of the process, CBP asked the public to provide feedback on the proposed project, potential environmental impacts, and analysis methods. Public scoping is critical for determining the issues to be discussed in the EIS and the methods for conducting the study. Outreach efforts included a Notice of Intent (NOI) to prepare an EIS in the *Federal Register* (**Appendix A**) and announcements of the public scoping process in local newspapers in English and Spanish (**Appendix B**). A Web site (*www.BorderFenceNEPA.com*) was established and information on the Proposed Action was posted on the Web site (**Appendix C**). Information on providing comments was discussed, and links to submit comments from the Web site were also provided.
- ***Prepare a Draft EIS (DEIS)***. The DEIS is the first version of the formal document. The DEIS will be distributed to the public libraries throughout the affected area; Federal, state, regional, and local agencies; private citizens; and local organizations. CBP will hold a public meeting to provide citizens an opportunity to make formal oral and written comments concerning the DEIS. Outreach efforts will include a Notice of Availability (NOA) of the DEIS and announcement of a public open house in the *Federal Register* and local newspapers. At the public open house, resource experts will be present to answer questions and the public will have an opportunity to enter comments and concerns into the official record.
- ***Prepare a Final EIS (FEIS)***. After the close of the comment period on the DEIS, CBP will prepare the FEIS to document the manner in which comments have been resolved. An NOA of the FEIS will appear in the *Federal Register* and local papers. The public will have 30 days to comment on the FEIS.

- ***Prepare a Record of Decision.*** A Record of Decision (ROD) will be prepared to document the final agency decision on the Proposed Action. Notice of the ROD will be made available on the Web site.

3. PUBLIC INVOLVEMENT PROCESS

CBP invited comments from the public to help determine the scope of the EIS by publishing an NOI in the *Federal Register* (72 FR 184) on September 24, 2007. The NOI provided background information on the Proposed Action, the EIS, a description of the scoping process, and a discussion of alternative methods for the public to provide comments. A copy of the NOI is included in **Appendix A** of this Scoping Report.

Announcements were published in newspapers in the San Diego area to announce the development of the EIS. Announcements were placed in two English language newspapers; the *San Diego Union-Tribune* and the *San Diego Daily Transcript*, and in two Spanish language newspapers; *Hispanos Unidos* and *La Prensa San Diego*.

A Web site was developed at *www.BorderFenceNEPA.com* to provide information to the public on the Proposed Action. Information posted on the Web site includes a description of the Proposed Action, a map of the locations of the tactical infrastructure, a picture of the type of fence proposed, and information on the NEPA process and opportunities for public involvement. A description of the ways to submit comments on the scope of the EIS is also included (via the Web site, email, fax, or mail). A link from the Web site to submit comments is provided to facilitate comments from individuals reviewing information on the Web site.

Public scoping comments were accepted through October 15, 2007. Comments were reviewed for incorporation into the DEIS. Comments will continue to be accepted throughout the EIS environmental planning period, but comments received after October 15, 2007, will be evaluated following the publication of the DEIS.

The Public Scoping Period represents only the first of multiple opportunities for public comment. USBP current plans include a 45-day public comment period once the DEIS is released. During this time, CBP also plans to hold a public information meeting on the DEIS. Comments on the DEIS will contribute to the FEIS. In addition, there will be a 30-day public comment period once the FEIS is released. Comments on the FEIS will contribute to the Record of Decision.

As each of these documents is released for public comment, a Notice of Availability will be published in the *Federal Register* and local newspapers.

4. PUBLIC SCOPING RESULTS

4.1 ISSUES AND CONCERNS

Comments were received from 3,503 private individuals during the scoping period. In addition, letters were received from the U.S. Environmental Protection Agency, Region 9 and the International Boundary and Water Commission (**Appendix D**). A letter was also received from the nongovernmental organization, Defenders of Wildlife. **Table 4-1** summarizes the comments received during the public scoping period.

Table 4-1. Summary of Comments During the San Diego Tactical Infrastructure Scoping Comment Period

Comment Type	Summary of Concerns Raised in Scoping Comments
Alternatives suggested	• Continuous fence along entire US/Mexico border (double or triple layer) • Enforce immigration laws better • Armed forces along the entire border • Improve law enforcement options: immigration/deportation • Change/alter laws (do not allow a child born to an illegal to obtain citizenship) • Stronger enforcement and harsher penalties for employers that hire illegal immigrants, harsher penalties to illegal border crossers • Build “bridges of compassion and understanding” and stronger enforcement and harsher penalties for employers that hire illegal immigrants • More USBP agents, hi-tech patrolling, and guard dogs in lieu of fence • Use numerous contractors to build fence along entire border and give incentives for finishing early • Solid fence (this would give the appearance to the illegal border crossers that the “grass is not greener on the other side”) • Manned towers and electronic surveillance instead of fence • Use salvaged land mines along border instead of fence • Detain illegal crossers and set up prison camp along border and using detained persons for building the fence • Vehicle barriers instead of fence • Sterilize mothers of anchor babies • See through plastic fence

Comment Type	Summary of Concerns Raised in Scoping Comments
Changes to fence design	• Machine gun nests on fence every few miles • Water cannons on top of fence controlled from "Command Center" • Include razor wire on top of fence to prevent scaling, or some type of spikes to prevent use of rope, razor wire should extend 30–40 feet from base of fence • Electrified fence • Fence with surveillance (e.g., camera/video, sensors, lasers, and underground sensors) • Replace all run-down existing fences in addition to building a double layer fence for entire border • Fence should be made of noncorrosive material and a minimum 3-foot-deep concrete foundation • Include a mine field along the fence and manned gun turrets every 300 yards or include mines between a double layered fence • Minimum design criteria should include that the materials be low maintenance (core 10 steel and salt/air resistant) and modular (easy to replace/repair) • Height of fence should be 50 feet above ground and extend 25 feet below ground. • Fence should duplicate the Israelis • Fence should include small openings for animals • Needs to have a technology to detect tampering • Aesthetics should not be considered, just effectiveness • Fence should be equipped with a system to alert of trespassers • Fence should be constructed of concrete and at least 30–50 feet high • Double layer fence should have ditch, trench, or concrete blockers to stop all traffic • Use unmanned aerial vehicles with 30-caliber gatling guns and FLIR (forward looking infrared radar), or unmanned aerial surveillance • The fence should have a net at the top to catch anyone trying to jump/climb over • Fence should have sensors to detect those that try to tunnel underneath • A moat should supplement the fence • Eliminate surfaces on the fence that will allow people to jump over the fence

Comment Type	Summary of Concerns Raised in Scoping Comments
EIS Process	• EIS should be waived • EIS should also consider the negative impact the illegal immigrants create when crossing the border • Need to explain DHS's process for bypassing environmental laws and regulations and whether there is an intention to do so for this project • USBP's future plans to build additional border walls should be evaluated to avoid segmenting the entire project's effects • Effectiveness of other border projects needs to be evaluated • A clear statement of purpose and need should be included • Cumulative impacts should focus on resources of concern and clearly identify the resources analyzed, the resources not analyzed, and why • The environmental baseline should be assessed prior to recent, intensive development in the area
Other/Questions raised	• What will stop people from tunneling underneath the fence? • Who watches the areas that have a natural flow of water? • Why don't we have to the same on the Canada border? • Communicate and work with many environmental orgs and security companies to determine the best implementation of the fence • Companies which have won the construction bid should be penalized if they are unable to meet design criteria or schedule • ID verification in welfare offices, schools, or any taxpayer funded service – we need a national fraud proof ID • Will other sections of the fence be repaired that currently have damage (e.g., Yuma Sector) • Need to revise laws for existing illegal aliens to revoke privileges and rights given to immigrants • Fence should not change historic surface runoff characteristics at international border • Should not preclude the access of U.S. IBWC maintenance personnel
Geology and Soils	• Impact from illegal border crossers: Erosion of areas with elevation due to the frequent paths carved into the hill

Comment Type	Summary of Concerns Raised in Scoping Comments
Water Resources	• EIS should discuss original (natural) drainage patterns and should identify whether any components are within the 50- or 100-year floodplain • Changes to existing drainage patterns should be evaluated • Should meet the requirements of CWA Section 402 • Work with the USACE to see if a 404 permit under CWA is needed
Biological Resources	• Impact from illegal border crossers: Frequent burning of sensitive areas affecting plants and wildlife, trampling (foot and vehicular) of protected plant and small animal species • Impact from illegal border crossers: Destruction of cacti (made by Native American 2594) • If needed, build another reserve to transplant fauna and flora affected by fence • Efforts be undertaken to examine potential impacts on the endangered Quino Checkerspot Butterfly and other threatened and endangered species • Prepare an inventory of present wildlife so that the fence design can consider modes of transport and whether or not the fence would obstruct every inventoried species' mode of transport • Follow EO 13112 regarding invasive species • Impact of borders and fences on animal movements and migrations. • Include analysis of nocturnal species movements and patterns from lighting.
Cultural Resources	• Follow EO 13175, 13007 • Describe process and outcome of government to government consultation between the U.S. and USBP and each of the tribal governments

Comment Type	Summary of Concerns Raised in Scoping Comments
Air Quality	• San Diego County is currently in nonattainment for the 8-hour ozone NAAQS • Discussion of ambient air conditions (baseline or existing conditions), NAAQS, criteria pollutant nonattainment areas, and potential air quality impacts of the project (direct and cumulative) • Should include analysis of construction-related emissions • The EIS should address the applicability of Clean Air Act Section 176 and USEPA's general conformity regulations at 40 CFR Parts 51 and 93 • Mitigation measures could include reducing DPM and other pollutants with particle traps, using specialized catalytic converters (oxidation catalysts), properly tune diesel equipment, prohibit engine tampering to increase horsepower, distance certain equipment away from residences, require low sulfur diesel, using newer equipment, adopt a construction emissions mitigation plan
Aesthetics and Visual Resources	• Impact from illegal border crossers: Dumping of trash, feces, and urine
Hazardous Materials and Wastes	• Impacts from illegal border crossers: Leakage of hazardous materials such as antifreeze, engine oil, transmission fluid from vehicles (owned by illegal border crossers) lacking proper maintenance to prevent the discharge into environmentally sensitive areas
Socioeconomics and Environmental Justice	• Impacts on the OMW should be evaluated

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5. NEXT STEPS

CBP is working with resource agencies and stakeholders to prepare a DEIS for review. The DEIS will incorporate those issues discussed during the public comment period.

Following the publication of the NOA in the *Federal Register* for the DEIS, there will be a 45-day comment period and a public meeting. The public meeting will allow the general public to interface with resource agencies and other stakeholder groups. Comments pertaining to the DEIS during that time will be reviewed and incorporated into the FEIS.

A final 30-day comment period will follow the *Federal Register* publication of the NOA for the FEIS. Public comments during this time will be considered by CBP along with final comments by resource agencies. Following the public comment period, CBP decisionmakers will review all materials applicable to the Proposed Action and prepare a ROD. **Table 5-1** outlines the three phases of the EIS process that involve public participation.

Table 5-1. Public Input Process for the San Diego Tactical Infrastructure EIS

Phase I ⇒	**Phase II ⇒**	**Phase III ⇒**	**Final**
Notice of Intent for an EIS	Notice of Availability of the DEIS	Notice of Availability of the FEIS	**Record of Decision**
↓	↓	↓	
Public Scoping Comments	Public Meetings	Public Comments	
↓	↓	↓	
20-day Comment Period	45-day Public Comment Period	30-day Public Comment Period	

SCOPING REPORT
APPENDIX A

NOTICE OF INTENT

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DEPARTMENT OF HOMELAND SECURITY

Bureau of Customs and Border Protection

Notice of Intent To Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol San Diego Sector

AGENCY: U.S. Customs and Border Protection, Department of Homeland Security.

ACTION: Notice of Intent to Prepare an Environmental Impact Statement and Request for Public Comments.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.* (NEPA), U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate approximately four miles of tactical infrastructure and supporting patrol roads along the U.S./Mexico international border south of and adjacent to Otay Mountain Wilderness area in San Diego County, California (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in this high priority section of the Office of Border Patrol's (OBP's) San Diego Sector. CBP is the decision-making agency for this Proposed Action.

Notice is hereby given that the public scoping process has been initiated to prepare an EIS that will address the impacts and alternatives of the Proposed Action. The purpose of the scoping process is to solicit public comment regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS.

FOR FURTHER INFORMATION CONTACT: Visit *http://www.BorderFenceNEPA.com* or e-mail: *information@BorderFenceNEPA.com*. Written requests for information may be submitted to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102; Phone: (817) 886–1585; and Fax: (817) 886–6404.

Background: An EIS is being prepared in support of a proposal by OBP's San Diego Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. To assist Border Patrol officers, OBP is proposing to install and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, lights, and other infrastructure along approximately four miles of the U.S./Mexico international border within OBP's San Diego Sector.

In order to secure the nation's borders, CBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel. In some locations, fencing is a critical element of border security. OBP has identified this area of the border as a location where fence would significantly contribute to CBP's priority mission homeland security. As a part of this Proposed Action, two segments of fence are proposed for construction.

One segment is approximately 3.4 miles long and would start at the Pueblo Tree and end at boundary monument 250. The proposed segment would be adjacent to and south of the Otay Mountain Wilderness; would follow the Pack Truck Trail; and would not connect to any existing fence. The Otay Mountain Wilderness is on public lands administered by the Bureau of Land Management (BLM), U.S. Department of the Interior in San Diego County, California. The wilderness boundary is at least 100 feet from the U.S./Mexico border, and the proposed fence would occur in this corridor between the U.S./Mexico border and the wilderness boundary. However, due to steep topography, a portion of road or other tactical infrastructure might encroach into the wilderness area.

The second segment would be approximately 0.6 miles long and would connect with existing border fence west of Tecate. This fence segment is an extension of existing fence up Tecate Peak and would pass through a riparian area. This proposed fence segment would be on privately owned land.

Potential alternatives for environmental impacts analysis will consider location, construction, and operation of tactical infrastructure. Potential alternatives must meet the need to gain effective control of our nation's borders, as well as essential technical, engineering, and economic threshold requirements to ensure that the Proposed Action is environmentally sound, economically viable, and meets all applicable laws and regulations.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (*Environmental Planning Program*).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the proposed action which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (which now falls under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF–6). The *Programmatic EIS for JTF–6 Activities Along the U.S./Mexico Border*, August 1994, and its supplementing document, *Supplemental Programmatic EIS for INS and JTF–6 Activities*, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF–6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office Web site, at *https://ecso.swf.usace.army.mil/*, by sending an e-mail to *charles.mcgregor@swf02.usace.army.mil;* or by mailing a request to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Public Participation: Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate.

Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the proposed action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

You may submit comments to CBP by contacting the SBInet, Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) Electronically through the Web site at: *http://www.BorderFenceNEPA.com;*

(b) By e-mail to: *SDcomments@BorderFenceNEPA.com;*

(c) By mail to: San Diego Tactical Infrastructure EIS, c/o e²M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) By fax to: (757) 257–7643.

Comments and related material must reach CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as for the San Diego Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

This scoping period is not the only opportunity you will have to comment. A draft EIS will be prepared, and prior to the development of a final EIS, CBP will release the draft EIS for public review. At that time, a Notice of Availability (NOA) will be published in the **Federal Register**, the *San Diego Union Tribune*, and the *San Diego Daily Transcript*. The NOA will announce the availability of the draft EIS, how to obtain a copy, and the dates, times, and places of any associated public informational meetings.

Dated: September 19, 2007.

Eugene H. Schied,

Assistant Commissioner, Office of Finance.

[FR Doc. E7–18830 Filed 9–21–07; 8:45 am]

BILLING CODE 9111–14–P

SCOPING REPORT
APPENDIX B

NEWSPAPER ADS

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San Diego Union-Tribune, 9/24/07

Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol San Diego Sector

Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq., (NEPA), U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate approximately four miles of tactical infrastructure and supporting patrol roads along the U.S./Mexico international border south of and adjacent to Otay Mountain Wilderness area in San Diego County, California (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in this high priority section of the Office of Border Patrol's (OBP's) San Diego Sector.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (Environmental Planning Program).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the Proposed Action, which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (INS) (which now fall under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF-6). The Programmatic EIS for JTF-6 Activities Along the U.S./Mexico Border, August 1994, and its supplementing document, Supplemental Programmatic EIS for INS and JTF-6 Activities, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF-6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office website, at *https://ecso.swf.usace.army.mil*; by sending an email request to *charles.mcgregor@swf02.usace.army.mil*; or by mailing a request to Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate. Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the Proposed Action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

(a) Electronically through the web site at www.BorderFenceNEPA.com;

(b) By email to SDcomments@BorderFenceNEPA.com;

(c) By mail to: San Diego Tactical Infrastructure EIS, c/o e^{2}M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) By fax to 757-257-7643.

Comments and related material must reach CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as for the San Diego Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

San Diego Daily Transcript, 09/24/07

CERTIFICATE OF PUBLICATION

Lauri Watson
Engineering-enviornmental Management, Inc. (e2M)
2751 Prosperity Ave. Suite 200
Fairfax VA 22031

IN THE MATTER OF

Enviornment Impact Statement

CASE NO.

Notice of Intent to Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol San Diego Sector

Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq., (NEPA) U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate approximately four miles of tactical infrastructure and supporting patrol roads along the U.S./Mexico international border south of and adjacent to Otay Mountain Wilderness area in San Diego County, California (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in this high priority section of the Office of Border Patrol's (OBP's) San Diego Sector.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500-1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (Environmental Planning Program).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the Proposed Action, which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (INS) (which now fall under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF-6). The Programmatic EIS for JTF-6 Activities Along the U.S./Mexico Border, August 1994, and its supplementing document, Supplemental Programmatic EIS for INS and JTF-6 Activities, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF-6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office website, at https://ecso.swf.usace.army.mil by sending an email request to charles.mcgregor@swf02.usace.army.mil, or by mailing a request to Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate. Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the Proposed Action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

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2751 Prosperity Avenue, Suite 200
Fairfax, Virginia 22031
(d) By fax to 757-257-7643.

Comments and related material must reach CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as for the San Diego Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

Pub. Sep 24-00030674

I, Cathy L. Krueger, am a citizen of the United States and a resident of the county aforesaid; I am over the age of eighteen years, and not party to or interested in the above entitled matter. I am the principal clerk of the San Diego Transcript, a newspaper of general circulation, printed and published daily, except on Saturdays and Sundays, in the City of San Diego, County of San Diego and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Diego, State of California, under the date of January 23, 1909, Decree No. 14894; and the

Notice of Intent

is a true and correct copy of which the annexed is a printed copy and was published in said newspaper on the following date(s), to wit:

September 24

I certify under penalty of perjury that the forgoing is true and correct.

Dated at San Diego, California this September 24, 2007

Cathy L. Krueger
Signature

Hispanos Unidos, 09/28/07

Aviso de Intento a Preparar un Aviso sobre el Ambiente (EIS por sus siglas en inglés) y Petición para Comentarios Públicos Concernientes a la Construcción Propuesta y Operación de Infraestructura Táctica para la Protección de la Frontera y la Aduana de los Estados Unidos Oficina del Sector de San Diego para la Patrulla Fronteriza

De acuerdo a la Regla Nacional Ambiental del Acto de 1969, 42 U.S.C. 4321 et seq., (NEPA, por sus siglas en inglés), la Aduana de los Estados Unidos y Protección de la Frontera (CBP, por sus siglas en inglés) preparará un Aviso de Impacto al Ambiente (EIS) para identificar y asistir en los impactos potenciales asociados con la propuesta para construir y operar aproximadamente cuatro millas de infraestructura táctica y apoyo a las carreteras de patrullas a lo largo de la frontera internacional de México/Estados Unidos al sur del área adyacente de las Montañas de Otay en el Condado de San Diego, California (la Acción Propuesta). El propósito de la Acción Propuesta es el implementar la habilidad de CBP para incrementar control efectivo para la frontera y detener el acceso a peatones y otros en su sección de alta prioridad en la Oficina de la Patrulla Fronteriza (OBP, por sus siglas en inglés) del Sector de San Diego.

El EIS irá de acuerdo con las Reglas Nacionales del Ambiente para el acto de 1969 (NEPA, por sus siglas en inglés), el Concejo para Regular la Calidad del Ambiente en 40 partes CFR 1500-1508, y el Departamento de Seguridad Nacional (DHS, por sus siglas en inglés) en Manejo de la Directiva 5100.1 (Programa de Planeación Ambiental).

En Consistencia con la 40 CFR 1508.28, el EIS analizará el sitio específico para los impactos ambientales de la Acción Propuesta, que han sido ampliamente descritas en dos programaciones previas de EIS preparadas por la antigua agencia del Servicio de Inmigración y Naturalización de los Estados Unidos (INS, por sus siglas en Inglés) (que ahora caen bajo responsabilidad de CBP), Departamento de Defensa, y la Fuerza Unida de Acción 6 (JTF-6, por sus siglas en Inglés). El programado EIS para las actividades de JTF-6 a lo Largo de la Frontera de México/Estados Unidos, en agosto de 1994, y su documento suplementario, Programa Suplementario EIS para actividades de INS y JFT-6, Junio del 2001, fueron preparados para asistir los efectos acumulativos de proyectos pasados previstos llevados a cabo por JTF-6 para numerosas agencias para ejercer la ley entre los cuatro estados (California, Arizona, Nuevo México y Texas). Estos documentos pueden ser obtenidos por parte de los Ingenieros de las Fuerzas Armadas de Los Estados Unidos, el Distrito de 'Forth Worth', Ingeniería en Construcción y Oficina de Apoyo por medio de su página de Internet en: https://ecso.swf.usace.army.mil; o enviando un correo electrónico a charles.mcgregor@swf02.usace.army.mil; o por correspondencia escrita a 'Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102'.

De acuerdo al Concejo de regulaciones de Calidad Ambiental, CBP invita al público a la participación en el proceso de NEPA. Este aviso requiere la participación del público en el proceso de análisis, establece un periodo de comentario público, provée información en cómo participar. El Análisis público en un proceso abierto para determinar la visualización de EIS e identificar los temas significativos relacionados a la Acción Propuesta. Cualquiera que desée proveer comentarios, sugerencias, o información relevante en la Acción Propuesta que pueden ser de la siguiente manera:

(a) Electrónicamente por medio de la página de Internet en: www.BorderFenceNEPA.com;
(b) Por correo electrónico a SDcomments@BorderFenceNEPA.com;
(c) Por correo a: San Diego Tactical Infrastructure EIS, c/o e2M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; o también
(d) Por fax al 757-257-7643.

Comentarios y material relacionado debe llegar a CBP antes del 15 de octubre del 2007. CBP considerará todos los comentarios y material recibido durante el periodo de comentarios de NOI. Si usted envía un comentario, favor de incluir su nombre y dirección, e identifique sus comentarios como parte del Sector de San Diego EIS. Comentarios recibidos después del 15 de octubre del 2007 recibirán respuesta después de la publicación del borrador de EIS.

Published in Hispanos Unidos Newspaper on 09/28/2007

La Prensa, 09/28/07

La Prensa San Diego September 28, 2007

NOTICIA DE INTENTO PARA PREPARAR UNA DECLARACION DE IMPACTO AMBIENTAL (EIS) Y SOLICITAR COMENTARIOS PUBLICOS REFERENTE A PROPUESTA DE CONSTRUCCION Y OPERACION DE LA INFRAESTRUCTURA TACTICA PARA LA ADUANA DE EE.UU. YPROTECCION DE LA FRONTERA, LA OFICINA DE LA PATRULLA FRONTERIZA SECTOR SAN DIEGO

De conformidad al Acto de la Politica del Ambiente Nacional de 1969, 42 U.S.C. 4321 et seq. (NEPA) Aduanas EE.UU. y Protección de la Frontera (CBP) prepararán una Declaración de Impacto Ambiental (EIS) para identificar y evaluar los impactos potenciales con la propuesta de construir y operar aproximadamente cuatro millas de infraestructura tactica y apoyar caminos de patrullaje por la frontera sur internacional EE.UU./México y adyacente al área Paramo Montañoso de Otay en el Condado de San Diego, California (la Acción Propuesta). El propósito de la Acción Propuesta es para promover la habilidad de CBP para obtener control efectivo de la frontera con el fin de negar el acceso a los peatones y otros en esta sección altamente prioritaria de la Oficina de la Patrulla Fronteriza (OBP's) Sector San Diego.

El EIS accederá con el Acto de la Política del Ambiente Nacional de 1969 (NEPA), las regulaciones del Consejo en Calidad Ambiental en 40 CRF Partes 1500-1508, y el Departamento de Seguridad Nacional (DHS) Directiva Administrativa 5100/1 (Programa de Planeación Ambiental).

Consistente con 40 CFR 1508.28, el EIS analizará los impactos del ambiente del sitio especifico y la Acción Propuesta, los cuales fueron descritos en términos generales en dos anteriores programaticos EIS preparados por el anterior Servicio de Inmigración de EE.UU. y Naturalización (INS) (el cual ahora está bajo la responsabilidad del CBP), Departamento de Defensa, y la Fuerza Operativa 6 (JTF-6). La Programatica EIS para JTF-6 Actividades a lo largo de la Frontera EE.UU./México, Agosto 1994, y su documento suplementario, Programático Suplementario EIS para INS y Actividades JTF-6. Junio 2001, fueron preparados para abocar los efectos cumulativos del pasado y proyectos razonablemente previsibles asumidos por JTF-6 por varias agencias de seguridad dentro de los cuatro estados suroestes (California, Arizona, Nuevo México y Texas). Estos documentos pueden ser obtenidos de la página cibernética del U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction y Support Office en *https://llecso.swf.usace.army.mil.*; solicitando una petición por correo electrónico a *charles.mcgregor@swf02.usace.army.mil*; o mandando por correo una petición a Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St. Room 3A14, Fort Worth, Texas 76102.

De conformidad a las regulaciones del Consejo de Calidad del Ambiente, CBP invita la participación del público en el proceso de NEPA. Esta noticia solicita participación pública en el proceso de investigación, establece un periodo de comentarios públicos, y provee información en cómo participar. La investigación pública es un proceso abierto para determinar el alcance del EIS e identificar asuntos significativos relacionados con la Acción Propuesta. Cualquiera que desee proveer comentarios, sugerencias, o información relevante en la Acción Propuesta puede hacerlo en la siguiente forma:

(a) Electrónicamente a través de la página cibernética www.BorderFenceNEPA.com;
(b) Por correo electrónico a: SDcomments@BorderFenceNEPA.com
(c) Por correo a: San diego Tactical Infrastructure EIE, c/o e2M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; o
(d) Por fax a: 757-257-7643.

Comentarios y material relacionado debe llegar por Octubre 15, 2007. CBP considerará todos los comentarios y material recibido durante el periodo de comentarios NOI. Si usted manda un comentario, por favor incluya su nombre y dirección, e identifique su comentario hacia San Diego Sector EIS. Comentarios recibidos después de Octubre 15, 2007 recibirán respuestas siguiendo la publicación del borrador EIS.

Published: 9/28/07 La Prensa San Diego

SCOPING REPORT
APPENDIX C

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Border Fence NEPA

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Department of Homeland Security

Introduction

The U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol (USBP) is preparing Environmental Impact Statements (EISs) and Environmental Assessments (EAs) to identify and assess the potential environmental impacts associated with proposed construction, maintenance, and operation of tactical infrastructure along the U.S./Mexico international border (the Proposed Actions). The tactical infrastructure includes primary fence and patrol roads.

The purpose of the Proposed Actions is to further USBP's ability to gain effective control of our nation's borders by denying pedestrian and other access in sections of the USBP's Sectors. These sectors include Rio Grande Valley, TX (EIS), San Diego, CA (EIS), El Centro, CA (EA), Del Rio, TX (EA), and Marfa, TX (EA).

The EAs and EISs are being prepared pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 et seq., (NEPA); the Clean Air Act of 1970, as amended; the Clean Water Act of 1977, as amended; the National Historic Preservation Act of 1966; the Archaeological Resource Protection Act of 1979; various Executive Orders (EOs), and applicable Federal and state laws and regulations.

This site has been developed to facilitate public comment on the EAs and EISs and to provide information on how and where to submit comments.

FOR FURTHER INFORMATION CONTACT: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A28, Fort Worth, Texas 76102. Fax: (817) 886-6404.

Related Documents:

Final PEIS for JTF-6 Activities along the U.S./Mexico Border, August 1994

Final Supplemental PEIS for INS and JTF-6 Activities, June 2001

EIS for Operation Rio Grande, April 2004

Links:

What is NEPA?

Steps in the EIS Process

Resources and Issues Evaluated in an EIS

U.S. Department of Homeland Security (DHS)

DHS Management Directive on Environmental Planning Program

U.S. Customs and Border Protection, Border Patrol

U.S. Army Corps of Engineers-Fort Worth District Engineering Construction Support Office

Other USACE-Fort Worth District managed Border Patrol projects

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Border Fence NEPA was created by engineering-environmental Management, Inc.

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San Diego Sector EIS

Introduction

An Environmental Impact Statement (EIS) is being prepared in support of a proposal by U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol (USBP) San Diego Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. To assist USBP agents and officers in gaining effective control of our nation's borders, USBP is proposing to construct, maintain, and operate tactical infrastructure consisting of pedestrian fences, supporting patrol roads, and other infrastructure along approximately 5.6 miles of the U.S./Mexico international border within the USBP's San Diego Sector.

In order to secure the nation's borders, USBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel. In some locations, fence is a critical element of border security. USBP has identified this area of the border as a location where fence would significantly contribute to USBP's priority mission of homeland security. As a part of this Proposed Action, two segments of fence are proposed for construction.

Proposed Fence Segments for Border Patrol San Diego Sector

Map Number	Border Patrol Station	General Location	Land Ownership	Length of Fence Segment (miles)
A-1	Brown Field	Pak Truck Trail	Public: BLM managed	4.88
A-2	Brown Field	West of Tecate	Private	0.69
			Total	5.57

One segment would be approximately 4.9 miles long and would start at the Puebla Tree and end at boundary monument 250. The proposed segment would be adjacent to and south of the Otay Mountain Wilderness, would follow the Pak Truck Trail, and would not connect to any existing fence. The Otay Mountain Wilderness is on public lands administered by BLM. The wilderness boundary is at least 100 feet from the U.S./Mexico international border, and the proposed fence would occur in this corridor

between the U.S./Mexico international border and the wilderness boundary. However, due to steep topography, a portion of road or other tactical infrastructure might encroach into the wilderness area.

The second segment would be approximately 0.7 miles long and would connect with existing border fence west of Tecate Peak. This fence segment would extend up a portion of Tecate Peak and would pass through a riparian area. This proposed fence segment could encroach on privately owned land.

The EIS will evaluate potential environmental impacts from construction, maintenance, and operation of the proposed tactical infrastructure, consisting of:

- Tactical infrastructure includes installation of two primary fence (areas of the border that are not currently fenced) segments as listed in the table above and a single-lane unpaved patrol road.
- The proposed tactical infrastructure would impact an approximate 60 foot wide corridor along each fence segment. This corridor would include fences, access roads, patrol roads, and construction staging areas. Vegetation would be cleared and grading may occur where needed. The area temporarily impacted within the two segments (both route alternatives) would be approximately 41 acres. Wherever possible, existing roads would be used for construction access.
- Significant amounts of blasting activity, cut and fill operations, creation of at least two stationing areas, the construction of switchback roads, and general improvement to existing access roads would be required to construct the fence and an adjacent patrol road. Wherever possible, existing roads would be used for construction access.
- If approved, the final design would be developed by a design/build contractor overseen by the U.S. Army Corps of Engineers (USACE). However, design criteria that have been established based on USBP operational needs require that, at a minimum, any fencing must meet the following requirements:

    - 15 feet high and extend below ground
    - Capable of withstanding a crash of a 10,000-pound (gross weight) vehicle traveling at 40 miles per hour
    - Capable of withstanding vandalism, cutting, or various types of penetration
    - Semi-transparent, as dictated by operational need
    - Designed to survive extreme climate changes
    - Designed to reduce or minimize impacts on small animal movement
    - Not impede the natural flow of water
    - Aesthetically pleasing to the extent possible.

The USACE is working with public and private land owners to obtain easements or purchase the construction corridor. Where necessary, the Corps might purchase privately owned land for the fence, access roads, and patrol roads.

If approved, construction of the new Tactical Infrastructure would begin in Spring 2008 and continue through December 31, 2008.

General Locations of Tactical Infrastructure in San Diego Sector

See the complete Notice of Intent (NOI) published in the Federal Register.

Scoping and Public Comments

A public scoping process has been initiated for the San Diego Sector EIS. The purpose of the scoping

process is to solicit public comment regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS.

Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the Proposed Action as described above. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

You may submit comments to CBP by contacting SBInet, Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) Electronically through the website at: www.BorderFenceNEPA.com;
(b) By email to: SDcomments@BorderFenceNEPA.com;
(c) By mail to: San Diego Tactical Infrastructure EIS, c/o e^{2}M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or
(d) By fax to: (757) 257-7643.

Comments and related material must reach the CBP by **October 15, 2007**. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as for the San Diego Sector EIS. Comments received after **October 15, 2007** will receive responses following the publication of the draft EIS.

Click here to email your comments.

Examples of Proposed Fence

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SCOPING REPORT
APPENDIX D

AGENCY LETTERS

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

OCT 23 2007

Honorable H. Paul Cuero, Jr., Chairman
Campo Band of Kumeyaay Indians
36190 Church Road, Suite 1
Campo, California 91906

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Cuero:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable H. Paul Cuero, Jr.
Page 2

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

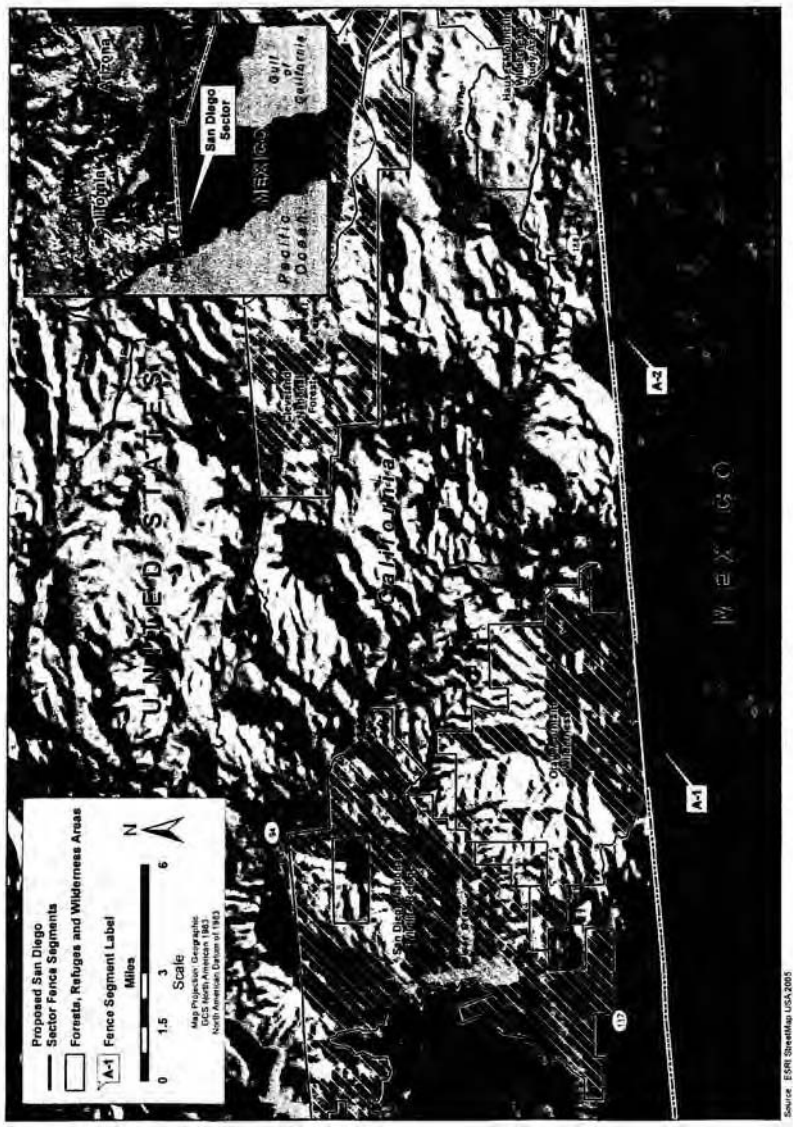
We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures


Proposed San Diego Sector Fence Segments
Forests, Refuges and Wilderness Areas
A-1 Fence Segment Label
Miles
0 1.5 3 6
Scale
N
Map Projection: Geographic
Horizontal Datum: NAD 1983
North American Datum of 1983
UNITED STATES
MEXICO
San Diego Sector
Arizona
Gulf of California
Pacific Ocean
A-1
A-2
Source: ESRI StreetMap USA 2005

You may submit comments to CBP by contacting the SBInet, Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) Electronically through the Web site at: *http://www.BorderFenceNEPA.com;*

(b) By e-mail to: *SDcomments@BorderFenceNEPA.com;*

(c) By mail to: San Diego Tactical Infrastructure EIS, c/o e²M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) By fax to: (757) 257–7643.

Comments and related material must reach CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as for the San Diego Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

This scoping period is not the only opportunity you will have to comment. A draft EIS will be prepared, and prior to the development of a final EIS, CBP will release the draft EIS for public review. At that time, a Notice of Availability (NOA) will be published in the **Federal Register**, the *San Diego Union Tribune*, and the *San Diego Daily Transcript*. The NOA will announce the availability of the draft EIS, how to obtain a copy, and the dates, times, and places of any associated public informational meetings.

Dated: September 19, 2007.

Eugene H. Schied,

Assistant Commissioner, Office of Finance.

[FR Doc. E7–18830 Filed 9–21–07; 8:45 am]

BILLING CODE 9111–14–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

Coastal Barrier Improvement Act of 1990; Amendments to the John H. Chafee Coastal Barrier Resources System

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of distribution and availability of replacement maps of eight of the John H. Chafee Coastal Barrier Resources System.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), have replaced maps of eight John H. Chafee Coastal Barrier Resources System units in North Carolina, Georgia, Florida, and Texas, as directed by Congress. We are using this notice to inform the public about the distribution and availability of the replacement maps.

DATES: The replacement map for Units T07/T07P became effective on December 1, 2003. The replacement maps for Unit NC–07P became effective on October 18, 2004. The replacement map for Units P25/P25P became effective on October 30, 2004. The replacement maps for Units FL–95P, FL–96, and GA–06P became effective on October 16, 2006.

ADDRESSES: For information about how to get copies of the maps or where to go to view them, see **SUPPLEMENTARY INFORMATION.**

FOR FURTHER INFORMATION CONTACT: Ms. Katie Niemi, Department of the Interior, U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, (703) 358–2161.

SUPPLEMENTARY INFORMATION:

Background

In 1982, Congress passed the Coastal Barrier Resources Act (Pub. L. 97–348) to restrict Federal spending that has the effect of encouraging development on undeveloped coastal barriers along the Atlantic and Gulf of Mexico coasts. In the Coastal Barrier Improvement Act of 1990 (Pub. L. 101–591), Congress amended the 1982 Act to broaden the definition of a coastal barrier, and approved a series of maps entitled "John H. Chafee Coastal Barrier Resources System" dated October 24, 1990. These maps identify and depict those coastal barriers located on the coasts of the Atlantic Ocean, Gulf of Mexico, Great Lakes, Virgin Islands, and Puerto Rico that are subject to the Federal funding limitations outlined in the Act.

The Act also defines Service responsibilities regarding the John H. Chafee Coastal Barrier Resources System maps. We have official custody of these maps and prepare and distribute copies. In the **Federal Register** on June 6, 1991 (56 FR 26304), we published a notice of the filing, distribution, and availability of the maps entitled "John H. Chafee Coastal Barrier Resources System" and dated October 24, 1990. We have announced all subsequent map revisions in the **Federal Register.**

Revisions to the John H. Chafee Coastal Barrier Resources System in Texas

Public Law 108–138, enacted on December 1, 2003, replaced one of the six maps relating to Matagorda Peninsula Units T07/T0P in Matagorda County, Texas, with a revised map entitled "John H. Chafee Coastal Barrier Resources System, Matagorda Peninsula Unit T07/T07P" for that area. The changes to the map ensure that the boundary of Unit T07 does not include property within the Matagorda Dunes Homesites Subdivision. A full complement of infrastructure was available to each lot within the subdivision prior to 1982, therefore meeting the Coastal Barrier Resources Act definition of "developed" at the time the subdivision was included within Unit T07 in 1982. Under the new map, 76 acres (23 fastland acres and 53 associated aquatic habitat acres) were removed from Unit T07, and 3 acres of associated aquatic habitat were added to Unit T07. Additionally, 80 acres were reclassified from Unit T07 to Unit T07P.

Revisions to the John H. Chafee Coastal Barrier Resources System in North Carolina

Public Law 108–339, enacted on October 18, 2004, replaced the two maps relating to Cape Fear Unit NC–07P in New Hanover and Brunswick Counties, North Carolina, with two revised maps entitled "John H. Chafee Coastal Barrier Resources System, Cape Fear Unit NC–07P." The changes to the maps ensure that the boundary of Unit NC–07P follows the exterior boundaries of lands held for conservation or recreation. Under the new maps, 273 acres (13 acres of fastland and 261 acres of associated aquatic habitat) were removed from Unit NC–07P, and 8,117 acres (2,714 acres of fastland and 5,403 acres of associated aquatic habitat) were added to Unit NC–07P.

Revisions to the John H. Chafee Coastal Barrier Resources System in Florida

Public Law 108–380, enacted on October 30, 2004, replaced one of the two maps relating to Cedar Keys Units P25/P25P in Levy County, Florida, with a revised map entitled "John H. Chafee Coastal Barrier Resources System, Cedar Keys Unit P25/P25P." The changes to the map clarify the boundaries of an excluded area on Cedar Key so that the Unit P25 boundary more precisely follows geomorphic features. Under the new map, 41 acres (32 fastland acres and 9 associated aquatic habitat acres) were removed from Unit P25, and 56 acres (1 acre of fastland and 55 acres of associated aquatic habitat) were added to Unit P25.

Public Law 109–355, enacted on October 16, 2006, replaced the map relating to Grayton Beach Unit FL–95P and Draper Lake Unit FL–96 in Walton County, Florida, with a revised map entitled "John H. Chafee Coastal Barrier Resources System, Grayton Beach Unit FL–95P Draper Lake Unit FL–96." The changes to the map ensure that the boundary of Unit FL–95P follows the exterior boundaries of Grayton Beach

review. At that time, a Notice of Availability (NOA) will be published in the **Federal Register**, the *Brownsville Herald* (Brownsville, Texas), and *The Monitor* (McAllen, Texas). The NOA will announce the availability of the draft EIS, how to obtain a copy, and the dates, times, and places of any associated public informational meetings.

Dated: September 19, 2007.

Eugene H. Schied,

Assistant Commissioner, Office of Finance.

[FR Doc. E7–18829 Filed 9–21–07; 8:45 am]

BILLING CODE 9111–14–P

DEPARTMENT OF HOMELAND SECURITY

Bureau of Customs and Border Protection

Notice of Intent To Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol San Diego Sector

AGENCY: U.S. Customs and Border Protection, Department of Homeland Security.

ACTION: Notice of Intent to Prepare an Environmental Impact Statement and Request for Public Comments.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.* (NEPA), U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate approximately four miles of tactical infrastructure and supporting patrol roads along the U.S./Mexico international border south of and adjacent to Otay Mountain Wilderness area in San Diego County, California (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in this high priority section of the Office of Border Patrol's (OBP's) San Diego Sector. CBP is the decision-making agency for this Proposed Action.

Notice is hereby given that the public scoping process has been initiated to prepare an EIS that will address the impacts and alternatives of the Proposed Action. The purpose of the scoping process is to solicit public comment regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS.

FOR FURTHER INFORMATION CONTACT: Visit *http://www.BorderFenceNEPA.com* or e-mail: *information@BorderFenceNEPA.com*. Written requests for information may be submitted to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102; Phone: (817) 886–1585; and Fax: (817) 886–6404.

Background: An EIS is being prepared in support of a proposal by OBP's San Diego Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. To assist Border Patrol officers, OBP is proposing to install and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, lights, and other infrastructure along approximately four miles of the U.S./Mexico international border within OBP's San Diego Sector.

In order to secure the nation's borders, CBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel. In some locations, fencing is a critical element of border security. OBP has identified this area of the border as a location where fence would significantly contribute to CBP's priority mission homeland security. As a part of this Proposed Action, two segments of fence are proposed for construction.

One segment is approximately 3.4 miles long and would start at the Puebla Tree and end at boundary monument 250. The proposed segment would be adjacent to and south of the Otay Mountain Wilderness; would follow the Pack Truck Trail; and would not connect to any existing fence. The Otay Mountain Wilderness is on public lands administered by the Bureau of Land Management (BLM), U.S. Department of the Interior in San Diego County, California. The wilderness boundary is at least 100 feet from the U.S./Mexico border, and the proposed fence would occur in this corridor between the U.S./Mexico border and the wilderness boundary. However, due to steep topography, a portion of road or other tactical infrastructure might encroach into the wilderness area.

The second segment would be approximately 0.6 miles long and would connect with existing border fence west of Tecate. This fence segment is an extension of existing fence up Tecate Peak and would pass through a riparian area. This proposed fence segment would be on privately owned land.

Potential alternatives for environmental impacts analysis will consider location, construction, and operation of tactical infrastructure. Potential alternatives must meet the need to gain effective control of our nation's borders, as well as essential technical, engineering, and economic threshold requirements to ensure that the Proposed Action is environmentally sound, economically viable, and meets all applicable laws and regulations.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (*Environmental Planning Program*).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the proposed action which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (which now falls under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF–6). The *Programmatic EIS for JTF–6 Activities Along the U.S./Mexico Border*, August 1994, and its supplementing document, *Supplemental Programmatic EIS for INS and JTF–6 Activities*, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF–6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office Web site, at *https://ecso.swf.usace.army.mil/*; by sending an e-mail to *charles.mcgregor@swf02.usace.army.mil*; or by mailing a request to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Public Participation: Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate.

Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the proposed action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 23 2007

Honorable Bobby L. Barrett, Chairman
Viejas Band of Mission Indians
P.O. Box 908
Alpine, California 91903

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Barrett:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Bobby L. Barrett
Page 2

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

OCT 2 0 2004

Honorable Leroy Elliott, Chairman
Manzanita Band of Mission Indians
P.O. Box 1302
Boulevard, California 91905

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Elliott:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Leroy Elliott
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Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

Honorable Johnny Hernandez, Spokesman
Santa Ysabel Band of Mission Indians
P.O. Box 130
Santa Ysabel, California 92070

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Hernandez:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Johnny Hernandez
Page 2

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Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

Honorable John James, Chairman
Cabazon Band of Mission Indians
84-245 Indio Springs Pkwy
Indio, California 92203

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. James:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable John James
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Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

Honorable Allen E. Lawson, Spokesman
San Pasqual Band of Mission Indians
27458 North Lake Wolford Rd., Level #3
Valley Center, CA 92082

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Lawson:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Allen E. Lawson
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Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

Honorable Howard Maxcy, Chairman
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, California 92070

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Maxcy:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Howard Maxcy
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We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Richard Milanovich, Chairperson
Agua Caliente Band of Cahuilla Indians
600 East Tahquitz Canyon Way
Palm Springs, CA 92262

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Milanovich:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Richard Milanovich
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Sincerely,

For R Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Gwendolyn Parada, Chairperson
La Posta Band of Mission Indians
1048 Crestwood Road
Boulevard, California 92905

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Ms. Parada:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Gwendolyn Parada
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Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

Honorable Harlan Pinto, Chairman
Cuyapaipe Band of Mission Indians
4054 Willows Road
Alpine, California 91903-2250

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Pinto:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

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Honorable Harlan Pinto
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Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

OCT 2 3 2007

Honorable Catherine Saubel, Spokeswoman
Los Coyotes Band of Mission Indians
2300 Camino San Ignacio
Warner Springs, California 92086

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Ms. Saubel:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

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Honorable Catherine Saubel
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Sincerely,

BZ For Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

OCT 2 3 2007

Honorable Rhonda Welch-Sealco, Chairwoman
Barona Band of Mission Indians
1095 Barona Road
Lakeside, CA 92040

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Ms. Welch-Sealco:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

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Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Rhonda Welch-Sealco
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Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

OCT 2 2 2007

Honorable Daniel J. Tucker, Chairman
Sycuan Band of Mission Indians
5459 Dehesa Road
El Cajon, CA 92019

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Tucker:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Daniel J. Tucker
Page 2

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

OCT 2 2 2007

Mr. Milford Wayne Donaldson, FAIA
California State Historic Preservation Officer
ATTN: Michael McGuirt
Office of Historic Preservation
1416 9TH Street, Room 1442-7
Sacramento, CA 95814

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Donaldson:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate consultation with your office.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project sites is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969

Mr. Milford Wayne Donaldson
Page 2

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A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

We welcome your comments on this undertaking and look forward to hearing any concerns your office may have. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

FOR R JANSON

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 23 2007

Honorable Leon Acebedo, Chairman
Jamul Band of Mission Indians
13910 Lyons Valley Road
Jamul, California 91935

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Acebedo:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Leon Acebedo
Page 2

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We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

Mr. Ren Lohoefener
Regional Director
U.S. Fish and Wildlife Service
Pacific Region
911 NE 11th Avenue
Portland, OR 97232

OCT 18 '07

Subject: Environmental impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Lohoefener:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, his effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969

Page 2
Mr. Ren Lohoefener

(NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

Your agency has been identified as a Federal authority with responsibilities for resources that may be impacted by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at 619-216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosure

Cc: Mike Horton

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Mr. Steve Thompson, Manager
California/Nevada Operations Office
U.S. Fish and Wildlife Service
2800 Cottage Way
Room W-2606
Sacramento, CA 95825-1846

OCT 19

Subject: Environmental impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Thompson:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, his effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969

Page 2
Mr. Steve Thompson

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Your agency has been identified as a Federal authority with responsibilities for resources that may be impacted by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at 619-216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosure

Cc: Mike Horton

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Mr. John Kalish
Field Manager
Palm Springs/South Coast Field Office
U.S. Bureau of Land Management
P.O. Box 581260
North Palm Springs, CA 92258-1260

Subject: Environmental impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Kalish:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any

Page 2
Mr. John Kalish

environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

Your agency has been identified as a Federal authority with responsibilities for resources that may be affected by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EIS as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at 619-216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosure

Cc: Ms. Janaye Byergo

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and
Border Protection

COL Thomas H. Magness, IV
U.S. Army Corps of Engineers
Los Angles District
915 Wilshire Blvd., Suite 980
Los Angles, CA 90017

Subject: Environmental impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear COL Magness:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, his effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969

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COL Thomas H. Magness, IV

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Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at 619-216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosure

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 18 '05

Mr. Wayne Nastri
Regional Administrator, Region 9
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

Subject: Environmental impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Nastri:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, his effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969

Page 2
Mr. Wayne Nastri

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Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at 619-216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

October 15, 2007

Mr. Charles McGregor
U.S. Army Corps of Engineers
Engineering Construction and Support Office
819 Taylor St. Room 3A14
Fort Worth, TX 76102

Subject: Scoping Comments for the Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection (CBP), Office of Border Patrol San Diego Sector

Dear Mr. McGregor:

The U.S. Environmental Protection Agency (EPA) has reviewed the Federal Register Notice published on September 24, 2007 requesting comments on the Bureau of Customs and Border Protection's decision to prepare an Environmental Impact Statement. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and our NEPA review authority under Section 309 of the Clean Air Act.

The proposed project is to construct and operate approximately 5.57 miles of tactical infrastructure and supporting patrol roads along the U.S./Mexico international border south of and adjacent to Otay Mountain Wilderness area, with a segment extending the existing fence west of Tecate in San Diego County, California. The proposed tactical infrastructure would impact an approximate 60 foot wide corridor along each fence segment and include fences, access roads, patrol roads, and construction staging areas. The project involves vegetation clearing and grading on approximately 41 acres, significant amounts of blasting activity, cut and fill operations, creation of at least two stationing areas, construction of switchback roads, and general improvement to existing access roads. To assist in the scoping process, we have identified several issues for your attention in the preparation of the DEIS, which are detailed in the attached comments.

We appreciate the opportunity to provide comments on the preparation of the DEIS, and look forward to continued participation in this process as more information becomes available. When the DEIS is released for public review, please send one hard copy to the address above

Printed on Recycled Paper

(mail code: CED-2). If you have any questions, please contact me at (415) 972-3846 or Karen Vitulano, the lead reviewer for this project, at 415-947-4178 or vitulano.karen@epa.gov.

Sincerely,

Nova Blazej, Manager
Environmental Review Office

Enclosure: EPA's Detailed Comments

cc: Justin Seastrand, Bureau of Land Management, Otay Mountain Wilderness Area

EPA DETAILED SCOPING FOR THE CONSTRUCTION AND OPERATION OF TACTICAL INFRASTRUCTURE FOR THE U.S. CUSTOMS AND BORDER PROTECTION, OFFICE OF BORDER PATROL SAN DIEGO SECTOR, OCTOBER 15, 2007

Purpose and Need / Alternatives Analysis

A clear purpose and need sets the stage for thorough consideration of a range of alternatives. The Notice of Intent (NOI) states that the purpose of the project is to further U.S. Customs and Border Protection's (CBP) ability to gain effective control of the border by denying pedestrian and other access in the high priority San Diego Sector of the Office of Border Patrol.

All reasonable alternatives that fulfill the purpose of the project's purpose and need should be evaluated in detail, including alternatives to physical barriers such as infrastructure to support a "virtual fence" if this meets the purpose and need. A robust range of alternatives will include an alternative that avoids significant environmental impacts. The DEIS should provide a clear discussion of the reasons for the elimination of alternatives which are not evaluated in detail.

The environmental impacts of the proposal and alternatives should be presented in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public (40 CFR 1502.14). The potential environmental impacts of each alternative should be quantified to the greatest extent possible (e.g., acres of wetlands impacted, tons per year of emissions produced, etc.).

Compliance with Environmental Regulations

The DEIS should discuss any legislative acts that allow the Department of Homeland Security agencies to bypass U.S. environmental laws and regulations, and whether there is the intension to do so for this project.

Water Resources

The DEIS should describe the original (natural) drainage patterns in the project locale, as well as the drainage patterns of the area during project operations. Also, the DEIS should identify whether any components of the proposed project are within a 50 or 100-year floodplain.

Clean Water Act Section 402

The DEIS should note that, under the federal Clean Water Act (CWA), any construction project disturbing a land area of one or more acres requires a construction storm water discharge permit. The DEIS should document the project's consistency with applicable storm water permitting requirements. Requirements of a storm water pollution prevention plan should be reflected as appropriate in the DEIS. The DEIS should discuss specific mitigation measures that may be necessary or beneficial in reducing adverse impacts to water quality and aquatic resources. The CBP should coordinate the California Regional Water Quality Control Board on all required permits.

1

Clean Water Act Section 404

The fence and infrastructure south of the Otay Mountain Wilderness will cross a number of drainages, and the fence segment west of Tecate would pass through a riparian area. Impacts to waters of the U.S. should be avoided or mitigated to the maximum extent possible. The project applicant should coordinate with the U.S. Army Corps of Engineers to determine if the proposed project requires a Section 404 permit under the CWA. Section 404 regulates the discharge of dredged or fill material into waters of the U.S. The DEIS should describe all waters of the U.S. that could be affected by the project alternatives, and include maps that clearly identify all waters within the project area. The discussion should include acreages and channel lengths, habitat types, values, and functions of these waters.

If a permit is required, EPA will review the project for compliance with *Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials* (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the CWA ("404(b)(1) Guidelines"). Pursuant to 40 CFR 230, any permitted discharge into waters of the U.S. must be the least environmentally damaging practicable alternative available to achieve the project purpose. The DEIS should include an evaluation of the project alternatives in this context in order to demonstrate the project's compliance with the 404(b)(1) Guidelines. If, under the proposed project, dredged or fill material would be discharged into waters of the U.S., the DEIS should discuss alternatives to avoid those discharges. EPA strongly encourages early coordination with the U.S. Army Corps of Engineers. Information on waters of the U.S. is best disclosed at the DEIS stage so that the appropriateness of the proposed NEPA alternative can be evaluated in the context of the 404(b)(1) Guidelines, and relevant comments can receive responses and effect appropriate modifications in the Final EIS.

If a discharge to waters of the U.S. is anticipated, the DEIS should discuss how potential impacts would be minimized and mitigated. This discussion should include: (a) acreage and habitat type of waters of the U.S. that would be created or restored; (b) water sources to maintain the mitigation area; (c) the revegetation plans, including the numbers and age of each species to be planted, as well as special techniques that may be necessary for planting; (d) maintenance and monitoring plans, including performance standards to determine mitigation success; (e) the size and location of mitigation zones; (f) the parties that would be ultimately responsible for the plan's success; and (g) contingency plans that would be enacted if the original plan fails. Mitigation should be implemented in advance of the impacts to avoid habitat losses due to the lag time between the occurrence of the impact and successful mitigation.

Biological Resources

The border region of California and Baja California comprises one of the world's biodiversity hotspots. The project area to the south of Otay Mountain Wilderness contains especially rich botanical resources and includes habitat that is important to the conservation of the federally endangered Quino checkerspot butterfly. We recommend that the CBP work closely with the Bureau of Land Management regarding the protection of wilderness and biological resources in

this area, and consult with the U.S. Fish and Wildlife Service for the protection of threatened and endangered species.

Wildlife Impacts
The DEIS should identify all petitioned and listed threatened and endangered species and critical habitat that might occur within the project area. The document should identify and quantify which species or critical habitat might be directly or indirectly affected by each alternative. We recommend that the DEIS include a biological assessment, as well as a description of the outcome of consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act.

The Border Fence NEPA website at www.borderfenceNEPA.com indicates that any fencing must be designed to reduce or minimize impacts on small animal movement and not impede the natural flow of water. EPA commends these design criteria and suggests that the CBP prepare an inventory of resident wildlife so that fence design can consider modes of transport. The DEIS should identify all wildlife movement corridors that could be obstructed or impacted by infrastructure. For all species that are impacted, the DEIS should discuss the other cumulative impacts these species are experiencing on an ecosystem level. The DEIS should discuss how the border infrastructure could impact vegetation and its distribution and use as cover by resident wildlife species.

Mitigation
The DEIS should propose measures that will mitigate direct impacts to wildlife, such as provision for wildlife crossings, and cumulative impacts on an ecosystem level. For example, if species will be impacted from natural movements due to the proposed project, mitigation to restore or enhance movement and habitat in other areas of their range should be proposed. EPA recommends the project include the development of alternative water sources if the project prohibits wildlife populations from accessing water sources. The DEIS should also evaluate the impacts that increased illumination would have on wildlife species in the area and identify and evaluate technologies that can detect pedestrians without impacting nocturnal wildlife.

Air Quality

San Diego County currently does not meet the health-based air quality standard for ozone and is designated as nonattainment (basic) for the 8-hour ozone National Ambient Air Quality Standard or NAAQS.

The DEIS should provide a detailed discussion of ambient air conditions (baseline or existing conditions), National Ambient Air Quality Standards (NAAQS), criteria pollutant nonattainment areas, and potential air quality impacts of the project (including cumulative and indirect impacts) for each fully evaluated alternative. Construction related impacts should also be discussed.

General Conformity

The DEIS should address the applicability of CAA Section 176 and EPA's general conformity regulations at 40 CFR Parts 51 and 93. Federal agencies need to ensure that their actions, including construction emissions subject to state jurisdiction, conform to an approved implementation plan. Emissions authorized by a CAA permit issued by the State or the local air pollution control district would not be assessed under general conformity but through the permitting process.

Construction Emissions Mitigation

EPA recommends an evaluation of the following measures to reduce construction emissions of criteria air pollutants and hazardous air pollutants (air toxics). The DEIS should address the use of these measures during construction.

- Reduce emissions of diesel particulate matter (DPM) and other air pollutants by using particle traps and other technological or operational methods. Control technologies such as traps control approximately 80 percent of DPM. Specialized catalytic converters (oxidation catalysts) control approximately 20 percent of DPM, 40 percent of carbon monoxide emissions, and 50 percent of hydrocarbon emissions.
- Ensure that diesel-powered construction equipment is properly tuned and maintained, and shut off when not in direct use.
- Prohibit engine tampering to increase horsepower.
- Locate diesel engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals).
- Require low sulfur diesel fuel (<15 parts per million), if available.
- Reduce construction-related trips of workers and equipment, including trucks.
- Lease or buy newer, cleaner equipment (1996 or newer model), using a minimum of 75 percent of the equipment's total horsepower.
- Use engine types such as electric, liquified gas, hydrogen fuel cells, and/or alternative diesel formulations.
- Adopt a *Construction Emissions Mitigation Plan* to reduce construction emissions.
- Work with the local air pollution control district(s) to implement the strongest mitigation for reducing construction emissions.

Indirect and Cumulative Impacts

The definition of *cumulative impact* is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR Part 1508.7). Per guidance provided by the Council on Environmental Quality (CEQ), the cumulative impacts analysis should provide the context for understanding the magnitude of the impacts of the alternatives by analyzing the impacts of other past, present, and reasonably foreseeable projects or actions and then considering those cumulative impacts in their entirety (CEQ's Forty Questions, #18). Where adverse cumulative impacts may exist, the DEIS

should disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.

The DEIS should focus on resources of concern – those resources that are "at risk" and/or are significantly impacted by the proposed project, before mitigation. In the introduction to the Cumulative Impacts section, identify which resources are analyzed, which ones are not, and why. For each resource analyzed, the DEIS should:

- Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date.
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resource is improving, declining, or in stasis.
- Identify the future condition of the resource based on an analysis of the cumulative impacts of reasonably foreseeable projects or actions added to existing conditions and current trends. For example, what will the future condition of the watershed be.
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives.
- Disclose the parties that would be responsible for avoiding, minimizing, and mitigating those adverse impacts.
- Identify opportunities to avoid and minimize impacts, including working with other entities.

Coordination with Tribal Governments

Executive Order 13175

Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments* (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the United States government-to-government relationships with Indian tribes.

The DEIS should describe the process and outcome of government-to-government consultation between the U.S. Customs and Border Protection (CBP)and each of the tribal governments within the project area, issues that were raised (if any), and how those issues were addressed in the selection of the proposed alternative.

National Historic Preservation Act and Executive Order 13007

Historic properties under the National Historic Preservation Act (NHPA) are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO).

Executive Order 13007, *Indian Sacred Sites* (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian Religious practitioners, and to avoid adversely affecting the physical integrity of such sacred sites. It is important to note that a sacred site may not meet the National Register criteria for a historic property and that, conversely, a historic property may not meet the criteria for a sacred site.

The DEIS should address the existence of Indian sacred sites in the project area. It should address Executive Order 13007, distinguish it from Section 106 of the NHPA, discuss how the CBP will avoid adversely affecting the physical integrity of sacred sites, if they exist, and address other requirements of the Order.

Invasive Species

The project involves grading and clearing of vegetation, which can introduce invasive species. Executive Order 13112, *Invasive Species* (February 3, 1999), mandates that federal agencies take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. The DEIS should include project design features that call for the development of an invasive plant management plan to monitor and control noxious weeds, and to utilize native plants for restoration of disturbed areas after construction.

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Commissioner Carlos Marin
International Boundary and Water Commission
U.S. Section
4111 North Mesa, Suite C-100
El Paso, TX 79902-1441

OCT 18 2007

Subject: Environmental impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Commissioner Marin:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969

Page 2
Commissioner Carlos Marin

(NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

Your agency has been identified as a Federal authority with responsibilities for resources that may be affected by the Proposed Action. In accordance with the Council on Environmental Quality (CEQ) regulations addressing cooperating agencies (40 CFR 1501.6 and 1508.5) and CEQ's January 30, 2002, guidance, CBP is inviting you to participate in the development of the EA as a cooperating agency. Please contact Mr. Charles McGregor of the USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 if your agency would like to be a cooperating agency.

Your prompt attention to this request would be greatly appreciated. If you have any questions, please call Mr. Charles McGregor at (817) 886-1585 or Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at 619-216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosure

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

October 15, 2007

United States Customs and Border Protection
San Diego Tactical Infrastructure EIS
c/o e^{2}M
2751 Prosperity Avenue, Suite 200
Fairfax, Virginia 22031

Dear Customs Border Protection:

Thank you for the opportunity to comment on the notice of intent (NOI) to prepare an Environmental Impact Statement (EIS) on proposed construction and operation of tactical infrastructure for the United States Customs and Border Protection (CBP) in the vicinity of the Otay Mountain Wilderness Area and just west of Tecate. The United States Section, International Boundary and Water Commission (USIBWC), has reviewed the NOI dated September 24, 2007, and offers the following comments for your use.

As indicated in previous correspondence related to CBP fence projects, the USIBWC requests that proposed construction activities be accomplished in a manner that does not change historic surface runoff characteristics at the international border. If the project falls within USIBWC jurisdiction or property, the USIBWC will not approve any construction near the international boundary in the United States that increases, concentrates, or relocates overland drainage flows into either country. This requirement is intended to ensure that developments in one country will not cause damage to lands or resources in the other country as required by the 1970 Treaty. We also request that you ensure that structures constructed along the border are maintained in an adequate manner and that liability issues created by these structures are addressed.

As with previous work by Border Patrol along the international boundary, the USIBWC requires that proposed works and related facilities not affect the permanence of existing boundary monuments and not impede access for their maintenance by USIBWC personnel. Any proposed construction must allow for line-of-sight visibility between each of the boundary monuments. The USIBWC requests that engineering drawings be submitted for review and approval before beginning construction on USIBWC jurisdictional property. The drawings must show the location of each component in relationship to the international boundary and nearby monuments.

In order to avoid any confusion and to allow better coordination, the USIBWC requests that a table be added to the Cumulative Effects Section that lists all the border fence projects, by state, that are being programmed for construction. This is due to the overwhelming amount of projects by the Border Patrol along the international border. For your information, the USIBWC has designated Mr. Richard Peace, Division Engineer, Operations and Maintenance Division as the agency single point of contact for border fence and other border security projects. Any future correspondence should be addressed to Mr. Peace at the letterhead address.

The Commons, Building C, Suite 100 • 4171 N. Mesa Street • El Paso, Texas 79902
(915) 832-4100 • (FAX) (915) 832-4190 • http://www.ibwc.state.gov

If you have any questions regarding these comments. please contact Mr. Richard Peace at (915) 832-4158.

Sincerely,

Carlos Peña. Jr.. P.E.
Division Engineer
Environmental Management Division

Memorandum of Understanding
Among
U. S. Department of Homeland Security
and
U. S. Department of the Interior
and
U. S. Department of Agriculture
Regarding
Cooperative National Security and Counterterrorism
Efforts on Federal Lands along the United States' Borders

I. Purpose and Scope

A. This Memorandum of Understanding (MOU) is made and entered into by the Department of Homeland Security (DHS), including and on behalf of its constituent bureau U.S. Customs and Border Protection (CBP) and the CBP Office of Border Patrol (CBP-BP); the Department of the Interior (DOI), including and on behalf of its constituent bureaus, the National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), and the Bureau of Reclamation (BOR); and the Department of Agriculture (USDA), including and on behalf of its constituent agency the U.S. Forest Service (USFS). Throughout this MOU, these three Departments, including their constituent agencies, may be referred to as "the Parties." Any reference to a bureau, agency, or constituent component of a Party shall not be deemed to exclude application to any appropriate bureau or constituent component of that Party. DHS recognizes that the BIA enters into this agreement only on its own behalf and not on behalf of any Indian tribe.

B. The geographic and jurisdictional scope of this MOU is nationwide. The Parties recognize the national security and counterterrorism significance of preventing illegal entry into the United States by cross-border violators (CBVs), including but not limited to the following: drug and human smugglers and smuggling organizations, foreign nationals, and terrorists and terrorist organizations. The Parties further recognize that damage to DOI and USDA-managed lands and natural and cultural resources is often a significant consequence of such illegal entry. The Parties are committed to preventing illegal entry into the United States, protecting Federal lands and natural and cultural resources, and - where possible - preventing adverse impacts associated with illegal entry by CBVs.

C. This MOU is intended to provide consistent goals, principles, and guidance related to border security, such as law enforcement operations; tactical infrastructure installation; utilization of roads; minimization and/or prevention of significant impact on or impairment of natural and cultural resources; implementation of the Wilderness Act, Endangered Species Act, and other related environmental law, regulation, and policy across land management agencies; and provide for coordination and sharing information

on threat assessments and other risks, plans for infrastructure and technology improvements on Federal lands, and operational and law enforcement staffing changes. This MOU provides guidance in the development of individual agreements, where appropriate, between CBP and land management agencies to further the provisions contained herein.

D. This MOU is entered into pursuant to the governing statutory authorities of each of the Parties.

E. The Parties acknowledge that CBP operation and construction within the sixty-foot "Roosevelt Reservation" of May 27 1907 (along the US-Mexico border) and the sixty-foot "Taft Reservation" of May 3, 1912 (along the US-Canada border) is consistent with the purpose of those reservations and that any CBP activity (including, but not limited to, operations and construction) within the sixty-foot reservations is outside the oversight or control of Federal land managers.

F. This MOU supersedes any conflicting provision of any prior MOU or Memorandum of Agreement between the Parties or their subordinate bureaus or components.

II. Background

A. DHS, through its constituent bureaus (including CBP and its CBP-BP), is statutorily mandated to control and guard the Nation's borders and boundaries, including the entirety of the northern and southern land and water borders of the United States.

B. DOI and USDA, through their constituent bureaus, are statutorily charged as managers of Federal lands throughout the United States, including DOI and USDA lands in the vicinity of international borders that are administered as wilderness areas, conservation areas, national forests, wildlife refuges, units/irrigation projects of the Bureau of Reclamation, and/or units of the national park system. Tribal governments have primary management roles over tribal lands; however, the United States, through the BIA, may also have a stewardship or law enforcement responsibility over these lands. Many of these Federal and tribal lands contain natural and cultural resources that are being degraded by activities related to illegal cross-border movements.

C. The volume of CBVs can and has, in certain areas, overwhelmed the law enforcement and administrative resources of Federal land managers. In order to more effectively protect national security, respond to terrorist threats, safeguard human life, and stop the degradation of the natural and cultural resources on those lands, DOI and USDA land managers will work cooperatively with CBP to benefit from the enforcement presence, terrorist and CBV interdiction, and rescue operations of CBP.

III. Common Findings and Affirmation of the Parties

A. The Parties to this MOU recognize that CBP-BP access to Federal lands can facilitate rescue of CBVs on Federal lands, protect those lands from environmental damage, have a role in protecting the wilderness and cultural values and wildlife resources of these lands, and is necessary for the security of the United States. Accordingly, the Parties understand that CBP-BP, consistent with applicable Federal laws and regulations, may access public lands and waterways, including access for purposes of tracking, surveillance, interdiction, establishment of observation points, and installation of remote detection systems.

B. The Parties recognize that DOI and USDA have responsibility for enforcing Federal laws relating to land management, resource protection, and other such functions on Federal lands under their jurisdiction.

IV. Responsibilities and Terms of Agreement

A. The Parties Agree to the Following Common Goals, Policies, and Principles:

1. The Parties enter inio this MOU in a cooperative spirit with the goals of securing the borders of the United States, addressing emergencies involving human health and safety, and preventing or minimizing environmental damage arising from CBV illegal entry on public lands;

2. The Parties will strive to both resolve conflicts at and delegate resolution authority to the lowest field operational level possible while applying the principles of this MOU in such manner as will be consistent with the spirit and intent of this MOU;

3. The Parties will develop and consistently utilize an efficient communication protocol respecting the chain of command for each of the Parties that will result in the consistent application of the goals, policies, and principles articulated in this MOU, and provide a mechanism that will, if necessary, facilitate the resolution of any conflicts among the Parties. If resolution of conflict does not occur at the local level, then the issue will be elevated first to the regional/sector office; if not resolved at the regional/sector level, then the issue will be elevated to the headquarters level for resolution;

4. The Parties will cooperate with each other to complete, in an expedited manner, all compliance that is required by applicable Federal laws not otherwise waived in furtherance of this MOU. If such activities are authorized by a local agreement as described in sub-article IV.B below, then the DOI, USDA, and CBP will complete the required compliance before executing the agreement;

5. The Parties will cooperate with each other to identify methods, routes, and locations for CBP-BP operations that will minimize impacts to natural, cultural, and wilderness resources resulting from CBP-BP operations while facilitating needed CBP-BP access;

6. The Parties will, as necessary, plan and conduct joint local law enforcement operations consistent with all Parties' legal authorities;

7. The Parties will establish a framework by which threat assessments and other intelligence information may be exchanged, including intelligence training to be conducted by all parties so that the intelligence requirements of each may be identified and facilitated;

8. The Parties will establish forums and meet as needed at the local, regional, and national levels to facilitate working relationships and communication between all Parties;

9. The Parties will develop and share joint operational strategies at the local, regional, and national levels, including joint requests for infrastructure and other shared areas of responsibility;

10. The Parties will share the cost of environmental and cultural awareness training unless otherwise agreed; and

11. The Parties will, as appropriate, enter into specific reimbursable agreements pursuant to the Economy Act, 31 U.S.C. §1535 when one party is to furnish materials or perform work or provide a service on behalf of another party.

B. Responsibilities and Terms Specific to DOI and USDA. The DOI and the USDA hereby recognize that, pursuant to applicable law, CBP-BP is authorized to access the Federal lands under DOI and USDA administrative jurisdiction, including areas designated by Congress as wilderness, recommended as wilderness, and/or wilderness study areas, and will do so in accordance with the following conditions and existing authorities:

1. CBP-BP agents on foot or on horseback may patrol, or pursue, or apprehend suspected CBVs off-road at any time on any Federal lands administered by the Parties;

2. CBP-BP may operate motor vehicles on existing public and administrative roads and/or trails and in areas previously designated by the land management agency for off-road vehicle use at any time, provided that such use is consistent with presently authorized public or administrative use. At CBP-BP's request, the DOI and the USDA will provide CBP-BP with keys, combinations, or other means necessary to

access secured administrative roads/trails. CBP-BP may drag existing public and administrative roads that are unpaved for the purpose of cutting sign, subject to compliance with conditions that are mutually agreed upon by the local Federal land manager and the CBP-BP Sector Chief. For purposes of this MOU, "existing public roads/trails" are those existing roads/trails, paved or unpaved, on which the land management agency allows members of the general public to operate motor vehicles, and "existing administrative roads/trails" are those existing roads/trails, paved or unpaved, on which the land management agency allows persons specially authorized by the agency, but not members of the general public, to operate motor vehicles;

3. CBP-BP may request, in writing, that the land management agency grant additional access to Federal lands (for example, to areas not previously designated by the land management agency for off-road use) administered by the DOI or the USDA for such purposes as routine patrols, non-emergency operational access, and establishment of temporary camps or other operational activities. The request will describe the specific lands and/or routes that the CBP-BP wishes to access and the specific means of access desired. After receiving a written request, the local Federal land manager will meet promptly with the CBP-BP Sector Chief to begin discussing the request and negotiating the terms and conditions of an agreement with the local land management agency that authorizes access to the extent permitted by the laws applicable to the particular Federal lands. In each agreement between CBP-BP and the local land management agency, the CBP-BP should be required to use the lowest impact mode of travel and operational setup reasonable and practicable to accomplish its mission. The CBP-BP should also be required to operate all motorized vehicles and temporary operational activities in such a manner as will minimize the adverse impacts on threatened or endangered species and on the resources and values of the particular Federal lands. However, at no time should officer safety be compromised when selecting the least impactful conveyance or operational activity. Recognizing the importance of this matter to the Nation's security, the CBP-BP Sector Chief and the local Federal land manager will devote to this endeavor the resources necessary to complete required compliance measures in order to execute the local agreement within ninety (90) days after the Federal land manager has received the written request for access. Nothing in this paragraph is intended to limit the exercise of applicable emergency authorities for access prior to the execution of the local agreement. The Secretaries of the Interior, Agriculture, and Homeland Security expect that, absent compelling justification, each local agreement will be executed within that time frame and provide the maximum amount of access requested by the CBP-BP and allowed by law;

4. Nothing in this MOU is intended to prevent CBP-BP agents from exercising existing exigent/emergency authorities to access lands, including authority to conduct motorized off-road pursuit of suspected CBVs at any time, including in areas designated or recommended as wilderness, or in wilderness study areas when, in their professional judgment based on articulated facts, there is a specific exigency/emergency involving human life, health, safety of persons within the area, or posing a threat to national security, and they conclude that such motorized off-road pursuit is reasonably expected to result in the apprehension of the suspected CBVs. Articulated facts include, but are not limited to, visual observation; information received from a remote sensor, video camera, scope, or other technological source; fresh "sign" or other physical indication; canine alert; or classified or unclassified intelligence. For each such motorized off-road pursuit, CBP-BP will use the least intrusive or damaging motorized vehicle readily available, without compromising agent or officer safety. In accordance with paragraph IV.C.4, as soon as practicable after each such motorized off-road pursuit, CBP-BP will provide the local Federal land manager with a brief report;

5. If motorized pursuits in wilderness areas, areas recommended for wilderness designation, wilderness study areas, or off-road in an area not designated for such use are causing significant impact on the resources, or if other significant issues warrant consultation, then the Federal land manager and the CBP-BP will immediately meet to resolve the issues subject to paragraphs IV.A.2 and IV.A.3 of this MOU;

6. CBP may request, in writing, that the land management agency authorize installation or construction of tactical infrastructure for detection of CBVs (including, but not limited to, observation points, remote video surveillance systems motion sensors, vehicle barriers, fences, roads, and detection devices) on land under the local land management agency's administrative jurisdiction. In areas not designated as wilderness, the local Federal land manager will expeditiously authorize CBP to install such infrastructure subject to such terms and conditions that are mutually developed and articulated in the authorization issued by the land management agency. In areas designated or managed as wilderness, the local Federal land manager, in consultation with CBP, will promptly conduct a "minimum requirement," "minimum tool," or other appropriate analysis. If supported by such analysis, the local Federal land manager will expeditiously authorize CBP to install such infrastructure subject to such terms and conditions that are mutually developed and articulated in the authorization issued by the land management agency;

7. The DOI and USDA will provide CBP-BP agents with appropriate environmental and cultural awareness training formatted to meet CBP-BP operational constraints. The DOI and USDA will work with CBP-BP in the development and production of maps for use or reference by CBP-BP agents including, as appropriate, site-specific and resource-specific maps that will identify specific wildlife and environmentally or culturally sensitive areas;

8. The DOI and USDA will, as applicable, provide CBP-BP with all assessments and studies done by or on behalf of DOI or USDA on the effects of CBVs on Federal lands and native species to better analyze the value of preventative enforcement actions;

9. The DOI and USDA will assist CBP-BP in search and rescue operations on lands within the respective land managers' administration when requested;

10. The CBP-BP and land management agencies may cross-deputize or cross-designate their agents as law enforcement officers under each other agency's statutory authority. Such cross-deputation or cross-designation agreements entered into by the local land management agency and the field operations manager for the CBP-BP shall be pursuant to the policies and procedures of each agency; and

11. DOI and USDA will work at the field operations level with affected local CBP-BP stations to establish protocols for notifying CBP-BP agents when DOI or USDA law enforcement personnel are conducting law enforcement operations in an area where CBP-BP and DOI/USDA operations can or will overlap.

C. Responsibilities and Terms Specific to the CBP. DHS hereby agrees as follows:

1. Consistent with the Border Patrol Strategic Plan, CBP-BP will strive to interdict CBVs as close to the United States' international borders as is operationally practical, with the long-term goal of establishing operational control along the immediate borders;

2. If the CBP-BP drag any unpaved roads for the purpose of cutting sign under provision IV.B.2 above, then CBP-BP will maintain or repair such roads to the extent that they are damaged by CBP-BP's use or activities;

3. If CBP-BP agents pursue or apprehend suspected CBVs in wilderness areas or off-road in an area not designated for such use under

paragraph IV.B.5, then the CBP-BP will use the lowest impact mode of travel practicable to accomplish its mission and operate all motorized vehicles in such a manner as will minimize the adverse impacts on threatened or endangered species and on the resources and values of the particular Federal lands, provided officer safety is not compromised by the type of conveyance selected;

4. CBP-BP will notify the local Federal land manager of any motorized emergency pursuit, apprehension, or incursion in a wilderness area or off-road in an area not designated for such use as soon as is practicable. A verbal report is sufficient unless either CBP-BP or the land managing agency determines that significant impacts resulted, in which case a written report will be necessary;

5. If motorized pursuits in wilderness areas, areas recommended for wilderness designation, wilderness study areas, or off-road in an area not designated for such use are causing significant impact on the resources as determined by a land manager, or if other significant issues warrant consultation, then the CBP-BP and Federal land manager will immediately meet to resolve the issues subject to paragraphs IV.A.2 and IV.A.3 of this MOU;

6. CBP will consult with land managers to coordinate the placement and maintenance of tactical infrastructure, permanent and temporary video, seismic and other remote sensing sites in order to limit resource damage while maintaining operational efficiency;

7. CBP-BP will ensure that current and incoming CBP-BP agents attend environmental and cultural awareness training to be provided by the land management agencies;

8. CBP-BP will provide land management agencies with appropriate and relevant releasable statistics of monthly CBV apprehensions, search and rescue actions, casualties, vehicles seized, drug seizures and arrests, weapons seizures and arrests, and other significant statistics regarding occurrences on the lands managed by the land manager;

9. CBP-BP will consult with land managers in the development of CBP-BP's annual Operational-Requirements Based Budgeting Program to ensure affected land managers can provide input and are, in the early stages of planning, made aware what personnel, infrastructure, and technology the CBP-BP would like to deploy along the border within their area of operation; and

10. CBP-BP will work at the field operations manager level with affected local land management agencies to establish protocols for notifying

land management agency law enforcement officers when BP is conducting special operations or non-routine activities in a particular area.

V. Miscellaneous Provisions

A. Nothing in this MOU may be construed to obligate the agencies or the United States to any current or future expenditure of funds in advance of the availability of appropriations, nor does this MOU obligate the agencies or the United States to spend funds for any particular project or purpose, even if funds are available.

B. Nothing in this MOU will be construed as affecting the authority of the Parties in carrying out their statutory responsibilities.

C. This MOU may be modified or amended in writing upon consent of all Parties, and other affected Federal agencies may seek to become a Party to this MOU.

D. The Parties shall retain all applicable legal responsibility for their respective personnel working pursuant to this MOU with respect to, *inter alia*, pay, personnel benefits, injuries, accidents, losses, damages, and civil liability. This MOU is not intended to change in any way the individual employee status or the liability or responsibility of any Party under Federal law.

E. The Parties agree to participate in this MOU until its termination. Any Party wishing to terminate its participation in this MOU shall provide sixty (60) days written notice to all other Parties.

F. This document is an intra-governmental agreement among the Parties and does not create or confer any rights, privileges, or benefits upon any person, party, or entity. This MOU is not and shall not be construed as a rule or regulation.

In witness whereof, the Parties hereto have caused this Memorandum of Understanding to be executed and effective as of the date of the last signature below.

Date: 3/24/06
Secretary of Homeland Security

Date: 3/31/06
Secretary of the Interior

Date: 3/29/06
Secretary of Agriculture

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APPENDIX D

Public Comments on the Draft EIS (Reserved Space)

COMMENTS ON THE DRAFT EIS WILL BE INCLUDED IN THIS APPENDIX ONCE RECEIVED.

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APPENDIX E

Detailed Maps of the Proposed Tactical Infrastructure Sections Showing Land Use and Water

BW1 FOIA CBP 001513

116°52'0"W 116°51'0"W 116°50'0"W 116°49'0"W 116°48'0"W 116°47'0"W

32°34'0"N 32°33'0"N 32°32'0"N

United States

California

Mexico

Otay Mountain Wilderness

Otay Mountain Truck Road 5.11 Miles

Puebla Tree

Proposed A-1 Access Road 5.19 Miles

A-1

Monument 250

Monument 250 Road 2.11 Miles

- Proposed Fence Route
- Proposed A-1 Access Road Route
- Existing Access Roads
- Land Parcels
- National Wetlands Inventory
- Otay Mountain Wilderness

N

Feet

0 500 1,000 2,000

Scale

USBP
Proposed Tactical Infrastructure EIS
San Diego Sector, Texas
Detailed Proposed Fence Section Maps

Projection: Albers
USA Contiguous Albers Equal Area Conic
North American Datum of 1983

December 2007	Scale 1" = 2000'	Map 1 of 2

BW1 FOIA CBP 001514

116°41'0"W 116°40'0"W 116°39'0"W

32°35'0"N

32°34'0"N

United States

California

Mexico

Tecate Mission Road/
South Grape View

A-2

Staging Area

Tecate

Proposed Fence Route
Existing Access Roads
Proposed Construction Staging Area
Land Parcels

N

Feet

0 250 500 1,000

Scale

USBP
Proposed Tactical Infrastructure EIS
San Diego Sector, Texas
Detailed Proposed Fence Section Maps

Projection: Albers
USA Contiguous Albers Equal Area Conic
North American Datum of 1983

December 2007 | Scale 1" = 1000' | Map 2 of 2

APPENDIX F

Air Quality Information

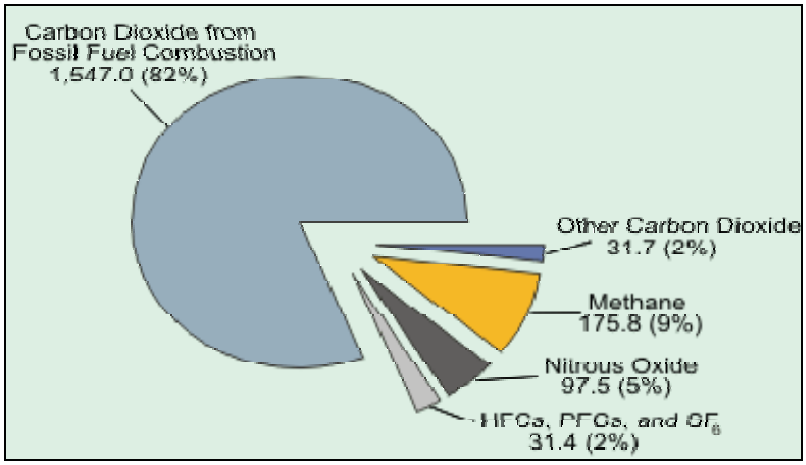
APPENDIX F
AIR QUALITY INFORMATION

Greenhouse Gases

In April 2007, the U.S. Supreme Court declared that carbon dioxide (CO_2) and other greenhouse gases are air pollutants under the Clean Air Act (CAA). The Court declared that the U.S. Environmental Protection Agency (USEPA) has the authority to regulate emissions from new cars and trucks under the landmark environment law.

Many chemical compounds found in the Earth's atmosphere act as "greenhouse gases." These gases allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth's surface, some of it is reflected back towards space as infrared radiation (heat). Greenhouse gases absorb this infrared radiation and trap the heat in the atmosphere. Over time, the trapped heat results in the phenomenon of global warming.

Many gases exhibit these "greenhouse" properties. The sources of the majority of greenhouse gases come mostly from natural sources but are also contributed to by human activity and are shown in **Figure F-1**. It is not possible to state that a specific gas causes a certain percentage of the greenhouse effect because the influences of the various gases are not additive.

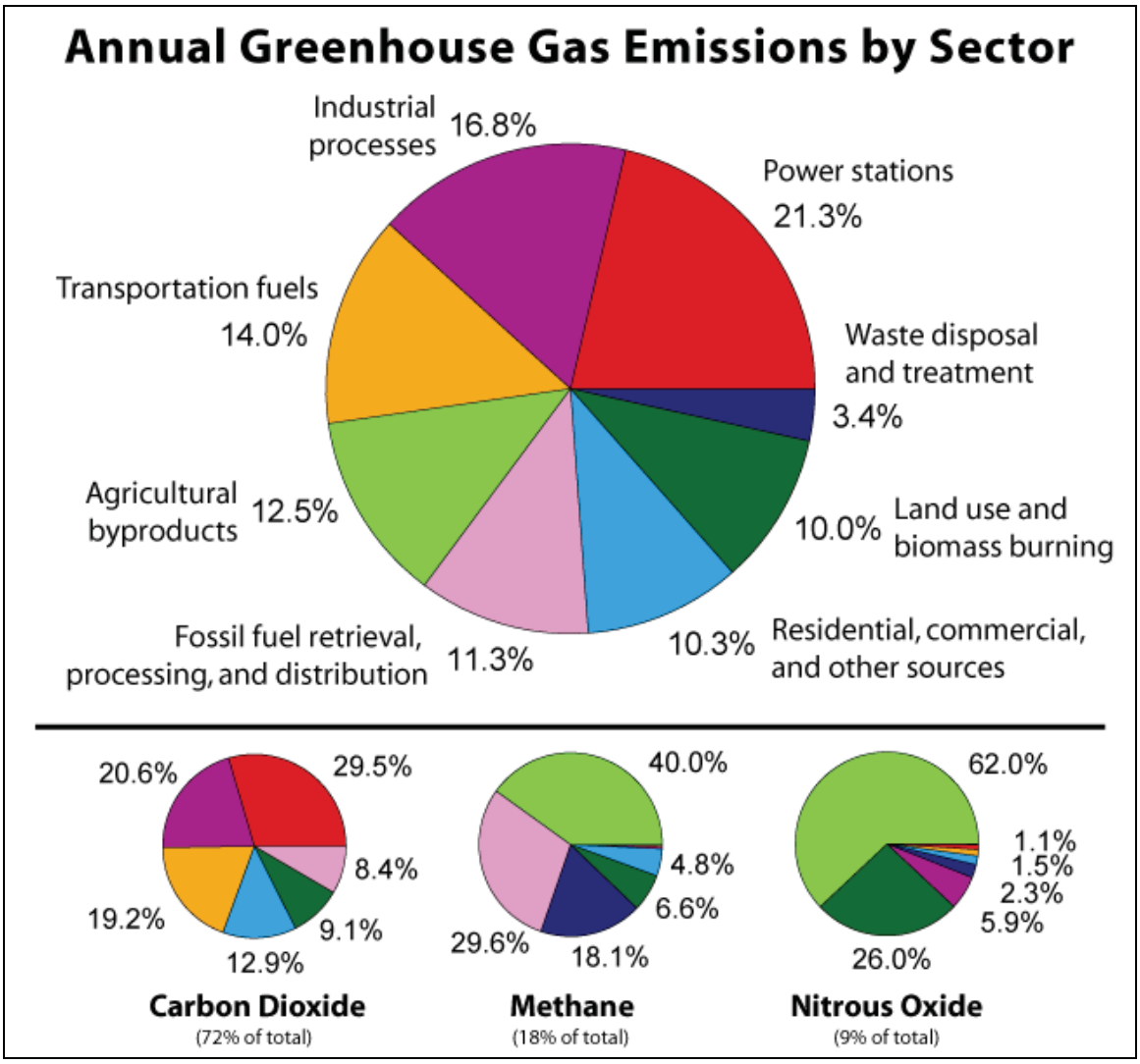


Source: Energy Information Administration 2003

Figure F-1. Greenhouse Gas Emissions From Burning of Gas (Million Metric Tons of Carbon Equivalent)

Figure F-2 displays the annual greenhouse gas emissions by sector in the United States. Most government agencies and military installations are just beginning to establish a baseline for their operations and their impact on the greenhouse effect. Since the USEPA has not promulgated an ambient standard or *de minimis* level for CO_2 emissions for Federal actions, there is no standard value to compare an action against

in terms of meeting or violating the standard. Hence, we shall attempt to establish the effects on air quality as a result of the amount of CO_2 produced by the Federal action and what could be done to minimize the impact of these emissions.



Source: Rosmarino 2006

Figure F-2. Annual Greenhouse Gas Emissions by Sector

References

Energy Information Administration. 2003. "Greenhouse Gases, Climate Change, and Energy." EIA Brochure. 2003. Available online: <*http://www.eia.doe.gov/oiaf/1605/ggccebro/chapter1.html*>. Last updated April 2, 2004. Accessed November 4, 2007.

Tanyalynnette Rosmarino, Director of Field Engineering, Northeast, BigFix, Inc. 2006. "A Self-Funding Enterprise Solution to Reduce Power Consumption and Carbon Emissions." Slide presentation for the NYS Forum's May Executive Committee Meeting Building an Energy Smart IT Environment. 2006. Available online: <*http://www.nysforum.org/documents/html/2007/execcommittee/may/enterprisepowerconsumptionreduction_files/800x600/slide1.html*>. Accessed November 4, 2007.

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Summary	Summar zes tota em ss ons by ca endar year.
Combustion	Est mates em ss ons from non-road equ pment exhaust as we as pa nt ng.
Fugitive	Est mates f ne part cu ate em ss ons from earthmov ng, veh c e traff c, and w ndb own dust
Grading	Est mates the number of days of s te preparat on, to be used for est mat ng heavy equ pment exhaust and earthmov ng dust em ss ons
Maintenance Emissions	Est mates the tota em ss ons from future ma ntenance of fence nes and access roads from mowers.
Generator Emissions	Est mates the tota em ss ons from emergency generators to power construct on equ pment.
AQCR Tier Report	Summar zes tota em ss ons for the San D ego Intrastatet AQCR T er Reports for 2001, to be used to compare project to reg ona em ss ons.

BW1 FOIA CBP 001521

Air Quality Emissions from Proposed Action

		NO_x (ton)	VOC (ton)	CO (ton)	SO_2 (ton)	PM_{10} (ton)	CO_2 (ton)
CY2008	Construct on Combust on	56.743	8.459	66.291	1.135	1.904	46.800
	Construct on Fug t ve Dust	0.000	0.000	0.000	0.000	54.835	-
	Hau Trucks	0.572	0.176	0.959	0.045	0.680	19.458
	Generator Em ss ons	14.702	1.200	3.167	0.967	1.034	274.312
	TOTAL CY2008	72.017	9.835	70.417	2.147	58.453	340.570

S nce future year budgets were not read y ava ab e, actua 2001 a r em ss ons nventor es for the count es were used as an approx mat on of the reg ona nventory. Because the Proposed Act on s severa orders of magn tude be ow s gn f cance, the conc us on wou d be the same, regard ess of whether future year budget data set were used.

San Diego Intrastate AQCR

	Point and Area Sources Combined				
Year	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
2001	76,343	95,371	605,178	2,007	72,011

Source: USEPA-A rData NET T er Report (http://www.epa.gov/a r/data/geose .htm). S te v s ted on 17 October 2007.

Determination Significance (Significance Threshold = 10%) for Construction Activities

	Point and Area Sources Combined				
	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_2 (tpy)	PM_{10} (tpy)
M n mum - 2001	76,343	95,371	605,178	2,007	72,011
2008 Em ss ons	72.017	9.835	70.417	2.147	58.453
Proposed Act on %	**0.094%**	**0.010%**	**0.012%**	**0.107%**	**0.081%**

BW1 FOIA CBP 001522

Construction Combustion Emissions for CY 2008

Combustion Emissions of VOC, NO_x, SO_2, CO and PM_{10} Due to Construction

Includes:

100% of Construct Pedestrian Fence A-1	653,400	ft²	15.00 acres
100% of Construct Pedestrian Fence A-2	221,760	ft²	5.09 acres
100% of Excavate Cut/Fill	1,742,400	ft²	40.00 acres
100% of Pave Access Road	31,680	ft²	0.73 acres
100% of Grade Access Road	30,413	ft²	0.70 acres
100% of Grade Staging Areas	1,102,068	ft²	25.30 acres
Construction area planned per month	315,143	ft²	7.23 acres

Assumptions:

Total ground disturbance for pedestrian fence A-1 would be 15 acres.

Total ground disturbance for pedestrian fence A-2 would be 3,696 feet long by 60 feet wide (221,760 ft^2).

Total ground disturbance for excavation areas for cut and fill operations would be 40 acres.

Total ground disturbance for staging areas would be 25.30 acres.

New access road would be graded and lined with gravel for 0.24 miles and paved for 0.25 miles. Access road is 24 feet wide.

Construction would occur in Calendar Year 2008 for a total of 240 working days (Assumes working 7 days/week).

Total Building Construction Area:	0	ft²
Total Demolished Area:	0	ft²
Total Paved Area:	31,680	ft²
Total Disturbed Area:	3,781,721	ft²
Construction Duration:	1.0	year(s)
Annual Construction Activity:	240	days/yr

BW1 FOIA CBP 001523

Emission Factors Used for Construction Equipment

Reference: Gu de to A r Qua ty Assessment, SMAQMD, 2004

Em ss on factors are taken from Tab e 3-2. Assumpt ons regard ng the type and number of equ pment are from Tab e 3-1 un ess otherw se noted.

Grading

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Bu dozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	3	60.51	9.02	70.69	1.21	2.03

Paving

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Ro er	1	5.01	0.86	7.34	0.10	0.14
Tota per 10 acres of act v ty	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equ pment	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Hau Truck	1	20.89	3.60	30.62	0.42	0.58
Tota per 10 acres of act v ty	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equ pment[d]	No. Reqd.[a] per 10 acres	NO_x (b/day)	VOC[b] (b/day)	CO (b/day)	SO_2[c]	PM_{10} (b/day)
Stat onary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industr a Saw	1	17.02	2.12	14.52	0.34	0.68
We der	1	4.48	0.56	3.83	0.09	0.18
Mob e (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Fork ft	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Tota per 10 acres of act v ty	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tab es are on fo ow ng page

BW1 FOIA CBP 001524

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NO_x (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not provide SO_2 emission factors. For this worksheet, SO_2 emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO_2 factor was found to be approximately 0.04 times the NOx emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emission factor for all other equipment (based on AP-42, Table 3.4-1)

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emissions Factors (lb/day)				
		NO_x	VOC	CO	SO_2**	PM_{10}
Grading Equipment	9	4727.932	704.775	5523.344	94.559	158.613
Paving Equipment	1	0.941	0.162	1.379	0.019	0.026
Demolition Equipment	1	0.000	0.000	0.000	0.000	0.000
Building Construction	1	0.000	0.000	0.000	0.000	0.000
Air Compressor for Architectural Coating	1	0.000	0.000	0.000	0.000	0.000
Architectural Coating**			0.000			

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factors from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Example: SMAQMD Emission Factor for Grading Equipment NOx = (Total Grading NOx per 10 ac*((total disturbed area/43560)/10))*(Equipment Multiplier)

BW1 FOIA CBP 001525

Summary of Input Parameters

	Tota Area (ft^2)	Tota Area (acres)	Tota Days	
Grad ng:	3,781,721	86.82	6	(from "CY2008 Grad ng" worksheet)
Pav ng:	31,680	0.73	4	
Demo t on:	0	0.00	0	
Bu d ng Construct on:	0	0.00	0	
Arch tectura Coat ng	0	0.00	0	(per the SMAQMD "A r Qua ty of Thresho ds of S gn f cance", 1994)

NOTE: The 'Tota Days' est mate for pav ng s ca cu ated by d v d ng the tota number of acres by 0.21 acres/day, wh ch s a factor der ved from the 2005 MEANS Heavy Construct on Cost Data, 19th Ed t on, for 'Aspha t c Concrete Pavement, Lots and Dr veways - 6" stone base', wh ch prov des an est mate of square feet paved per day. There s a so an est mate for 'P a n Cement Concrete Pavement', however the est mate for aspha t s used because t s more conservat ve. The 'Tota 'Days' est mate for demo t on s ca cu ated by d v d ng the tota number of acres by 0.02 acres/day, wh ch s a factor a so der ved from the 2005 MEANS reference. Th s s ca cu ated by averag ng the demo t on est mates from 'Bu d ng Demo t on - Sma Bu d ngs, Concrete', assum ng a he ght of 30 feet for a two-story bu d ng; from 'Bu d ng Foot ngs and Foundat ons Demo t on - 6" Th ck, P a n Concrete'; and from 'Demo sh, Remove Pavement and Curb - Concrete to 6" th ck, rod re nforced'. Pav ng s doub e-we ghted s nce projects typ ca y nvo ve more pav ng demo t on. The 'Tota Days' est mate for bu d ng construct on s assumed to be 230 days, un ess project-spec f c data s known.

Project Emissions per Month (lbs)

	NO_x	VOC	CO	SO_2	PM_{10}
Grad ng Equ pment	28,367.59	4,228.65	33,140.06	567.35	951.68
Pav ng	3.76	0.65	5.52	0.08	0.10
Demo t on	-	-	-	-	-
Bu d ng Construct on	-	-	-	-	-
Arch tectura Coat ngs	-	-	-	-	-
Total Emissions (lbs):	**28,371.36**	**4,229.30**	**33,145.58**	**567.43**	**951.79**

Results: Total Project Annual Emissions (4 months of activity)

	NO_x	VOC	CO	SO_2	PM_{10}
Tota Project Em ss ons (bs)	113,485.43	16,917.20	132,582.32	2,269.71	3,807.14
Tota Project Em ss ons (tons)	56.74	8.46	66.29	1.13	1.90

BW1 FOIA CBP 001526

CO_2 Emissions

It s assumed that 20 veh c es cons st ng of bu dozer, grader, fork ft, cranes, ro ers, and ght duty trucks wou d be used for th s project.

It s further assumed that the tota approx mate average m es per day per veh c e wou d be 10 m es.

It s assumed that the average veh c e w produce 19.5 pounds of CO_2 per ga on of gas used. (www.e a.doe.gov/o af/1605/coeff c ents)

Tota CO_2 Em ss ons for Proposed Act on	46.800 tpy

Examp e: (20 veh c es) x (10 m es/day/veh c e) x (240 days work ng) x (1 ga /10 m es) x (19.5 b CO_2/ga x ton/2000 b) = 46.8 tons CO_2

BW1 FOIA CBP 001527

Construction Fugitive Dust Emissions for CY 2008

Ca cu at on of PM_{10} Em ss ons Due to S te Preparat on (Uncontro ed).

User Input Parameters / Assumpt ons

Acres graded per year:	86.82	acres/yr	(From "CY2008 Combust on" worksheet)
Grad ng days/yr:	5.59	days/yr	(From "CY2008 Grad ng worksheet)
Exposed days/yr:	45	assumed days/yr graded area s exposed	
Grad ng Hours/day:	8	hr/day	
So p es area fract on:	0.10	(assumed fract on of s te area covered by so p es)	
So percent s t, s:	8.5	%	(mean s t content; expected range: 0.56 to 23, AP-42 Tab e 13.2.2-1)
So percent mo sture, M:	50	%	(http://www.cpc.noaa.gov/products/so mst/w.shtm)
Annua ra nfa days, p:	30	days/yr ra nfa exceeds 0.01 nch/day (AP-42 F g 13.2.2-1)	
W nd speed > 12 mph %, I:	23	%	Ave. of w nd speed at San D ego, CA (http://www.epa.gov/ttn/naaqs/ozone/areas/w ndr/23188.g f)
Fract on of TSP, J:	0.5	per Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993, p. A9-99	
Mean veh c e speed, S:	5	m /hr	(On-s te)
Dozer path w dth:	8	ft	
Qty construct on veh c es:	26.04	veh c es	(From "CY2008 Grad ng worksheet)
On-s te VMT/veh c e/day:	5	m /veh/day	(Exc ud ng bu dozer VMT dur ng grad ng)
PM_{10} Adjustment Factor k	1.5	b/VMT	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor a	0.9	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
PM_{10} Adjustment Factor b	0.45	(d mens on ess)	(AP-42 Tab e 13.2.2-2 12/03 for PM_{10} for unpaved roads)
Mean Veh c e We ght W	40	tons	assumed for aggregate trucks

TSP - Tota Suspended Part cu ate
VMT - Veh c e M es Trave ed

BW1 FOIA CBP 001528

Emissions Due to Soil Disturbance Activities

Operat on Parameters (Ca cu ated from User Inputs)

Grad ng durat on per acre	0.5	hr/acre	
Bu dozer m eage per acre	1	VMT/acre	(M es trave ed by bu dozer dur ng grad ng)
Construct on VMT per day	130	VMT/day	
Construct on VMT per acre	8.4	VMT/acre	(Trave on unpaved surfaces w th n s te)

Equat ons Used (Corrected for PM10)

Operat on	Emp r ca Equat on	Un ts	AP-42 Sect on (5th Ed t on)
Bu doz ng	$0.75(s^{1.5})/(M^{1.4})$	bs/hr	Tab e 11.9-1, Overburden
Grad ng	$(0.60)(0.051)s^{2.0}$	bs/VMT	Tab e 11.9-1,
Veh c e Traff c (unpaved roads)	$[(k(s/12)^{a} (W/3)^{b})]$ [(365-P)/365]	bs/VMT	Sect on 13.2.2

Source: Comp at on of A r Po utant Em ss on Factors, Vo . I, USEPA AP-42, Sect on 11.9 dated 10/98 and Sect on 13.2 dated 12/03

Ca cu at on of PM_{10} Em ss on Factors for Each Operat on

Operat on	Em ss on Factor (mass/ un t)	Operat on Parameter	Em ss on Factor (bs/ acre)
Bu doz ng	0.08 bs/hr	0.5 hr/acre	0.00 bs/acre
Grad ng	0.77 bs/VMT	1 VMT/acre	0.80 bs/acre
Veh c e Traff c (unpaved roads)	3.24 bs/VMT	8.4 VMT/acre	27.20 bs/acre

BW1 FOIA CBP 001529

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: Ca forn a Env ronmenta Qua ty Act (CEQA) A r Qua ty Handbook, SCAQMD, 1993.

So P es EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

So P es EF = 10.5 bs/day/acre covered by so p es

Cons der so p es area fract on so that EF app es to graded area

So p es area fract on: 0.10 (Fract on of s te area covered by so p es)
So P es EF = 1.05 bs/day/acres graded

Graded Surface EF = 26.4 bs/day/acre (recommended n CEQA Manua , p. A9-93).

Calculation of Annual PM_{10} Emissions

Source	Em ss on Factor	Graded Acres/yr	Exposed days/yr	Em ss ons bs/yr	Em ss ons tons/yr
Bu doz ng	0.00 bs/acre	86.82	NA	0	0.000
Grad ng	0.80 bs/acre	86.82	NA	69	0.035
Veh c e Traff c	27.20 bs/acre	86.82	NA	2,361	1.181
Eros on of So P es	1.05 bs/acre/day	86.82	45	4,102	2.051
Eros on of Graded Surface	26.40 bs/acre/day	86.82	45	103,138	51.569
TOTAL				109,671	54.84

So D sturbance EF: 28.00 bs/acre
W nd Eros on EF: 27.45 bs/acre/day

Back ca cu ate to get EF: 226.17 bs/acre/grad ng day

BW1 FOIA CBP 001530

Construction (Grading) Schedule for CY 2008

Est mate of t me requ red to grade a spec f ed area.

Input Parameters
Construct on area: 86.82 acres/yr (from "CY2008 Combust on" Worksheet)
Qty Equ pment: 26.04 (ca cu ated based on 3 p eces of equ pment for every 10 acres)

Assumpt ons.
Terra n s very rough w th mounta ns and sw tchbacks.
An average of 6" so s excavated from one ha f of the s te and backf ed to the other ha f of the s te; no so s hau ed off-s te or borrowed.
200 hp bu dozers are used for s te c ear ng.
300 hp bu dozers are used for str pp ng, excavat on, and backf .
V bratory drum ro ers are used for compact ng.
Str pp ng, Excavat on, Backf and Compact on requ re an average of two passes each.
Excavat on and Backf are assumed to nvo ve on y ha f of the s te.

Ca cu at on of days requ red for one p ece of equ pment to grade the spec f ed area.

Reference: Means Heavy Construct on Cost Data, 19th Ed., R. S. Means, 2005.

Means L ne No.	Operat on	Descr pt on	Output	Un ts	Acres per equ p-day)	equ p-days per acre	Acres/yr (project-spec f c)	Equ p-days per year
2230 200 0550	S te C ear ng	Dozer & rake, med um brush	8	acre/day	8	0.13	86.82	10.85
2230 500 0300	Str pp ng	Topso & stockp ng, adverse so	1,650	cu. yd/day	2.05	0.49	86.82	42.44
2315 432 5220	Excavat on	Bu k, open s te, common earth, 150' hau	800	cu. yd/day	0.99	1.01	43.41	43.77
2315 120 5220	Backf	Structura , common earth, 150' hau	1,950	cu. yd/day	2.42	0.41	43.41	17.96
2315 310 5020	Compact on	V brat ng ro er, 6 " fts, 3 passes	2,300	cu. yd/day	2.85	0.35	86.82	30.45
TOTAL								145.47

Ca cu at on of days requ red for the nd cated p eces of equ pment to grade the des gnated acreage.

(Equ p)(day)/yr: 145.47
Qty Equ pment: 26.04
Grad ng days/yr: 5.59

BW1 FOIA CBP 001531

Emissions from Haul Trucks During Cut and Fill Operations

The fo ow ng tab e presents pre m nary earthwork quant t es for the proposed Pack Tra Access Road and Monument 250 Road Upgrades. It s assumed that construct on stag ng areas w requ re m n ma grad ng so are not nc uded n the earthwork. For the cost est mate t was assumed that 70% of the cut vo ume w be rock, requ r ng pneumat c rock hammers and b ast ng.

Location	Cut Volume (CY)	Fill Volume (CY)	Virgin Volume (CY)	Waste Volume (CY)
Route A-1	253,622	268,764	60,000	60,000
Route A-2	37,500	37,500		
Tota	291,122	306,264		

Total Haul Truck Loads for Cut and Fill Volumes		Total Miles	Daily Mileage	
Tota Truck Loads for Cut Mater a s	9,704	19,408	80.87	
Tota Truck Loads for F Mater a s	10,209	20,418	85.07	
Tota Truck Loads for V rg n F Mater a s	2,000	20,000	83.33	
Tota Truck Loads for Waste Mater a s	2,000	20,000	83.33	
Tota Truck Loads for Cut/F Mater a s	23,913	79,826	83.15	Average Da y M eage

Assumpt ons:
Each hau truck can carry approx mate y 30 cub c yards of mater a s.
Each hau truck wou d trave an average of 2 m es round tr p for ons te cut and f mater a s.
Each hau truck wou d trave an average of 10 m es round tr p for offs te v rg n and waste mater a s.

Emission Factors

Em ss on factors are taken from the USEPA MOBILE5 em ss ons mode , as comp ed and pub shed n "A r Em ss ons Inventory Gu dance Document for Mob e Sources and A r Force Insta at ons" A r Force Inst tute for Env ronmenta Safety and Occupat ona Hea th R sk Ana ys s (AFIERA), Ju y 2001.

A veh c e em ss ons are ca cu ated assum ng that the average commute veh c e s f ve years o d. That s ca endar year 2008 em ss ons est mates assume that the average veh c e n each veh c e c ass s a 2003 mode .

Note that PM_{10} em ss on factors nc ude both exhaust and "fug t ve" em ss ons (paved road, brake & t re dust, etc.).

Emission Factors in g/mi from MOBILE5 Tables for 2003 Model Year Vehicles in CY2008.

	HDDV Low A t tude g/m - 2008				
	NO_x	VOC	CO	SO_2	PM_{10}
HDDV	6.5	2.0	10.9	0.512	7.73

Reference: Tab es 4-2 through 4-53, (AF IERA, Ju y 2001)
Notes: HDDV em ss on factors shown above were taken from AF IERA HDDV (>8,500 bs) em ss on factors

Haul Truck Emissions

BW1 FOIA CBP 001532

HDDV Emissions by Vehicle Class- 2003 (tons)					
	NO_x	VOC	CO	SO_2	PM_{10}
HDDV	0.57	0.18	0.96	0.05	0.68

CO_2 Emissions

It is assumed that the average vehicle will produce 19.5 pounds of CO_2 per gallon of gas used. (www.eia.doe.gov/oiaf/1605/coeffic ients)

Total CO_2 Emissions for Proposed Action	19.458 tpy

Example: (83.15 average miles/day) x (240 days working) x (1 gal/10 miles) x (19.5 lb CO_2/gal x ton/2000 lb) = 19.458 tons CO_2

BW1 FOIA CBP 001533

Emissions from Diesel Powered Generators for Construction Equipment

The Proposed Act on wou d requ re s x d ese powered generators to power construct on equ pment. These generators wou d operate approx mate y 8 hours per day for 120 work ng days.

Number of Generators	6	
Max mum Hours of Operat on	8	hrs/day
Number of Construct on Days	240	

Tota Generator Capac ty	75	hp
Hour y Rate	0.5262	MMBtu/hr
Annua Use	6,062	MMBtu/yr

Examp e: 1hp=0.002546966 MMBtu/Hr
Hour y Rate (MMBtu) = (75 Hp/0.363)*(0.002546699 MMBtu/hr) =0.5262 MMBtu/hr
Annua Use (MMBtu) = (Number of Generator * Hours Operat on/Day * Number of Construct on Days) = (6*8*120*0.5262) = 3,030.9 MMBtu/yr

Note: Generators horsepower output capac ty s on y 0.363 percent eff c ent (AP-42 Chapter 3.3).
Source: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

Generator Em ss on Factors (D ese)

NO_x	4.41	b/MMBtu
VOC	0.36	b/MMBtu
CO	0.95	b/MMBtu
SO_x	0.29	b/MMBtu
PM_{10}	0.31	b/MMBtu

Em ss ons (D ese)

NO_x	13.366	tpy
VOC	1.091	tpy
CO	2.879	tpy
SO_x	0.879	tpy
PM_{10}	0.940	tpy

Examp e: Tota NOx Em ss ons = (Annua MMBtu/year*(EF)/2000 = (3,030.9*4.41)/2000 = 6.68 tpy

Source: Em ss on Factors: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

BW1 FOIA CBP 001534

Emissions from Diesel Powered Generators for Portable Lights

The Proposed Act on wou d requ re 10 portab e ght un ts to meet USBP operat ona requ rements. These portab e ghts are powered by a 6-k owatt se f-conta ned d ese generators. Portab e ghts wou d genera y operate cont nuous y every n ght (approx mate y 12 hours) 365 days per year.

Number of Generators	10	
Max mum Hours of Operat on	12	hrs/day
Number of Operat ona Days	365	

Tota Generator Capac ty	6	hp
Hour y Rate	0.0421	MMBtu/hr
Annua Use	606	MMBtu/yr

Examp e: 1hp=0.002546966 MMBtu/Hr
Hour y Rate (MMBtu) = (6 Hp/0.363)*(0.002546699 MMBtu/hr) =0.0421 MMBtu/hr
Annua Use (MMBtu) = (Number of Generator * Hours Operat on/Day * Number of Construct on Days) = (10*12*120*0.0421) = 606.2MMBtu/yr

Note: Generators horsepower output capac ty s on y 0.363 percent eff c ent (AP-42 Chapter 3.3).
Source: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

Generator Em ss on Factors (D ese)

NO_x	4.41	b/MMBtu
VOC	0.36	b/MMBtu
CO	0.95	b/MMBtu
SO_x	0.29	b/MMBtu
PM_{10}	0.31	b/MMBtu

Em ss ons (D ese)

NO_x	1.337	tpy
VOC	0.109	tpy
CO	0.288	tpy
SO_x	0.088	tpy
PM_{10}	0.094	tpy

Examp e: Tota NOx Em ss ons = (Annua MMBtu/year*(EF)/2000 = (606*4.41)/2000 = 1.337 tpy

Source: Em ss on Factors: USEPA AP-42 Vo ume I, Stat onary Interna Combust on Sources, Tab e 3.3-1 (http://www.epa.gov/ttn/ch ef/ap42/ch03/f na /c03s03.pdf)

CO_2 Em ss ons

0.140 MMBTU/ga ons of d ese fue used
3,606 MMBTU/Year*ga ons/0.140 = 25,757 ga ons
25,757 ga ons*21.3 pounds CO_2/ga on = 548,624 pounds

274.312 CO_2 Em ss ons (tons)

BW1 FOIA CBP 001535

San Diego Intrastate Air Quality Control Region

			Area Source Emissions						Point Source Emissions					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	CA	San Diego Co	600,798	73,048	69,821	17,914	1,748	91,102	4,380	3,295	2,190	1,402	259	4,269
Grand Total			600,798	73,048	69,821	17,914	1,748	91,102	4,380	3,295	2,190	1,402	259	4,269

SOURCE:
http://www.epa.gov/air/data/geose.htm
USEPA - AirData NET Tier Report
*Net Air pollution sources (area and point) in tons per year (2001)
Site visited on 17 October 2007.

San Diego Intrastate AQCR (40 CFR 81.164): San Diego County, California

BW1 FOIA CBP 001536

APPENDIX G

Detailed Maps of the Proposed Tactical Infrastructure Section Showing Soils

116°52'0"W 116°51'0"W 116°50'0"W 116°49'0"W 116°48'0"W 116°47'0"W

32°34'0"N 32°33'0"N 32°32'0"N

United States
California
Mexico
Otay Mountain Wilderness

Otay Mountain Truck Road 5.11 Miles
Puebla Tree
Proposed A-1 Access Road 5.19 Miles
A-1
Monument 250
Monument 250 Road 2.11 Miles

SmE MrG SnG Rm AuF VbC VbB SvE FxG FxE HrC RkC

Proposed Fence Route
Proposed A-1 Access Road Route
Existing Access Roads
Land Parcels
National Wetlands Inventory
Otay Mountain Wilderness

Soil Types

- AuF, Anderson very gravelly sandy loam, 9 to 45 percent
- FxE, Friant rocky fine sandy loam, 9 to 30 percent slop
- FxG, Friant rocky fine sandy loam, 30 to 70 percent slo
- HrC, Huerhuero loam, 2 to 9 percent slopes
- MrG, Metamorphic rock land
- RkC, Reiff fine sandy loam, 5 to 9 percent slopes
- Rm, Riverwash
- SmE, San Miguel rocky silt loam, 9 to 30 percent slopes
- SnG, San Miguel-Exchequer rocky silt loams, 9 to 70 per
- SvE, Stony land
- VbB, Visalia gravelly sandy loam, 2 to 5 percent slopes
- VbC, Visalia gravelly sandy loam, 5 to 9 percent slopes
- s1001, Tujunga-Salinas-Elder (s1001)
- s1013, San Miguel-Friant-Exchequer (s1013)

N
Feet
0 500 1,000 2,000
Scale

USBP
Proposed Tactical Infrastructure EIS
San Diego Sector, Texas
Detailed Proposed Fence Section Maps

Projection: Albers
USA Contiguous Albers Equal Area Conic
North American Datum of 1983

December 2007	Scale 1" = 2000'	Map 1 of 2

BW1 FOIA CBP 001540

116°41'0"W 116°40'0"W 116°39'0"W

32°35'0"N

32°34'0"N

United States

California

Mexico

Tecate Mission Road/
South Grape View

A-2

Staging Area

Tecate

AcG
CnG2
VaC
LrG
CID2
VaC
VaC
CnE2
StG
CIE2
CnE2
s1010
VaC
StG
CmE2
VaB
s1012
FaC2

Proposed Fence Route
Existing Access Roads
Proposed Construction Staging Area
Land Parcels

Soil Types

Label

- AcG, Acid igneous rock land
- CID2, Cieneba coarse sandy loam, 5 to 15 percent slopes,
- CIE2, Cieneba coarse sandy loam, 15 to 30 percent slopes
- CmE2, Cieneba rocky coarse sandy loam, 9 to 30 percents
- CmrG, Cieneba very rocky coarse sandy loam, 30 to 75 per
- CnE2, Cieneba-Fallbrook rocky sandy loams, 9 to 30 perce
- CnG2, Cieneba-Fallbrook rocky sandy loams, 30 to 65 perc
- FaC2, Fallbrook sandy loam, 5 to 9 percent slopes, erode
- LrE2, Las Posas stony fine sandy loam, 9 to 30 percent s
- LrG, Las Posas stony fine sandy loam, 30 to 65 percent
- StG, Steep gullied land
- VaB, Visalia sandy loam, 2 to 5 percent slopes
- VaC, Visalia sandy loam, 5 to 9 percent slopes
- WmB, Wyman loam, 2 to 5 percent slopes
- WmC, Wyman loam, 5 to 9 percent slopes
- s1010, Sesame-Rock outcrop-Cieneba (s1010)
- s1012, Rock outcrop-Las Posas (s1012)

N

Feet

0 250 500 1,000

Scale

USBP
Proposed Tactical Infrastructure EIS
San Diego Sector, Texas
Detailed Proposed
Fence Section Maps

Projection: Albers
USA Contiguous Albers Equal Area Conic
North American Datum of 1983

December 2007 | Scale 1" = 1000' | Map 2 of 2

APPENDIX H

Draft Biological Survey Report

DRAFT

BIOLOGICAL SURVEY REPORT

SUPPORTING THE

ENVIRONMENTAL IMPACT STATEMENT

FOR THE

PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE

U.S. BORDER PATROL SAN DIEGO SECTOR, CALIFORNIA

Prepared for:

U.S. Customs and Border Patrol

Prepared by:

Solutions Today for a Sustainable Tomorrow

DECEMBER 2007

ABBREVIATIONS AND ACRONYMS

°F	degrees Fahrenheit
BEPA	Bald Eagle Protection Act
BLM	Bureau of Land Management
CBP	U.S. Customs and Border Protection
CDFG	California Department of Fish and Game
CNDDB	California Department of Fish and Game's California Natural Diversity Database
CWA	Clean Water Act
DHS	U.S. Department of Homeland Security
e²M	engineering-environmental Management, Inc.
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FE	Federally Endangered
FT	Federally Threatened
HCP	habitat conservation plan
MBTA	Migratory Bird Treaty Act
MHPA	Multiple Habitat Planning Area
MSCP	Multiple Species Conservation Program
NEPA	National Environmental Policy Act
NWI	National Wetlands Inventory
OMW	Otay Mountain Wilderness
POE	Port of Entry
SE	State Endangered
ST	State Threatened
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WOUS	Waters of the United States

DRAFT BIOLOGICAL SURVEY REPORT SUPPORTING THE ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE U.S. BORDER PATROL SAN DIEGO SECTOR, CALIFORNIA

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TABLES

1. Introduction

This Biological Survey Report has been prepared to support the development of an Environmental Impact Statement addressing proposed construction, maintenance, and operation of tactical infrastructure along the U.S./Mexico international border in the USBP San Diego Sector, California. The report synthesizes information collected by engineering-environmental Management, Inc (e²M) from a variety of sources to describe the biological resources of the project areas, the potential impacts of the proposed project (described in more detail below) on those biological resources, and recommendations for avoidance or reduction of those impacts. Information was gathered from publicly available literature, data provided by relevant land management agencies, review of aerial photography and U.S. Geological Survey (USGS) topographic maps, data from the California Department of Fish and Game's California Natural Diversity Database (CNDDB), Bureau of Land Management (BLM), NatureServe; field surveys conducted October 10–12, 15, and 17, 2007; and December 3–5, 2007.

This report was developed to support National Environmental Policy Act (NEPA) and Endangered Species Act (ESA) requirements for analyzing potential impacts on biological resources resulting from proposed construction, maintenance, and operation of tactical infrastructure. It was developed as an independent document but will be included as an appendix in the Environmental Impact Statement developed for this project.

2. Project Description

U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP) proposes to construct, operate, and maintain approximately 4.4 miles of tactical infrastructure including primary pedestrian fence, patrol roads, and access roads along the U.S./Mexico international border in the USBP San Diego Sector, California.

The proposed tactical infrastructure would be constructed in two sections (designated as A-1 and A-2, see **Table 2-1**) along the border within the USBP San Diego Sector, in San Diego County, California. Section A-1 is approximately 3.6 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The proposed section of fence would be adjacent to and on the Otay Mountain Wilderness (OMW), and would follow the U.S./Mexico international border where topography allows, deviating from the border to follow a newly constructed access road where conditions warrant, such as descent to canyon bottoms. The length of access road and patrol road to support the operation and maintenance of the fence would be approximately 5.2 miles. In areas where the patrol road is not adjacent to the fence, trails suitable for light-tracked vehicles would be constructed for the purposes of fence installation and maintenance. These trails would require clearing of brush and boulders and minor grading. Rock outcrops might require leveling for safe travel and fence construction.

Table 2-1. Tactical Infrastructure Sections, San Diego Sector

Fence Section Number	Border Patrol Station	General Location	Approx. Mileage (mi)
A-1	Brown Field/Chula Vista	Pack Trail, South Side of Otay Mountain	3.6
A-2	Brown Field	West of Tecate Port of Entry	0.8
		Total	**4.4**

The OMW is on public lands administered by Bureau of Land Management (BLM). The wilderness boundary is at least 100 feet from the U.S./Mexico international border. The corridor between the OMW and the U.S./Mexico international border is public land administered by the BLM. Approximately one half of the proposed patrol and access road would occur in this corridor between the U.S./Mexico international border and the wilderness boundary. Due to steep topography, approximately one half of the length of patrol and access road and approximately 1,300 feet of the primary pedestrian fence would extend into the OMW.

Section A-2 would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate. This fence section would extend up Tecate Peak to an elevation of approximately 2,200 feet and would pass through a riparian area. This proposed fence section would encroach on a mix of privately owned land parcels and public land administered by the BLM. Construction of this fence section would include an upgrade to an access road west of Tecate.

3. Survey Methods and Limitations

To provide flexibility in placing tactical infrastructure within the proposed project corridor, and to ensure consideration of potential impacts due to construction and use, the biological resources surveys were conducted in an area extending 300 feet on the north side of the proposed individual tactical infrastructure sections and extending at least 0.5 miles past the proposed ends of each section. The areas thus defined are referred to hereafter as the “survey corridor.”

Intuitive controlled investigations of the survey corridor were conducted by Rod Dossey of Dossey & Associates (Rare Plant Specialist, Biologist), Michael Klein of Klein-Edwards Professional Services (U.S. Fish and Wildlife Service [USFWS] permitted biologist for Quino checkerspot butterfly), Kevin Clark of Clark Biological Services (USFWS permitted biologist for California gnatcatcher, least Bell’s Vireo, and Southwestern willow flycatcher), Brent Eastty of e²M (Ecologist), Karen Stackpole of e²M (Senior Ecologist), and Dustin Janeke of e²M (Biologist).

The October 2007 surveys covered the proposed fence alignment for A-2 (Tecate section), a portion of the most recent alignment at that time on section A-

1, and a portion of the BLM access road (from the Puebla Tree to nearly halfway to where the BLM Road meets Otay Truck Trail). Surveyors walked the proposed project corridor as described above for each tactical infrastructure section, and examined in more detail areas containing species compositions or habitat that might be conducive to sensitive species. Plot data (i.e., GPS coordinates, photographs, and plant community composition) were recorded at regular intervals along the corridor and where plant communities presented substantial shifts in species composition. These data will be used to generate vegetation classifications and maps to support delineation of habitat types, analysis of potential sensitive species occurrences, and analysis of potential project impacts on biological resources. These maps will be included in the final report. Although the surveyors are permitted to survey for or monitor for listed species in San Diego, no protocol surveys were conducted. Surveyors did specifically look for evidence indicating the presence of state- and federally listed species (see **Table 3-1**), and habitats that might support them. Descriptions of the federally listed species are provided in **Appendix A**.

Multiple Species Conservation Program

The San Diego region has a greater number of threatened and endangered species than anywhere else in the continental United States. Over 200 plant and animal species occur in the county that are federally and/or state listed as endangered, threatened, or rare; proposed or candidate for listing; or otherwise considered sensitive. The Multiple Species Conservation Program (MSCP) was developed to provide natural resource guidance for where future development should and should not occur, and to streamline and coordinate procedures for review and for permitting impacts to biological resources (MSCP 1998).

The MSCP is a comprehensive habitat conservation planning program in San Diego that provides for a regional process to authorize incidental take of protected species for urban development and for conserving multiple species and their habitat within a 582,243-acre planning area in southwestern San Diego County. The MSCP planning area includes 12 local jurisdictions in southern coastal San Diego County. These jurisdictions implement their respective portions of the MSCP Plan through subarea plans describing specific implementing mechanisms for the MSCP Plan. This includes plans for the City of San Diego and County of San Diego subareas. Both the county and city have finalized their respective subarea plans and have received take authorizations under the MSCP.

The MSCP Plan, and each subarea plan prepared pursuant to it, is intended to serve as a multiple species habitat conservation plan (HCP) pursuant to Section 10(a)(2)(A) of the ESA. An HCP is required for issuance of a permit for incidental take of listed species pursuant to Section 10(a)(1)(B) of the Act. An HCP may also serve as a Natural Communities Conservation Plan (NCCP) pursuant to the State of California's NCCP Act of 1991, provided findings are made that the plan is consistent with the NCCP Act.

Table 3-1. Federal and State Threatened and Endangered Species in California

Scientific Name	Common Name	Federal Status	State Status
Branchinecta sandiegonensis	San Diego fairy shrimp	E	
Streptocephalus woottoni	Riverside fairy shrimp	E	
Euphydryas editha quino	Quino checkerspot butterfly	E	
Bufo californicus	Arroyo toad	E	
Polioptila californica californica	Coastal California gnatcatcher	T	
Vireo bellii pusillus	Least Bell's vireo	E	E
Empidonax trailii extimus	Southwestern willow flycatcher	E	E
Ambrosia pumila	San Diego ambrosia	E	
Eryngium aristulatum var. parishii	San Diego button-celery	E	E
Deinandra conjugens	Otay tarplant	T	E
Pogogyne nudiuscula	Otay Mesa mint	E	E
Navarretia fossalis	Spreading navarretia	T	
Fremontodendron mexicanum	Mexican flannelbush	E	
Orcuttia californica	California Orcutt grass	E	E
Baccharis vanessae	Encinitas baccharis	T	E

Source: USFS 2007
Notes: E = endangered; T = Threatened

The MSCP Plan proposes the authorization of incidental take of 85 species, including 20 listed animal and plant species, 8 species currently proposed for federal listing as endangered or threatened, and 1 candidate for federal listing. This proposed list of species for which take is authorized is based upon full implementation of the MSCP Plan (MSCP 1998). **Table 3-2** lists the federally threatened and endangered species that are target MSCP species in the project area.

BLM-Listed Species

The proposed Section A-1 and access road are located partially within BLM lands. **Table 3-2** lists species that are BLM-designated sensitive species and MSCP target species that could occur in the proposed project corridor for Sections A-1 and A-2, or within the access roads.

Table 3-2. BLM-, CNDDB-, and MSCP-Listed Species with the Potential to Occur in the Project Area

Scientific Name	Common Name	BLM Status	CDFG Status	MSCP Target Species
Invertebrates				
Callophrys thorneii	Thorne's hairstreak butterfly	Sensitive	SC	Yes
Amphibians				
Bufo californicus	Arroyo toad	No	SC	SC
Spea hammondii	Western spadefoot Toad	Sensitive	SC	No
Reptiles				
Aspidoscelis hyperythra	Orange-throated whiptail	Sensitive	SC	Yes
Phrynosoma coronatum	San Diego (or California) horned lizard	Sensitive	SC (subspecies *Blainvillei*)	Yes (subspecies *Blainvillei*)
Thamnophis hammondii	Two-striped garter snake	Sensitive	No	No
Birds				
Agelaius tricolor	Tricolored blackbird	Sensitive	No	Yes
Aquila chrysaetos	Golden eagle	No	SC	Yes
Athene cunicularia	Burrowing owl	Sensitive	SC	Yes
Mammals				
Eumops perotis californicus	Western mastiff bat	Sensitive	SC	Yes
Plecotus townsendii	Townsend's western big-eared bat	Sensitive	SC	Yes

Source: BLM 1994, CDFG 2007, MSCP 1998.
Notes:
CDFG = California Department of Fish and Game
SC = species of concern

4. Environmental Setting

The San Diego area is generally characterized as having a Mediterranean climate. Summers are typically warm and dry, with daytime temperatures rarely exceeding 90 degrees Fahrenheit (°F); winters are mild and wet, with nighttime temperatures usually above freezing. In the mountainous region where the project sites are located, temperatures range from 25 °F to 90 °F. Average annual precipitation ranges from 10 to 25 inches, and dry periods of 7 to 8 months are common. Eighty-five percent of the rainfall in the region occurs from November to March, but wide variations take place in monthly and seasonal totals (NOAA 2007).

The vegetation of Southern California has generally been classified under the Humid Temperate Domain, Mediterranean Division of Bailey (1995). The proposed project area is predominantly classified as the California Coastal Range Open Woodland–Shrub–Coniferous Forest–Meadow Province (Bailey 1995). The Jepson Manual (Hickman et al. 1996) describes vegetation geography using combined features of the natural landscape, including natural vegetation types and plant communities, and geologic, topographic, and climatic variation. This geographic system places the proposed project corridor in the California Floristic Province, Southwestern California Region, and Peninsular Ranges Subregion.

NatureServe (2007) has defined ecological systems to represent recurring groups of biological communities that are found in similar physical environments and are influenced by similar dynamic ecological processes such as fire or flooding. Ecological systems represent classification units that are readily identifiable by conservation and resource managers in the field. The vegetation description for the proposed project corridor was prepared in the framework of ecological systems that include:

1. Southern California Dry-Mesic Chaparral (CES206.930)
2. Southern California Oak Woodland and Savanna (CES206.938).

Chaparral within this ecological system (CES206.930) occurs up to 4,550 feet in elevation and on well-drained soils of slopes, toeslopes, and in concavities (NatureServe 2007). It is characterized by several species of *Ceanothus (C. megacarpus, C. crassifolius, C. leucodermis, and C. greggii*), *Adenostema fasiculatum*, *A. sparsifolium*, *Arctostaphylos glauca*, *Cercocarpus betuloides*, *Rhus ovata*, and *Xylococcus bicolor*. Woodlands within this ecological system (CES206.938) occur in major side canyons to the Tijuana River, including Copper, Buttewig, and Mine. They are characterized by species of *Quercus (Q. agrifolia, Q. wislizenii, and Q. engelmanii*), *Platanus racemosa*, *Malosma laurina*, *Toxicodendron diversilobum*) and *Baccharis emoryi*.

A summary of the ecological systems that can be found in the Southern California area, along with typical species compositions and features are provided in **Table 4-1**.

Table 4-1. Ecological Systems of Southern California

Ecological System	Characteristic Species/Features
Central and Southern California Mixed Evergreen Woodland (CES206.920)	*Pseudotsuga macrocarpa, Quercus chrysolepis, Q. agrifolia, and Q. kelloggii, Umbellularia californica, Acer macrophyllum, Arbutus menziesii/*Metasediments and Granitics
Baja Semi-Desert Coastal Succulent Scrub (CES206.934)	*Lycium californicum, Rhus integrifolia, Opuntia californica* var. parkeri (=*O. parryi), O. prolifera, O. littoralis, Yucca schidigera, Ferocactus viridescens, Agave shawii, Euphorbia misera, Bergerocactus emoryi, Simmondsia chinensis*/Maritime Coastal Bluffs
California Mesic Chaparral (CES206.926)	*Quercus berberidifolia, Q. wislizeni* var. *frutescens, Cercocarpus montanus* var. *glaber (=C. betuloides), Fraxinus dipetala, Garrya flavescens, and G. elliptica), Heteromeles arbutifolia, Lonicera* spp., *Prunus ilicifolia, Rhamnus crocea, R. ilicifolia, Toxicodendron diversilobum, Ribes* spp., *Sambucus* spp./North-facing Slopes, Toeslopes, Concavities, Well-drained Soils
Southern California Coastal Scrub (CES206.933)	*Artemisia californica, Salvia (mellifera, apiana, leucophylla), Encelia californica, Eriogonum fasiculatum, E. cinereum, Opuntia littoralis, Diplacus aurantiacus (=Mimulus aurantiacus), Lotus scoparius, Baccharis pilularis*/Coarse Gravel to Clay Soils
Southern California Dry-Mesic Chaparral (CES206.930)	*Ceanothus megacarpus,C. crassifolius, C. leucodermis, C. greggii, Adenostoma fasiculatum, A. sparsifolium, Arctostaphylos glauca, Cercocarpus montanus* (var. *glaber*, var. *minutiflorus*), *Rhus ovata, Xylococcus bicolor*/North-facing Slopes, Toeslopes, Concavities, Well-drained Soils
California Coastal Live Oak Woodland and Savanna (CES206.937)	*Quercus agrifolia, Rubus ursinus, Symphoricarpos mollis, Heteromeles arbutifolia, Toxicodendron diversiloba*/Dense to Sparse Canopy, Latter on South-facing Slopes
Southern California Oak Woodland and Savanna (CES206.938)	*Quercus agrifolia, Q. wislizeni, Q. engalmannii, Juglans californica*/Coastal Plains and Intermountain Valleys
California Central Valley and Southern Coastal Grassland (CES206.942)	*Nassella pulchra, Aristida* spp., *Achillea millefolium* var. *borealis, Achyrachaena mollis, Agoseris heterophylla, Bloomeria crocea, Triteleia ixioides (=Brodiaea lutea), Chorogalum pomeridianum, Clarkia purpurea, Dodectheon jeffreyi, Elymus glaucus, Leymus triticoides, Festuca californica, Melica californica, Poa secunda*/Fine-textured Soils, Moist in Winter

Ecological System	Characteristic Species/Features
Mediterranean California Alkali Marsh (CES206.947)	*Distichlis spicata, Juncus balticus, Anemopsis californica, Schoenoplectus americanus, Atriplex* spp., *Triglochin maritime, Cirsium* spp./Lake Beds, Floodplains, High Groundwater
Mediterranean California Eelgrass Bed (CES206.999)	*Zostera marina, Phyllospadix scouleri, Fucus distichus, Postelsia plamaeformis*/Intertidal Zones
North American Arid West Emergent Marsh (CES206.729)	*Scirpus* spp., *Schoenoplectus* spp., *Typha* spp., *Juncus* spp., *Potamogeton* spp., *Polygonum* spp., *Nuphar* spp., *Phalaris* spp./Saturated or Inundated Soils
South Coastal California Vernal Pool (CES206.950)	*Trichostema austromontanum, Pogogyne abramsii, Eryngium aristulatum, Orcuttia californica, Pogogyne nudiuscula, Navarretia fossalis, Hemizonia parryi* ssp. *australis, Lasthenia glabrata* ssp. *coulteri*/Small Depressions with Durapan or Cemented Hardpans
Mediterranean California Coastal Bluff (CES206.906)	*Baccharis pilularis, Dudleya* spp., *Carpobrotus (chilensis, edulis), Hazardia squarrosa, Eriogonum parvifolium, Erigeron glaucus, Eriophyllum stoechadifolium, Plantago maritima*/Sea Bluffs and Rocky Headlands
Mediterranean California Southern Coastal Dune (CES206.908)	*Abronia (maritima, umbellatum), Atriplex leucophylla, Isocoma menziesii, Distichlis spicata, Croton californicus, Lupinus chamissonis, Carpobrotus chilensis*/Beaches, Foredunes, Sandspits
Southern California Coast Ranges Cliff and Canyon (CES206.904)	*Ceanothus megacarpus, C. leucodermis, Cercocarpus montanus* var. *minutiflorus, Arctostaphylos glauca, Xylococcus bicolor*/Cliff Faces, Rockfall, Canyonsides

1

2

5. Biological Resources

5.1 Vegetation Classification

The U.S. Forest Service (USFS) recognizes two provinces in the San Diego area: California Coastal Chaparral Forest Shrub Province (261) and California Coastal Range Open Woodland–Shrub–Coniferous Forest–Meadow Province (M262) (Bailey 1995). The proposed Sections A-1 and A-2 lie within both of these provinces and consist predominantly of chaparral and coastal sage scrub found on south-facing slopes and drier areas, and riparian canyon bottoms consisting of broadleaf species. Chaparral communities are adapted to periodic occurrences of fire, whereas coastal sage scrub communities exist in drier, arid areas, and the broadleaf species found in riparian areas are adapted to drastic ranges of stream flow in the canyon bottoms (USFS 2007).

NatureServe (2007) has defined ecological systems to represent recurring groups of biological communities that are found in similar physical environments and are influenced by similar dynamic ecological processes, such as fire or flooding. Ecological systems represent classification units that are readily identifiable by conservation and resource managers in the field. The ensuing vegetation description for the project area was prepared in the framework of ecological systems that include California Coastal Closed-Cone Conifer Forest and Woodland, California Maritime Chaparral, North American Warm Desert Riparian Woodland and Shrubland, California Coastal Live Oak Woodland and Savanna, Southern California Coastal Scrub, and Southern California Dry-Mesic Chaparral.

Classification of existing vegetation within this corridor was achieved by accessing nearly the entire corridor as proposed, sampling observation points, and relating them to the NatureServe Explorer classification database (2007). At the coarsest level, the six above-named ecological systems were determined and local vegetation types placed into the national system. A finer level of classification equaling or approximating the vegetation alliance level of the National Vegetation Classification System (NatureServe 2007) was used to prepare the plant community discussions under each ecological system. Unclassifiable vegetation stands and patches sampled within the proposed corridor typically consisted of nonnative species in weedy areas, such as *Bromus* sp., *Avena* sp., and *Erodium botrys*.

Habitats observed, sampled, and photographed within the project corridor range from chaparral to riparian, coastal sage scrub, oak woodland, and disturbed areas. A brief description of each plant community observed within the proposed sections is provided in **Table 5-1** through **Table 5-19**; They are distinguished using the NatureServe Vegetation Alliance level of classification or an approximation. To the extent possible, each community is illustrated and supported by representative ground photographs (**Figures 5-1** through **5-16**) and foliar cover information for dominant species. Some vegetation patches and stands are introduced nonnative species and do not readily fit into a recognized

vegetation alliance or ecological system designed for native vegetation; they are discussed at the end of this section.

5.1.1 Ecological Systems

Southern California Dry-Mesic Chaparral Ecological System (CES206.930)

This ecological system includes chaparral from sea level up to 1,500 meters (4,550 feet) elevation throughout Central and Southern California and inland portions of Baja Norte, Mexico. It is found in dry-mesic to mesic site conditions analogous to mesic chaparral. Santa Ana winds drive late-summer, stand-replacing fires in these systems. Characteristic species include *Ceanothus megacarpus, Ceanothus crassifolius, Ceanothus leucodermis, Ceanothus greggii, Adenostoma fasciculatum, Adenostoma sparsifolium, Arctostaphylos glauca, Cercocarpus montanus var. glaber (= Cercocarpus betuloides), Cercocarpus montanus var. minutiflorus (= Cercocarpus minutiflorus), Rhus ovata*, and *Xylococcus bicolor*.

Southern California Coastal Scrub Ecological System (CES206.933)

This ecological system includes mixed coastal shrublands from Monterey, California, south into Baja Norte, Mexico. It is dominated by drought-deciduous shrubs but at times can have characteristic (constant but not dominant) resprouting, deep-rooted sclerophyllous shrubs. It occurs below 1,000 meters (3,300 feet) elevation and may extend inland from the maritime zone in hotter, drier conditions than northern (less fog-drenched) shrublands (e.g., areas with 10–60 centimeters of annual precipitation). Soils vary from coarse gravels to clays but typically only support plant-available moisture with winter and spring rain. Most predominant shrubs include *Artemisia californica, Salvia mellifera, Salvia apiana, Salvia leucophylla, Encelia californica, Eriogonum fasciculatum, Eriogonum cinereum, Opuntia littoralis, Diplacus aurantiacus (= Mimulus aurantiacus), Lotus scoparius* (early seral after fire), and *Baccharis pilularis* (in moister, disturbed sites). Characteristic (constant but not dominant) resprouting, deep-rooted sclerophyllous shrubs include *Malosma laurina, Rhus integrifolia*, and *Rhamnus crocea*. Fire frequency has been historically low, but in recent years, the fire frequency has increased due to arson or cigarette ignition, resulting in type conversion to non-native and ruderal annual grasslands. *Malosma laurina* and *Rhus integrifolia* are also increasing in abundance, because they can continually resprout after repeated fires. In places, *Opuntia littoralis* may proliferate and cover entire slopes in dry rocky areas with repeated fires that have killed the scrub taxa, whereas *Opuntia littoralis* can resprout and spread to cover large patches.

California Maritime Chaparral Ecological System (CES206.929)

This ecological system includes chaparral in patches restricted by edaphic conditions (sands, sandstones, other marine sediments, and stabilized sand dunes) within the fog belt throughout the central and northern California coast.

This system is characterized by a combination of locally endemic species of *Arctostaphylos* and *Ceanothus*, and they are primarily species that reproduce by seed rather than resprouting. Shrubs vary in height up to 3 meters and in variable density. More open patches support herbaceous vegetation, while occurrences of high shrub density have no understory. Characteristic species include *Arctostaphylos tomentosa, Arctostaphylos nummularia (= Arctostaphylos sensitiva), Arctostaphylos tomentosa ssp. crustacea (= Arctostaphylos crustacea), Arctostaphylos hookeri, Arctostaphylos pajaroensis, Arctostaphylos montaraensis* (and others), *Ceanothus masonii, Ceanothus griseus*, and *Ceanothus verrucosus*. Southernmost stands (San Diego County) can include *Cneoridium* spp. and *Comarostaphylis diversifolia*. Other common widespread woody taxa can include *Adenostoma fasciculatum, Salvia mellifera, Frangula californica (= Rhamnus californica), Rhamnus crocea*, and *Quercus agrifolia*. Controlled burns have resulted in poor survivorship of the *Arctostaphylos* spp., and current theories are that they need long fire-free intervals to develop a viable seedbank that can reproduce following fire (Keeley and Davis 2005). This system often co-occurs with California Coastal Closed-Cone Conifer Forest and Woodland (CES206.922).

California Coastal Closed-Cone Conifer Forest Ecological System (CES206.922)

For purposes of this report, this system is used to identify Tecate cypress (*Cupressus forbesii*)-dominated woodland communities. In general, small occurrences of this system may be found in scattered locations along California's entire coastline and onto the Channel Islands. They are found on marine sedimentary, non-metamorphosed features, often with podsols on sterile sandstone. These forests and woodlands are limited to coastal areas with moderate maritime climate and likely receive more annual precipitation than nearby coastal chaparral. Highly localized endemic tree species include *Cupressus macrocarpa, Cupressus goveniana*, and *Cupressus abramsiana* in scattered groves along coastal Mendocino, San Mateo, Santa Cruz, and Monterey counties. *Pinus contorta var. contorta, Pinus contorta var. bolanderi, Pinus muricata, Pinus torreyana*, and *Pinus radiata* are dominant or codominant in these and other occurrences. These occurrences can also include pygmy woodland expressions where nearly lateritic subsoil underlies acidic sands (ancient marine terraces). Stunted and twisted *Pinus contorta var. contorta* stands along the Oregon coast (often called pygmy forests) are also part of this system. Other associated plant species include *Arctostaphylos nummularia, Ledum groenlandicum, Vaccinium ovatum, Gaultheria shallon, Rhododendron macrophyllum*, and *Morella californica (= Myrica californica)*. The lichen and moss component of this system is very diverse, includes *Cladonia* spp, and can be abundant in these communities.

5.1.2 Associations

North American Warm Desert Riparian Woodland and Shrubland Ecological System (CES302.753)

***Baccharis salicifolia* Riparian Shrubland (CEGL003549).** This riparian shrubland is known from central and southern interior coastal mountains of California, the Anza-Borrego Desert, and south into Baja California, Mexico. It is often found along washes, springs, and riparian corridors. It is usually a small stringer community. It can occur on steep slopes associated with springs. Soils are course to fine sandy loams, mostly derived from alluvium. Elevation ranges from 216 to over 914 meters (708–3,000+ feet). The shrub layer is dominated by *Baccharis salicifolia*. Non-native *Tamarix* is often found but usually in relatively low cover. *Baccharis pilularis* may also be present in low cover. The herbaceous layer is dominated by a variety of non-native and native species such as *Ambrosia psilostachya, Bromus hordeaceus, Hirschfeldia incana, Lepidium latifolium, Artemisia douglasiana*, and *Urtica dioica*. *Salix gooddingii* or *Platanus racemosa* may be emergent in some stands. *Baccharis salicifolia* is usually dominant. Non-native *Tamarix* is often found but usually in relatively low cover. *Baccharis pilularis* may also be present in low cover. *Salix gooddingii* may be emergent in some stands. The herbaceous layer is dominated by a variety of non-native and native species such as *Ambrosia psilostachya, Bromus hordeaceus, Hirschfeldia incana, Lepidium latifolium, Artemisia douglasiana*, and *Urtica dioica*. Other herbaceous species include forbs *Pseudognaphalium canescens ssp. beneolens (= Gnaphalium canescens ssp. beneolens), Lotus unifoliolatus var. unifoliolatus (= Lotus purshianus var. purshianus), Melilotus indicus*, and *Rumex salicifolius*, and graminoids *Aira caryophyllea, Bromus diandrus*, and *Vulpia myuros*.

California Coastal Live Oak Woodland and Savanna Ecological System (CES206.937)

***Quercus agrifolia/Toxicodendron diversilobum* Woodland (CEGL002866).** This association is known from parts of central and south coastal California. This woodland association occurs on gentle to steep slopes with variable aspects at low elevations between 40 and 577 meters (130–1,900 feet). It is dominated by *Quercus agrifolia* in the tree layer. *Toxicodendron diversilobum* is characteristic in the understory shrub layer, and a variety of grasses and forbs are in the herbaceous layer. Frequently, *Diplacus aurantiacus (= Mimulus aurantiacus)* and *Heteromeles arbutifolia* are also included. *Malosma laurina, Artemisia californica, Salvia leucophylla, Sambucus mexicana*, and *Rhamnus ilicifolia* are occasionally included in the shrub layer. The herbaceous layer is diverse and includes *Leymus condensatus, Marah macrocarpus, Bromus diandrus, Piptatherum miliaceum*, and *Melica imperfecta*.

Southern California Dry-Mesic Chaparral Ecological System (CES206.933)

***Adenostoma fasciculatum* Shrubland (CEGL002924).** This shrubland occurs on extremely xeric sites at 38 to 1,097 meters (124–3,600 feet) elevation on mid

to upper slopes and ridgetops of mostly southeast- to southwest-facing slopes, but can also occur on north-facing slopes. The surface is undulating to linear, on moderately steep to steep slopes. Soils tend to be moderately well-developed and somewhat stony with variable textures, including sand, clay, silt, and various loams. The parent material ranges from igneous, granitic, and metamorphic, to gneiss and may include gabbro and serpentine substrates in the Sierra Nevada foothills. Vegetation is dominated by *Adenostoma fasciculatum* in the shrub layer, with a diverse but low cover herbaceous layer. *Arctostaphylos glauca, Arctostaphylos pungens, Eriogonum fasciculatum, Heteromeles arbutifolia, Salvia columbariae, Salvia apiana*, and *Yucca whipplei* may occur at low cover. The herb layer is open and may include *Bromus madritensis, Aira caryophyllea, Avena barbata, Erodium cicutarium*, and *Lotus* spp. There are rarely emergent trees, at very low cover, which may include *Pinus sabiniana, Quercus agrifolia, Umbellularia californica*, or *Platanus racemosa*. The chamise alliance is the most widespread chaparral vegetation in California and ranges from Shasta County in the north to northwestern Baja California, Mexico. It is differentiated from other *Adenostoma fasciculatum* shrublands by a near total dominance of chamise. Other shrubs that codominate in other associations may be present, but these are generally much less than 10 percent cover, usually less than 1 percent. *Adenostoma fasciculatum* is the sole dominant species in the shrub overstory.

5.1.3 Alliances

Bromus Herbaceous Alliance (A.1813)

This is a highly variable, catch-all alliance. Fall temperatures and precipitation are the major factors determining grassland structure. *Bromus* spp. are very common to dominant grasses. The composition of this widespread western annual grassland alliance varies widely. Many alien and native annual species may be present, including *Bromus diandrus, Bromus hordeaceus, Bromus madritensis, Cynosurus echinatus, Aira caryophyllea*, and species of *Erodium, Lasthenia, Lupinus, Brassica, Avena, Castilleja, Lolium*, and *Centaurea*. This short, temperate, annual grassland forms a herbaceous canopy less than 1 meter in height. Emergent shrubs and trees may be present. This broadly defined annual grassland alliance is composed of many native and exotic annual grasses. Composition varies among stands and is largely determined by fall temperatures and precipitation, light intensity, litter thickness, and microtopography. Disturbance history is often directly related to the percentage of exotic alien species, with heavy disturbance correlating with heavy exotic invasion. Annual grasses are supremely adapted to the Mediterranean climate of California; many species evolved under similar conditions in southern Europe and northern Africa. Plants germinate during winter rains, and complete their life cycles by the beginning of the summer drought. Seeds often remain viable for many years.

Table 5-1. Vegatation Classifications Regions 1, 3, and 5

Holland Habitat	Southern Mixed Chaparral	37120
A Manual of California Vegetation	Chamise-Mission Manzanita-Woollyleaf Ceanothus Series	N/A
NatureServe Habitat	Southern California Dry Mesic Chaparral	CES206.930
Survey Date	10/11/2007	
Disturbances	This area has been burned, possibly in 2003. This area is degraded by grazing. Regions 3 and 5 are more impacted by grazing than Region 1.	
Quality Assessment	This habitat is of moderate quality when compared to similar undisturbed habitats. It is not a pristine habitat, and there are more exotic plants than would be expected in a pristine habitat of this type.	
Dominant Species	*Helianthemum scoparium* *Lotus scoparius* *Xylococcus bicolor* *Ceanothus tomentosus* *Adenostema fasciculatum*	

Figures 5-1 and 5-2. Photographs Representative of Regions 1, 3, and 5

Table 5-2. Vegatation Classifications Regions 2, 4, 6, and 15

Holland Habitat	Diegan Coastal Sage Scrub	32500
A Manual of California Vegetation	California Encelia Series*	N/A
NatureServe Habitat	Southern California Coastal Scrub	CES206.933
Date	10/11/2007 and 10/15/07	
Disturbances	This area has been burned, possibly in 2003. This area is heavily degraded by grazing. This habitat may have been affected by the drought, though those effects are impossible to distinguish from the combined effects of the above.	
Quality Assessment	This habitat is of very low quality when compared to similar undisturbed habitats. It is not a pristine habitat, and the habitat is very sparse and has a much larger number of exotic species than would be expected in a pristine habitat condition. The disturbances are so severe that even identifying dominant species is challenging.	
Notes	*San Diego Sunflower replaces Encelia in a similar ecological niche this far south in California. If Encelia is replaced with *Viguiera laciniata* then the Manual's description fits. The second photo shows this habitat in the foreground and southern mixed chaparral on the slope in the distance.	

Figures 5-3 and 5-4. Photographs Representative of Regions 2, 4, 6, and 15

Table 5-3. Vegatation Classifications Region 7

Holland Habitat	Diegan Coastal Sage Scrub	32500
A Manual of California Vegetation	California sagebrush-California buckwheat series	N/A
NatureServe Habitat	Southern California Coastal Scrub	CES206.933
Date	10/11/2007	
Disturbances	This area has been burned possibly in 2003. This area is regularly grazed. Several alien trails go through this area.	
Quality Assessment	This area varies from high quality to moderately low quality depending on the amount of disturbance, which is unevenly distributed. Overall the area is moderate to good quality habitat.	
Dominant Species	*Malosma laurina* *Artemisia californica* *Eriodictyon trichocalyx*	
Notes	A drainage dominated by *Iva hayesiana* runs through this area and supports the more mesic species. No photo available.	

Table 5-4. Vegatation Classifications Region 8

Holland Habitat	Mulefat Scrub	63310
A Manual of California Vegetation	Mulefat series	N/A
NatureServe Habitat	Baccharis salicifolia riparian shrubland	CEGL003549
Date	10/15/2007	
Disturbances	This area has been burned, possibly in 2003. This area is grazed, but not as heavily as other portions of the surveys area.	
Quality Assessment	This area is very small and of moderate to high quality. The habitat is certainly impacted by grazing and alien activities. The area still has a high diversity and low number of exotic species for the level of impacts.	
Notes	No Photo	

Table 5-5. Vegatation Classifications Region 9

Holland Habitat	Diegan Coastal Sage Scrub	32500
A Manual of California Vegetation	California buckwheat-white sage series*	N/A
NatureServe Habitat	Southern California Coastal Scrub	CES206.933
Date	10/12/2007	
Disturbances	This area has been degraded by numerous dirt roads and trails.	
Quality Assessment	This habitat is of moderate quality due to human impacts from both sides of the border. While there are patches of high quality habitat, there are also patches of extreme disturbance where no natural habitat occurs.	
Dominant Species	*Malosma laurina* *Eriogonum fasciculatum*	
Notes	*The description in A Manual of California Vegetation isn't truly reflective of field conditions, but it is the closest representation.	

Figure 5-5. Photograph Representative of Region 9

Table 5-6. Vegatation Classifications Region 10

Holland Habitat	Southern Coast Live Oak Riparian Forest	61310
A Manual of California Vegetation	Coast Live Oak Series	N/A
NatureServe Habitat	*Quercus agrifolia/Toxicodendron diversilobum* Woodland	CEGL002866
Date	10/12/2007	
Disturbances	There is an occupied house, with a fenced yard and road under the oaks in this woodland. There are fewer trails through the oak woodland than in the adjacent habitats.	
Dominant Species	*Quecus agrifolia*	
Quality Assessment	This habitat is of poor quality. While natives occur here, much of the understory is dominated by exotic species. A house, associated landscaping, and exotics dominate the understory. The oaks themselves appear to be doing very well.	

Figure 5-6. Photograph Representative of Region 10

Table 5-7. Vegatation Classifications Region 11

Holland Habitat	Diegan Coastal Sage Scrub	32500
A Manual of California Vegetation	California buckwheat-white sage series*	N/A
NatureServe Habitat	Southern California Coastal Scrub	CES206.933
Date	10/12/2007	
Disturbances	This area has been degraded by the large number of dirt roads and trails through it, though not nearly to the extent of Region 9. There is the foundation of an old homestead, many alien trails, and a dirt road in the eastern portion of Region 11.	
Dominant Species	*Artemisia californica* *Malosma laurina* *Bromus madritensis*	
Quality Assessment	This habitat is of high quality. There is a drainage that runs through much of it. The diversity of plant species is very high in this area. While there are many more trails than would be expected in this type of habitat, the vegetation appears to still be thriving despite the trail activity.	
Notes	*The description in A Manual of California Vegetation isn't truly reflective of field conditions, but it is the closest representation. It is very difficult to ascertain dominance in this area due to the diversity of the habitat. In the drainage, which makes up a large part of the survey area, scrub oaks are a dominant, but in fact this is a montage of microhabitats that are too small to be mapped individually and vary in dominance species. Overall though the area is a coastal sage scrub type habitat.	

Figure 5-7. Photograph Representative of Region 11

Table 5-8. Vegatation Classifications Region 12

Holland Habitat	Whitethorn Chaparral	37532
A Manual of California Vegetation	Chaparral whitethorn series	N/A
NatureServe Habitat	California maritime chaparral	CES206.929
Dominant Species	*Ceanothus leucodermis* *Avena* sp. *Romneya coulteri* var. Unk.	
Date	10/12/2007	
Disturbances	This area shows evidence of having been burned, possibly in 2005. Alien trails run through this area.	
Quality Assessment:	This habitat is of moderate quality. The area is along a ridgeline dominated by large granite boulders. The area is being invaded by exotic grasses due to the disturbance, but otherwise is of good quality.	

Figure 5-8. Photograph Representative of Region 12

Table 5-9. Vegatation Classifications Region 13

Holland Habitat	Non-Native Grassland	42200
A Manual of California Vegetation	California annual grassland Series	N/A
NatureServe Habitat	Bromus herbaceous alliance	A.1813
Dominant Species	*Bromus madritensis* *Bromus mollis* *Avena* sp.	
Date	10/12/2007	
Disturbances	This area shows evidence of having been burned, possibly in 2005. Alien trails run through this area.	
Quality Assessment	The area appears to be type-transitioning due to fire, from whitethorn chaparral to non-native grassland.	

Figure 5-9. Photograph Representative of Region 13

Table 5-10. Vegatation Classifications Region 14

Holland Habitat	Southern Coast Live Oak Riparian forest	61310
A Manual of California Vegetation	Coast Live Oak Series	N/A
NatureServe Habitat	*Quercus agrifolia/Toxicodendron diversilobum* Woodland	.A.5.N.a
Dominant Species	*Platanus racemosa* *Quercus agrifolia* *Brickellia californica*	
Date	10/15/2007	
Disturbances	There are localized impacts form grazing and trails created by aliens. The area burned in the past.	
Quality Assessment	This habitat is generally of high quality. The understory of the oak trees is heavily impacted by cattle, but most of the remaining habitat is in good condition, with a very low number of exotic species.	
Notes	This is the area in the bottom of Copper Canyon.	

Figure 5-10. Photograph Representative of Region 14

Table 5-11. Vegatation Classifications Region 16

Holland Habitat	Diegan Coastal Sage Scrub	32500
A Manual of California Vegetation	California Encelia Series*	N/A
NatureServe Habitat	Southern California Coastal Scrub	CES206.933
Dominant Species	*Vigiera laciniata* *Bebbia juncea*	
Date	10/15/2007	
Disturbances	This area has been burned, possibly in 2003. This area is heavily degraded by grazing. This habitat may have been affected by the drought, though those effects are impossible to distinguish from the combined effects of the above.	
Quality Assessment:	This habitat is of very low quality when compared to similar undisturbed habitats. It is not a pristine habitat, and the habitat is very sparse and has a much larger number of exotic species than would be expected in a pristine habitat condition. The disturbances are so severe that even identifying dominant species is challenging.	
Notes:	*San Diego Sunflower (*Viguiera laciniata*) replaces Encelia in a similar ecological niche this far south in California. If Encelia is replaced with *Viguiera laciniata*, the Manuals description fits. This area is extremely steep.	

Figure 5-11. Photograph Representative of Region 16

Table 5-12. Vegatation Classifications Region 17

Holland Habitat	Southern Mixed Chaparral	37120
A Manual of California Vegetation	Chamise-Mission Manzanita-Woollyleaf Ceanothus Series	N/A
NatureServe Habitat	Southern California Dry Mesic Chaparral	CES206.930
Dominant Species	*Pickeringia Montana* *Xylococcus bicolor* *Romneya coulteri* var. Unk. *Ceanothus tomentosus*	
Date	10/15/2007	
Disturbances	This area has been burned, possibly in 2003. This area is degraded by grazing.	
Quality Assessment	This habitat is poor quality and has the heaviest trail activity in the survey area. This habitat is also heavily grazed.	

Figure 5-12. Photograph Representative of Region 17

Table 5-13. Vegatation Classifications Region 18

Holland Habitat	Southern Coast Live Oak Riparian forest	61310
A Manual of California Vegetation	Coast Live Oak Series	N/A
NatureServe Habitat	*Quercus agrifolia/Toxicodendron diversilobum* Woodland	.A.5.N.a
Dominant Species	*Baccharis salicifolia* *Quercus agrifolia* *Brickellia californica*	
Date	10/15/2007	
Disturbances	There are localized impacts from grazing and alien foot-traffic. The area burned in the past.	
Quality Assessment	This habitat is generally of high quality. The habitat is in good condition with a very low number of exotic species for a riparian area in the county. The riparian habitat here is the highest quality riparian habitat of all areas surveyed.	

Figure 5-13. Photograph Representative of Region 18

Table 5-14. Vegatation Classifications Region 19

Holland Habitat	Southern Mixed Chaparral	37120
A Manual of California Vegetation	Scrub oak series	N/A
NatureServe Habitat	Southern California Dry Mesic Chaparral	CES206.930
Dominant Species	*Quercus cedrosensis* *Malosma laurina* *Lotus scoparius*	
Date	10/15/2007	
Disturbances	This area has been burned, possibly in 2003. There area is impacted by grazing activity. There are many alien foot-paths in the area.	
Quality Assessment	The habitat in this area is of moderate to poor quality. There are a fair number of invasive exotics and quite a bit of grazing activity. The area appears to be struggling to recover from the 2003 fire due to the drought, and the combination of aliens and grazing activities has spread the exotic invasive species.	

Figure 5-14. Photograph Representative of Region 19

Table 5-15. Vegatation Classifications Regions 20 and 22

Holland Habitat	Diegan Coastal Sage Scrub	32500
A Manual of California Vegetation	California Encelia Series	N/A
NatureServe Habitat	Southern California Coastal Scrub	CES206.933
Dominant Species	*Hirschfeldia incana* *Lotus scoparius* *Viguiera laciniata* *Eriogonum fasciculatum* *Avena* sp.	
Date	10/15/2007	
Disturbances	This area has been burned, possibly in 2003.	
Quality Assessment	This habitat is generally of poor quality. It is a large area, but there are many exotic grasses and forbs degrading the habitat. The habitat is sparse and appears to be suffering from the combined fire and drought, as well as a large number of exotic forbs.	

Figure 5-15. Photograph Representative of Regions 20 and 22

Table 5-16. Vegatation Classifications Region 21

Holland Habitat	Chamise Chaparral	37200
A Manual of California Vegetation	Chamise series	N/A
NatureServe Habitat	*Adenostema fasciculatum* shrubland	CEGL002924
Date	10/15/2007	
Disturbances	This area is recovering from a burn.	
Dominant Species	*Adenostema fasciculatum*	
Quality Assessment	This habitat is generally of moderate quality. There are a large number of exotic grasses and forbs, though not as many as in the adjacent Regions 20 and 22.	
Notes	This is a strip of chamise chaparral within a larger expanse of highly disturbed coastal sage scrub. This habitat is of better quality than the surrounding coastal sage scrub, habitat but it is still of poor habitat quality. No photo available.	

Table 5-17. Vegatation Classifications Region 23

Holland Habitat	Southern Coast Live Oak Riparian forest	61310
A Manual of California Vegetation	Coast Live Oak Series	N/A
NatureServe Habitat	*Quercus agrifolia/Toxicodendron diversilobum* Woodland	.A.5.N.a
Dominant Species	Coast Live Oak	
Date	10/15/2007	
Disturbances	There are localized impacts from grazing and alien foot-traffic. The area burned in the past.	
Quality Assessment	This habitat is generally of high quality. There is a lot of diversity within the floodplain. While exotics are heavier here than in Regions 14 or 18, this habitat is still intact and functioning. The habitat is a wider floodplain than anywhere else in the areas surveyed. It has more microhabitat niches available and greater secondary flow areas for species which prefer those areas.	
Notes	No photo available.	

Table 5-18. Vegatation Classifications Region 24

Holland Habitat	Southern Mixed Chaparral	37120
A Manual of California Vegetation	Chamise-Mission Manzanita-Woollyleaf Ceanothus Series	N/A
NatureServe Habitat	Southern California Dry Mesic Chaparral	CES206.930
Dominant Species	*Xylococcus bicolor* *Ceanothus tomentosus*	
Date	10/17/2007	
Disturbances	This area has been burned, possibly in 2003. There is no evidence of grazing here, and very little alien trail activity.	
Quality Assessment	This habitat is of high quality and recovering naturally from the burn, though recovery may be slowed somewhat by the 2 years of recent drought.	
Notables	This area was surveyed in the rain.	

Figure 5-16. Photograph Representative of Region 24

Table 5-19. Vegatation Classifications Region 25

Holland Habitat	Mafic Southern Mixed Chaparral	37122
A Manual of California Vegetation	Chamise-Mission Manzanita-Woollyleaf Ceanothus Series	N/A
NatureServe Habitat	Southern California Dry Mesic Chaparral	CES206.930
Dominant Species	*Ceanothus tomentosus* *Eriodictyon trichocalyx* *Mimulus aurantiacus* *Chamaebatia australis* *Pickeringia montana*	
Date	10/17/2007	
Disturbances	This area has been burned, possibly in 2003. There is no evidence of grazing here, and very little alien trail activity.	
Quality Assessment	This habitat is of high quality and recovering naturally from the burn, though recovery may be slowed somewhat by the 2 years of recent drought.	
Notes	This habitat association is known for the number of rare species found within it. This area was surveyed in the rain. This is an unusual habitat formation that is common in parts of Otay Mountain, but is not known to occur elsewhere. No habitat mapping system appears to adequately address this association. It is likely this chaparral/burned Tecate cypress forest is the dominant habitat along the entire Puebla tree spur off the Otay Mountain truck trail. No photo available.	

5.2 Plant Species Identified

A complete plant list of all species identified during the field surveys, including the fence section in which it was identified, is provided in **Table 5-1**.

Table 5-20. Complete Plant List of all Species Identified

Scientific Name	Common Name	A-1	A-2	A-1 Access Road (Survey not completed)
Achnatherum coronatum	Giant needlegrass	X	X	X
Acourtia microcephala	Sacapellote		X	
Adenostema fasciculatum	Chamise	X	X	X
Ageratina adenophora	Sticky thorough-wort		X	
Ambrosia monogyra	Single-whorl burrow-brush	X		
Ambrosia psilostachya	Naked-spike ambrosia		X	
Antirrhinum nuttallianum	Violet snapdragon		X	
Arctostaphylos glauca	Bigberry Manzanita		X	
Arctostaphylos otayensis	Otay Manzanita	X		X
Artemisia californica	California sagebrush	X	X	X
Arundo donax	Giant reed		X	
Asclepias fascicularis	Narrowleaf milkweed	X		
Atriplex semibaccata	Australian saltbush	X	X	X
Avena sp.	Wild oat	X	X	X
Baccharis salicifolia	Willow-leaf false willow	X	X	X
Baccharis sarothroides	Desert broom false willow		X	
Bebbia juncea	Sweetbush	X		
Bothriochloa barbinodis	Cane bluestem	X		
Brickellia californica	California brickellbush	X	X	
Brodiaea pulchellum	Brodiaea		X	
Brodiaea sp.	Brodiaea		X	
Bromus diandrus	Ripgut brome	X	X	
Bromus madritensis	Compact brome		X	
Bromus mollis	Soft brome	X	X	
Bromus rubens	Red brome		X	
Bromus sp.	Brome	X		X
Calochortus sp.	Mariposa lily	X	X	
Calystegia macrostegia	Island false bindweed	X	X	X
Carex spissa	San Diego sedge	X	X	
Castilleja sp.	Indian paint brush		X	
Caulanthus sp.	Wild cabbage	X		
Ceanothus leucodermis	Chaparral whitethorn		X	

Scientific Name	Common Name	A-1	A-2	A-1 Access Road (Survey not completed)
Ceanothus otayensis	Otay Mountain ceanothus	X		X
Ceanothus tomentosus	Woolyleaf ceanothus	X		X
Centaurea melitensis	Maltese star thistle	X	X	X
Cercocarpus minutiflorus	Smooth mountain mahogany			X
Chamaebatia australis	Southern mountain misery			X
Cheilanthes sp.	Cloak fern	X		
Cirsium occidentale	Cobweb thistle	X	X	
Cirsium vulgare	Bull thistle	X	X	
Clematis pauciflora	Ropevine clematis		X	
Cneoridium dumosum	Bush rue		X	
Cordylanthus rigidus	Stiffbranch bird's beak		X	
Cryptantha sp.	Cryptantha	X	X	
Cupressus forbesii	Tecate cypress	X		X
Cuscuta sp.	Dodder	X	X	
Daucus pusillus	American wild carrot	X	X	
Delphinium sp.	Larkspur		X	
Dendromecon rigida	Tree poppy	X		
Dicentra chrysantha	Golden eardrops	X	X	
Dudleya blachmaniae ssp. *brevifolia*	Short leaved dudleya		X	
Dudleya edulis	Fingertips	X		
Dudleya pulverulenta	Chalk dudleya	X	X	
Croton setigerus	Dove weed		X	
Epilobium canum	Hummingbird trumpet	X		
Erigeron foliosus	Leafy daisy		X	
Eriodictyon trichocalyx	Smoothleaf Yerba Santa	X	X	X
Eriogonum fasciculatum	Flat-top buckwheat		X	
Eriogonum fasciculatum var. polifolium	Eastern Mojave buckwheat		X	
Eriophyllum confertiflorum	Golden Yarrow		X	
Erodium botrys	Long-beaked storkbill		X	
Erodium sp.	None	X		
Eucalyptus sp.	Eucalyptus		X	
Ferocactus viridescens	San Diego barrel cactus	X		
Filago sp.	Cudweed	X	X	
Foeniculum vulgare	Fennel	X	X	
Gallium sp.	Bedstraw		X	X
Gastridium ventricosum	Nit grass	X		
Gnapahalium stramineum	Cotton batting	X	X	X

Scientific Name	Common Name	A-1	A-2	A-1 Access Road (Survey not completed)
Gnaphalium bicolor	Two-tone everlasting	X	X	
Gnaphalium californicum	California everlasting	X		X
Gnaphalium luteo-album	Weedy cudweed	X		
Gutierrezia californicum	California snakeweed	X		
Gutierrezia sarothrae	Broom snakeweed	X	X	
Hazardia squarrosa	Sawtooth goldenbush	X	X	X
Hedypnois cretica	Crete weed	X		
Helianthemum scoparium	Common sun rose	X	X	X
Helianthus sp.	Sunflower		X	
Hemizonia sp.	Tarweed	X		
Heteromeles arbutifolia	Christmas Berry	X		X
Hirschfeldia incana	Mediterranean mustard	X	X	X
Hypochoeris sp.	None		X	
Isocoma menziesii	Coast goldenbush	X		
Isomeris arborea	Bladderpod			X
Iva havesiana	San Diego marsh elder	X		X
Juncus acutus	Spiny rush	X		X
Keckiella antirrhinoides	Yellow bush snapdragon		X	
Keckiella cordifolia	Climbing penstemon			X
Keckiella ternata	Summer bush penstemon			X
Lamarckia aurea	Goldentop grass	X		
Lathyrus sp.	None			X
Lepidium sp.	Pepperweed	X	X	
Lessingia filaginifolia	Common California aster	X	X	X
Lonicera subspicata	Honeysuckle	X	X	
Lotus argophyllus	Silver bird's foot trefoil		X	
Lotus scoparius	Deerweed	X	X	X
Lythrum californica	None	X		
Malocothamnus fasciculatus	Bush mallow	X	X	X
Malocothamnus sp.	Bush mallow	X		
Malosma laurina	Laurel sumac	X	X	X
Marah macrocarpus	Wild cucumber		X	
Marrubium vulgare	Horehound		X	
Melilotus sp.	Sweetclover		X	
Melica frutescens	Woody melicgrass	X		
Mellica imperfecta	Coast range melic		X	
Mimulus aurantiacus	Bush monkeyflower	X	X	X
Mimulus brevipes	Yellow monkeyflower		X	

Scientific Name	Common Name	A-1	A-2	A-1 Access Road (Survey not completed)
Mimulus guttatus	Seep monkeyflower		X	
Mirabilis californica	Wishbone bush	X		
Nassella sp.	Purple needlegrass		X	
Navarretia sp.	Pincushionplant	X	X	
Nicotiana glauca	Tree tobacco		X	
Opuntia littoralis	Coast prickly pear	X		
Ornithostaphylos oppositifolia	Baja bird bush		X	
Osmondenia tenella	None	X	X	
Paeonia californica	California peony		X	
Pellaea sp.	None	X	X	
Penstemon spectabilis	Showy penstemon	X		
Penstemon sp.	Penstemon		X	
Phacelia cicutaria	Caterpillar phaecelia		X	
Phacelia sp.	None		X	
Pickeringia montana	Chaparral pea	X	X	X
Pityrogramma sp.	None	X	X	X
Plantago erecta	Plantain	X	X	
Platanus racemosa	Western sycamore	X		
Polypogon monspeliensis	Annual beardgrass	X		
Populus fremontii	Western cottonwood		X	
Porophyllum gracile	Slender Poreleaf	X		
Prunus ilicifolia	Hollyleaf cherry			X
Quercus agrifolia	Coast live oak		X	
Quercus berberidifolia	Scrub oak		X	
Quercus cedrosensis	Cedros oak	X		X
Rhamnus crocea	Redberry		X	X
Rhus ilicifolia	Lemonadeberry	X		
Rhus ovata	Sugarbush		X	
Ribes sp.	Gooseberry	X		X
Romneya coulteri	Matilija Poppy	X	X	X
Rosa minutifolia	Small leaved rose			
Rumex crispus	Curly dock	X		
Rumex sp.	None		X	
Salix gooddingii	Goodding's willow		X	
Salix lasiolepis	Arroyo willow		X	
Salsola tragus	Russian thistle	X		X
Salvia apiana	White sage	X	X	
Salvia clevelandii	Cleveland's sage			
Salvia columbariae	Chia		X	

Scientific Name	Common Name	A-1	A-2	A-1 Access Road (Survey not completed)
Salvia munzii	Munz's sage	X		
Sambucus mexicana	Mexican elderberry		X	
Schinus molle	Peruvian peppertree		X	
Schismus barbatus	Common Mediterranean grass		X	
Scirpus sp.	None		X	
Scrophularia californica	Figwort	X	X	
Selaginella bigelovii	Spike moss	X	X	
Selaginella cinerescens	Ashy spike moss	X	X	X
Silene gallica	Small-flower catchfly			
Simmondsia chinensis	Jojoba	X		
Solanum sp.	Nightshade	X		
Solidago occidentallis	Goldenrod		X	X
Stachys rigida	Rough hedge-nettle		X	
Stephanomeria virgata	Virgate wire-lettuce	X		
Stylocline gnaphalioides	New-straw cotton-weed		X	
Tamarix ramosissima	salt-cedar		X	
Thysanocarpus sp.	Fringepod		X	
Toxicodendron diversilobum	Western poison-oak		X	
Trichostema sp.	Bluecurls	X		
Urtica dioica	Stinging nettle		X	
Viguiera laciniata	San Diego County viguiera	X		
Vinca major	Large-leaf Periwinkle		X	
Xanthium sp.	Cocklebur		X	
Xylococcus bicolor	Mission Manzanita	X	X	X
Yucca whipplei	Our-lord's-candle	X	X	X
Total number of species per section or access road:		100	113	47

Notes:

Species listed for Section A-1 and A-1 access road have not been completed as of the date of report submittal.

Section A-2 species list is complete as of the date of report submittal.

5.3 Proposed Fence Section Characteristics and Description of Habitat Quality

A general description of the habitat quality and the characteristics of each section are provided below.

SECTION A-1

Potential Listed Plant Occurrence	San Diego ambrosia (*Ambrosia pumila) (FE)* San Diego button-celery (*Eryngium aristulatum var. parishii) (FE, SE)* Otay tarplant (*Deinandra conjugens) (FT, SE)* Otay Mesa mint (*Pogogyne nudiuscula) (FE, SE)* Spreading navarretia (*Navarretia fossalis) (FT)* Mexican flannelbush (*Fremontodendron mexicanum) (FE)* California Orcutt grass (*Orcuttia californica) (FE, SE)* Encinitas baccharis (*Baccharis vanessae) (FT, FE)*
Listed Plants Observed	None
Suitable Listed Plant Habitat Present	Yes
If So, Habitat Quality	Large variations of poor to good-quality habitat.

FE = federally endangered; FT = federally threatened; SE = state endangered

Section Habitat Description: This section covers approximately 5.2 miles on BLM managed lands. It mostly follows the Pack Trail, a footpath on the south side of Otay Mountain. The section starts at the Puebla Tree, a well-known border patrol landmark, and ends at boundary marker 250. Topographically, the terrain is steep along most of the trail. The trail skirts the mid-span of the mountain, so that steep upslopes lead out of canyons, and steep downslopes lead into another canyon. The trail crosses Copper, Buttewig, and Mine Canyons. In addition, a drainage known as Wild Bill's is located at the beginning of the Pack Trail, nearby the Puebla Tree.

Much of Section A-1 is grazed illegally by cows, and several cows were observed during natural resource surveys. Numerous north-south trending footpaths from cows and aliens can be seen over much of the mountain. Portions of the mountain burned during the 2003 Cedar fire and show signs of recovering. Much of the area where coastal sage scrub communities are dominant (a large area of the Pack Trail) is considered disturbed and of poor quality. Areas of chaparral are of moderate quality, and riparian areas dominated by Coast live oak in the canyon bottoms are considered high-quality habitat.

Existing access roads on the west and east ends of the Pack Trail make up a total of over 13 miles of access roads that require a range of improvements. On the west side of the Pack Trail, the existing access road will begin off Alta Road and end at the Puebla Tree. This access road is approximately 5.59 miles in

length. Much of the BLM road which generally leads down the west side of Otay Mountain will require significant improvements to allow truck and heavy equipment ingress/egress.

On the east side of the Pack Trail, from the point where Boundary Marker 250 is located to Interstate 94 is approximately 7.81 miles. Several areas of these unpaved existing access roads will require improvements, such as wider turnouts, reinforcements, and culverts.

Several Tecate cypress were found within each of the three drainages (Mine, Copper, and Buttewig Canyons), in Wild Bill's Canyon at the beginning of the Pack Trail (not part of the current alignment, but part of a former alignment), and along the BLM access road from the Puebla Tree to approximately one-half mile northwest.

[[Preparer's Note: Tecate cypress likely extends beyond one-half mile from the Puebla Tree; however, at the time of this draft report submittal, the survey had only been completed to that point. The extent of Tecate cypress will be revised when the survey is completed.]]

No other listed plants were observed during the survey.

Listed wildlife species observed during the surveys along Section A-1 include several sightings of rufous-crowned sparrow, coast patch-nosed snake, orange-throated whiptail lizard, Cooper's hawk, northern harrier, and San Diego black tailed jackrabbit. In addition, Harbison dun skipper larvae and golden eagle were observed while surveying the access road (BLM Road) leading to the Puebla Tree.

SECTION A-2

Potential Listed Plant Occurrence	San Diego ambrosia (*Ambrosia pumila) (FE)* San Diego button-celery (*Eryngium aristulatum var. parishii) (FE, SE)* Otay tarplant (*Deinandra conjugens) (FT, SE)* Otay Mesa mint (*Pogogyne nudiuscula) (FE, SE)* Spreading navarretia (*Navarretia fossalis) (FT)* Mexican flannelbush (*Fremontodendron mexicanum) (FE)* California Orcutt grass (*Orcuttia californica) (FE, SE)* Encinitas baccharis (*Baccharis vanessae) (FT, FE)*
Listed Plants Observed	None
Suitable Listed Plant Habitat Present	Yes
If So, Habitat Quality	Poor to high-quality habitat.

Section Habitat Description: Section A-2, approximately 0.7 mile in length, begins at the point where the existing fence that extends from the east side of the Tecate port of entry (POE) ends, and continues up a short slope. The alignment in this section follows the international border. Over 2 miles of access roads are proposed for this section, and one staging area along the access road that parallels the existing fence.

High-quality CSS habitat exists in some areas of the section that are dominated by *Artemisia californica* and *Malosma laurina.* An occupied house with a fenced yard is within the section where the area is dominated by Coast live oak riparian habitat. The understory of this habitat is mainly non-native species. Much of the section is a non-native grassland, with dominant species being *Bromus* sp. and *Avena* sp.

No federally listed plants were observed during the surveys in Section A-2. Federally listed wildlife observed during A-2 surveys include coast patch-nosed snake and orange throated whiptail.

In late October 2007, most of the alignment and associated access roads were burned in the Harris fire. Figure 16 shows an overview of the burned area looking east at the start of section A-2, and Figure 17 depicts the burn area within the survey corridor.

Figure 5-17. Burn Area Looking East (Photographed November 14, 2007)
(Note that the stand of coast live oaks [extending from the left side of the photo] within the survey corridor did not burn.)

Figure 5-18. Section A-2 Post-fire (Photographed November 14, 2007)

5.4 Wetlands and Waters of the United States

Delineations for wetlands and Waters of the United States (WOUS) have not yet been conducted but is scheduled for January 2008. The most current information available to identify wetlands is the National Wetlands Initiative (NWI) (USFS 2007). There are no NWI wetlands in Sections A-1 or A-2. Approximately 2.4 acres of riverine wetlands are estimated by aerial photography review. This information will be confirmed by the field delineation.

5.5 Wildlife Observed

Forty-one species of vertebrates were recorded during the October and December 2007 surveys, including 2 reptiles, 33 birds, and 6 mammals. In addition, a total of 32 insects were observed and identified during the surveys. Section A-1, as with vegetation, was the most species-rich, with 29 wildlife species recorded.

Although one larva of the state-listed species of concern Harbison dun skipper was observed, there is potential for the following to occur:

- Harbison's dun skipper (*Euphyes vestris harbisoni)* (SC)
- Hermes copper butterfly *(Lycaena hermes)* (SC)
- Thorne's hairstreak (*Callophrys thornei)* (SC, *MS*CP, BLM)
- Quino checkerspot butterfly (*Euphydryas editha quino*) (FE, SC).

Harbison dun skipper (SC). The larva of a Harbison's dun skipper was observed during the survey of the Puebla Tree access road on December 3, 2007. Host plants of the Harbison dun skipper (San Diego Sedge [*Carex spisa]*) were observed within the canyon bottom of the Puebla Tree access road. The sedge observed was clearly defoliated by grazing; therefore, any potential occupation by caterpillars could not be assessed.

Several sedge plants and indications of one larval feeding were observed within Copper Canyon (the first canyon the Pack Trail crosses from west to east). Buttewig Canyon also had recovering sedge, but in this canyon it showed signs of drought stress and did not appear as robust as would be expected (Klein 2007).

Hermes copper (SC). Because the 2003 Otay Fire burned the area of A-1 and associated access roads, it is currently too soon for adults to recolonize this area. Many recovering redberry shrubs, which are their host plant (*Rhamnus crocea*), were observed throughout the Pak Trail. None of the host plants are currently occupied; however, the adult flight season occurs mid-May through early July, which would be the best time to assess their presence in the area.

Thorne's hairstreak (SC, MSCP, BLM). The only host plant of Thorne's hairstreak is the Tecate cypress (*Cupressus forbseii*), and prior to the Otay Fire of 2003, Otay Mountain contained the largest stand of Tecate cypress in the world. The Otay Fire in October 2003 burned nearly 90 percent of the cypress on Otay Mountain. The tree is a closed-cone conifer, meaning that viable seeds will disperse when the cones open in response to a catastrophic event, such as fire. Fire is the typical dispersal mechanism; however, old age and warm temperatures can also cause the cones to open. Reproductive maturity of Tecate cypress occurs sometime after the tree is 20 years old. Of the nearly 500 acres of cypress remaining on the mountain after 2003, only about 180 acres are mature enough to reproduce. Several Tecate cypress were found within each of the three drainages (Mine, Copper, and Buttewig Canyons), in Wild Bill's Canyon near the beginning of the Pack Trail, and along the BLM access road from the Puebla Tree to approximately one-half mile northwest.

Since the 2003 Fire it has been observed that adults are mating on Cypress trees between 6 and 7 years old (Klein 2007). If mating is occurring on young trees, the usual biology for the Thorne's hairstreak is that the female will lay eggs on the tree where mating happens. So even though the tree is not at reproductive maturity, it appears that a six or seven year old tree is mature enough for egg laying.

The hairstreak occurs along the Otay Mountain Truck Trail on the west side of the mountain only. There are no confirmed records that it occurred along the Puebla Pak Trail but the position which has been taken by many Lepidopteran experts is that if a host is mature for egg laying it is usually occupied (Klein 2007). There was evidence of reproductively mature trees within the Puebla Tree access road, Copper Canyon, Buttewig Canyon and the drainage near Mine Canyon which accesses the Monument 250 Truck Trail. In all locations saplings

were observed that may serve as host plants if they reach the age of 6 to 7 years.

Quino checkerspot butterfly (FE, SC). The host plants of Quino are dwarf plantain (*Plantago erecta*), purple owl's clover (*Castilleja exserta*), white snapdragon (*Antirrhinum coulterianum*), woolly plantain (*Plantago patagonica*), and bird's beak (*Cordylanthus rigidus*). The plants are annuals that occur in clay soils as well as other soil types; however, these plants appear to thrive in clay soils.

Three of the host plants occur along Section A-1. Suitable habitat occurs throughout the entire Otay Mountain. In addition, adult Quino were observed in March 2005, March 2007, and an undated recent occurrence in the general project area. Additional occurrences have been documented on the mountain.

The butterfly's biology is somewhat unique for butterflies in general, in that the third or fourth larval growth (instar) will enter into its winter stasis (diapause) sometime in May. It remains this way until sufficient winter rains stimulate plant growth. If sufficient plant growth occurs, then the caterpillars come out diapause and continue feeding until they reach larval maturity, pupate, and then finally emerge as adults. If the winter rains are appropriate, caterpillars could emerge from diapause sometime in January. Pupation occurs sometime in February, and adults emerge in March. Once adults emerge, the cycle begins all over. Adults also will disperse to suitable habitat and are known to disperse anywhere from 1 to 3 kilometers a year. Dispersal distance can be greater if it is wind-assisted.

Table 5-3 lists wildlife observed during the field surveys. The table provides a general indication of species richness in each section.

Table 5-3. Wildlife Observed During Natural Resources Surveys Conducted October 11, 12, 15, and 17, and December 3–5, 2007

Common Name/Scientific Name	Status	BLM Access Road	A-1	A-2
Insects				
Ant Lion/Family: Myrmeleontoidea	C			X
Band-Wing Grasshopper/*Camnula pellucida*	C		X	X
Bee Fly/Family: Bombyliidae	C			X
Behr's Metalmark/*Apodemia virgulti*	C		X	X
Blister Beetle/Family: Meloidae	C		X	
Blue Mud Wasp/*Chalybion californicum*	C		X	
Cactus Fly/Family: Neriidae	C		X	
California Dancer/*Argia agrioides*	C		X	
California Harvester Ant/*Pogonomyrmex californicus*	C		X	X
Cardinal Meadowhawk/*Sympetrum illotum*	C		X	
Drone Fly/*Eristalis tenax*	C		X	

Common Name/Scientific Name	Status	BLM Access Road	A-1	A-2
Insects (continued)				
Field Cricket/*Gryllus sp.*	C		X	
Fiery Skipper/*Hylephila phyleus*	C		X	
Flesh Fly/Family: Sarcophagidae	C		X	X
Forktail Damselfly *Ischnura barberi*	C		X	
Gall Midge/Family: Cecidomyiidae	C		X	
Harbison dun skipper (larva)/*Euphyes vestris harbisoni*	SC	X		
Harlequin Bug/*Murgantia histrionic*	C		X	
Honey Bee/*Apis mellifera*	C		X	X
Horse Fly/Family: Tabanidae	C		X	
Monarch/*Danaus plexippus*	C			X
Muscid Fly/Family: Muscidae	C		X	
Painted Lady/*Vanessa cardui*	C	X	X	X
Seven Spotted Ladybird Beetle/*Coccinella septempunctata*	C		X	
Spittle Bug/*Aphrophora* sp.	C		X	
Stink Beetle/*Eleodes* sp.	C		X	X
Thread-Waisted Wasp/*Ammophila* sp.	C		X	X
Tiger Moth/*Cisthene* sp.	C		X	
Variegated Meadowhawk/*Sympetrum corruptum*	C		X	
Velvet Ant/*Dasymutilla* sp	C		X	X
Vivid Dancer/*Argia vivida*	C		X	
Wasp/*Pepsis* sp	C		X	
Wasp/*Polistes* sp	C		X	
Reptiles				
Coast Patch-Nosed Snake/*Salvadora hexalepis virgultea*	SC		X	X
Orange-Throated Whiptail Lizard/*Cnemidophorus hyperythrus beldingi*	SC		X	X
Birds				
Acorn Woodpecker/*Melanerpes formicivorus*	C			X
American Kestrel/*Falco sparverius*	C		X	
Anna's Hummingbird/*Calypte anna*	C		X	
Black-Headed Grosbeak/*Pheucticus melanocephalus*	C		X	
Black Phoebe/*Sayornis nigricans*	C		X	
Bewick's Wren/*Thryomanes bewickii*	C		X	
California Towhee/*Pipilo crissalis*	C		X	
California Quail/*Callipepla californica*	C		X	
Common Raven/*Corvus corax*	C		X	X
Copper's Hawk/*Accipiter cooperii*	SC		X	
Dark-Eyed Junco/*Junco hyemalis*	C		X	

Common Name/Scientific Name	Status	BLM Access Road	A-1	A-2
Birds (continued)				
European Starling/*Sturnus vulgaris*	C		X	
Fox Sparrow/*Passerella iliaca*	C			X
House Finch/*Carpodacus mexicanus*	C			X
Golden Eagle/*Aquila chrysaetos*	BEPA/FP/SC		X	
Lesser Goldfinch/*Carduelis psaltria*	C			X
Mourning Dove/*Zenaida macroura*	C		X	
Northern Harrier/*Circus cyaneus*	SC		X	
Northern Flicker/*Colaptes auratus*	C		X	X
Nuttall's Woodpecker/*Picoides nuttallii*	C		X	
Pacific-Slope Flycatcher/*Empidonax difficilis*	C			X
Plain Titmouse/*Baeolophus inornatus*	C			X
Red-tailed Hawk/*Buteo jamaicensis*	C		X	X
Rock Wren/*Salpinctes obsoletus*	C		X	X
Ruby-Crowned Kinglet/*Regulus calendula*	C		X	
Rufous-Crowned Sparrow/*Aimophila ruficeps*	SC		X	X
Say's Phoebe/*Sayornis saya*	C		X	
Scrub Jay/*Aphelocoma californica*	C		X	X
Spotted Towhee/*Pipilo maculatus*	C		X	X
Western Bluebird/*Sialia mexicana*	C			X
White-Crowned Sparrow/*Zonotrichia leucophrys*	C		X	X
Wrentit/*Chamaea fasciata*	C			X
Yellow-Rumped Warbler/*Dendroica coronata*	C		X	
Mammals				
Coyote/*Canis latrans*	C			X
Desert Woodrat/*Neotoma lepida*	C			X
Gray Fox/*Urocyon cinereoargenteus*	C			X
Mule Deer/*Odocoileus hemionus*	C		X	
San Diego Black-Tailed Jackrabbit/*Lepus californicus bennettii*	SC		X	
Striped Skunk/*Mephitis mephitis*	C			X
	Total # Species Per Section:	2	58	34

1 Note: C = Common; FP = Federally Protected; SC = Special concern (State Designation);
2 BEPA = Bald Eagle Protection Act

6. Avoidance and Minimization Measures

As part of the coordination between USBP and USFWS, best management practices are under development for building, operating, and maintaining the proposed tactical infrastructure. The best management practices are designed to avoid and minimize impacts to biotic resources, specifically threatened and endangered resources. These measures will be presented in the final report.

7. Permits, Technical Studies, and Notifications

To comply with state and federal regulations, the following permits should be investigated or conducted to assess whether regulatory requirements have been met. Note that additional permits, studies, or notifications not listed herein may also be required.

Permits			
Permit Type	**Issuing Agency**	**Reason**	**Legislation**
404 Permit	USACE	Wetland and WOUS delineation	Section 404 of the Clean Water Act (CWA) authorizes the USACE to issue permits regulating the discharge of dredged or fill material into the waters of the United States, including wetlands. General permits are often issued by USACE for categories of activities that are similar in nature and would have only minimal individual or cumulative adverse environmental effects. A general permit can also be issued on a programmatic basis ("programmatic general permit") to avoid duplication of permits for state, local, or other federal agency programs.

Permits			
Permit Type	**Issuing Agency**	**Reason**	**Legislation**
401 Water Quality Certification	California Regional Water Quality Control Board	Wetland and WOUS delineation	Section 401(a)(1) of the CWA specifies that any applicant for a federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters, shall provide the federal licensing or permitting agency a certification from the state in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the Clean Water Act (SWRCB 2007).
Streambed Alteration Agreement	California Department of Fish and Game	Prevention of altering streamflow, changing bottom material, or depositing material in rivers, streams, or lakes in CA.	State of California Fish and Game (CFG) Code section 1602 requires any person, state or local governmental agency, or public utility to notify CFG before beginning any activity that will do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Fish and Game Code section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state.
MSCP Compliance/ Boundary Line Adjustment	City of San Diego	Multiple Habitat Planning Area (MHPA) boundary adjustment may be required on city property.	Section 5.4.2 of the Regional MSCP Plan.

Permits			
Permit Type	**Issuing Agency**	**Reason**	**Legislation**
Section 7 (ESA) Consultation	USFWS	Allow the proposed action to proceed while avoiding impacts to listed species.	Section 7 of the ESA directs all federal agencies to use their existing authorities to conserve threatened and endangered species and, in consultation with USFWS, to ensure that their actions do not jeopardize listed species or destroy or adversely modify critical habitat. Section 7 applies to the management of federal lands as well as other federal actions that may affect listed species, such as federal approval of private activities through the issuance of federal funding, permits, licenses, or other actions.
Migratory Bird Treaty Act (MBTA) coordination (Migratory Bird Depredation Permit)	USFWS	Fence constructed during breeding season.	The MBTA established a federal prohibition, unless permitted by regulations, to pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird … or any part, nest, or egg of any such bird. The Migratory Bird Depredation Permit is USFWS Form 3-200-13.
Special Use Permits for access to Bureau of Land Management Wilderness Areas	BLM	If requested by BLM.	N/A
Take Permit	CDFG	California Department of Fish and Game Environmental Species Act compliance	Section 2080 of the Fish and Game Code prohibits “take” of any species that the commission determines to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (CDFG 2007).

1
2

1

Notification	
Agency	**Contact Information**
USFWS	Kurt Roblek Fish and Wildlife Biologist Department of the Interior U.S. Fish & Wildlife Service 6010 Hidden Valley Road Carlsbad, California 92011 Office 760-431-9440 ext. 308 Fax 760-431-5902
BLM	Janaye Byergo San Diego Project Manager 10845 Rancho Bernardo Road, Suite 200 San Diego, California 92127 Office 858-451-1767 Fax 858-676-9934 Joyce Schlachter Biologist 10845 Rancho Bernardo Road, Suite 200 San Diego, California 92127 Office 619-468-3839 Fax 858-676-9934
USACE	Jeanine Divis Water Resources Planner U.S. Army Corps of Engineers 3636 N Central Ave, Suite 900 Phoenix, AZ 85012-1939 Phone 602-640-2004 ext 286 Fax: 602-640-5382
California Department of Fish and Game	No contact available at this time.
City of San Diego	No contact available at this time.

2

Additional Studies	
Agency	**Study**
USACE	Wetland and WOUS Delineation and Determination

8. List of Preparers

Domenick Alario
B.A. Geography
Years of Experience: 2

David Boyes, REM, CHMM
M.S. Natural Resources
B.S. Applied Biology
Years of Experience: 31

Kevin Clark
B.S. Biology
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Rod Dossey
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Year of Experience: 11

A. Brent Eastty
B.S. Biology
Years of Experience: 6

Stuart Gottlieb
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GIS Professional Certificate
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Shawn Gravatt
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B.S. Earth Science and Geography
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Certified Environmental Manager
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Ph.D. Biology
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M.S. Environmental Science and Education
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Jim Von Loh
B.S. Biology
M.S. Biology
Years of Experience: 32

Lauri Watson
B.S. Environmental Science
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M.S. Fisheries Science
B.S. Marine Science
Years of Experience: 12

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MSCP 1998 — Multiple Species Conservation Program (MSCP). 1998. *Final Multiple Species Conservation Program: MSCP Plan*. San Diego County, CA.

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BIOLOGICAL SURVEY
APPENDIX A

DESCRIPTION OF FEDERALLY LISTED SPECIES

1

Arroyo toad (*Bufo californicus*)

The arroyo toad was listed as endangered on December 16, 1994.

Distribution: The arroyo toad once ranged from San Luis Obispo County, CA, south to northwestern Baja California, Mexico. Now extirpated in San Luis Obispo County, they are currently found in headwater areas of streams in Santa Barbara, Ventura, Los Angeles, Riverside, and San Diego Counties. Scattered individuals have been reported from Orange, San Bernardino and southern Imperial counties. Found along the Santa Margarita, Guejito, Sweetwater, Vallecito, San Luis Rey, Santa Ysabel, Witch, Cottonwood, Temescal, Agua Caliente, Santa Maria, Lusardi, Pine Valley, Nobel, Kitchen, Long Potrero, Upper San Diego, San Vicente, and Morena drainages in San Diego County.

Natural History:

Habitat: The arroyo toad makes use of washes, streams and arroyos and adjacent uplands, as well as sandy banks in riparian woodlands. Also found along rivers with shallow gravel-bottom pools with adjacent sandy terraces. Adults will burrow in sandy soil for shelter.

Breeding: The arroyo toad breeds from March to early June, independent of rainfall. Eggs are found at the bottom of shallow quiet streams or ponds among gravel, leaves, and sticks, or on mud or clean sand in areas with little to no emergent vegetation. Metamorphosis occurs in June to July.

Diet: Insects

Threats: The arroyo toad is threatened by habitat degradation caused by urbanization, dam construction, ill-timed water releases, agriculture, road construction, off-road vehicle use, overgrazing, mining activities, road construction, drought and wildfires. They are also impacted by recreational use of habitat, predation by introduced fish and bullfrogs, and small population size.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: November 30, 2007).

California orcutt grass (*Orcuttia californica*)

California orcutt grass was listed as threatened on August 3, 1993.

Distribution: California orcutt grass is found in San Diego County in two vernal pools located near the city of Carlsbad and in four pool complexes on Otay Mesa. The grass also has been observed in Baja California, Mexico.

Natural History:

Morphology: California orcutt grass is a small annual grass that reaches about 10 centimeters in height with bright green blades that secrete sticky droplets. The inflorescences, borne from May through July, consist of seven spikelets, with the upper spikelets overlapping.

Habitat: California orcutt grass is an endemic species of vernal pools in Southern California and northern Mexico. Vernal pools are seasonal depressional wetlands where the proliferation of flora and fauna may be related to the Mediterranean climate that prevails throughout their range.

Threats: Urban and agricultural development and invasion of weedy, non-native species.

U.S. Fish and Wildlife Service. 1998. *Vernal Pools of Southern California Recovery Plan.* U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

Coastal California gnatcatcher (*Polioptila californica californica*)

The coastal California gnatcatcher was listed as threatened on March 30, 1993.

Distribution: The coastal California gnatcatcher is a resident bird species found from Los Angeles County southward to northwestern Baja California, Mexico, extending south to the vicinity of El Rosario, Mexico, and eastward to the eastern base of the Sierra San Pedro Martir. This species has been extirpated from Ventura County.

Natural History:

Habitat: The coastal California gnatcatcher makes use of several distinctive subassociations of the coastal sage scrub plant community, particularly communities dominated by California sagebrush (*Artemisia californica*). It generally avoids crossing areas of unsuitable habitat.

Breeding: This species breeds from February to mid July, with an average clutch size of 3.8 and 3 to 4 clutches laid per year. Incubation is carried out by both sexes and lasts about 14 days, with a 16-day nestling period. Nest is an open cup style.

Diet: The coastal California gnatcatcher is a ground and shrub-foraging insectivore.

Threats: The remaining populations of coastal California gnatcatchers are highly fragmented by urban development and expanding transportation corridors. They are also threatened by Brown-headed cowbird parasitism as a result of habitat fragmentation. Wildfires may also have a significant impact.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: November 30, 2007).

Encinitas baccharis (*Baccharis vanessae*)

The Encinitas baccharis was listed as threatened on October 7, 1996.

Distribution: The Encinitas baccharis is endemic to San Diego County, California, and known populations are found near Encinitas in central San Diego County and extend toward Mount Woodson and Poway. One population is found in the Santa Margarita Mountains of northern San Diego County.

Natural History:

Morphology: Encinitas baccharis is a dioecious broom-like shrub that grows from 0.5 to 1.3 meters tall. It has filiform leaves and delicate phyllaries that are reflexed.

Habitat: The Encinitas baccharis is restricted to the southern maritime chaparral, which is a low, fairly open chaparral community. Common species include *Ceanothus verrucosus*, *Xylococcus bicolor, Adenostoma fasciculatum* var. *obtusifolium, Quercus dumosa*, *Cneoridium dumosum*, *Rhamnus crocea*, *Yucca schidigera*, and occasionally *Dendromecon rigida*.

Threats: Urban and agricultural development.

U.S. Fish and Wildlife Service. 1993. “Endangered and threatened wildlife and plants; proposed rule for six southern maritime chaparral plant taxa from coastal Southern California and northwestern Baja California, Mexico.” *Federal Register* 58: 51302–51311.

Least Bell's vireo (*Vireo bellii pusillus*)

The least Bell's vireo was listed as endangered on May 2, 1986.

Distribution: Breeding range was once widespread throughout the Central Valley of California to the Sierra Nevada foothills and Coast Ranges. The breeding range extended into northwestern Baja California, Mexico, and included populations in Death Valley and the Mojave Desert. By 1990, 80 percent of the U.S. population was found along only five drainages: Santa Margarita River, Sweetwater River, San Luis Rey River, San Diego River, and Santa Ana River. Winter range extends to the Cape region of Baja California, with some individuals remaining in Southern California.

Natural History:

Habitat: The least Bell's vireo uses dense brush, mesquite, willow-cottonwood forest, streamside thickets, and scrub oak habitats in arid regions, but frequently near water. Moist woodland, bottomlands, woodland edge, scattered cover and hedgerows are used in cultivated areas, and willow-dominated woodlands are used in riparian areas. Open woodland and brush are used in winter.

Breeding: Migration into the breeding range occurs near the end of March. Nests are constructed in shrubs or low trees about 1 meter above the ground in a horizontal or downsloping twig fork, often near the edge of a thicket. Nesting vegetation in California is frequently willow (*Salix* sp) or rose (*Rosa* sp.). Three to five eggs are laid in a clutch, and incubation lasts 14 days. Both adults tend the young, which fledge at 10 to 12 days. Some pairs may raise multiple broods annually in some areas. Migration out of breeding areas takes place in July to late September, but some individuals will overwinter in the United States.

Diet: Primarily insects, but will also take spiders, snails, and fruits. This species forages in dense brush and sometimes in treetops. They glean prey from leaves and bark but will also hover-hunt and hawk prey.

Threats: Least Bell's vireo has a limited range in Southern California and Baja California and is threatened by habitat loss and next parasitism by cowbirds.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: November 30, 2007).

Mexican flannelbush (*Fremontodendron mexicanum*)

Mexican flannelbush was listed as endangered on October 12, 1998.

Distribution: The Mexican flannelbush is endemic to southern San Diego County and northern Baja California, Mexico, between 300 and 1,000 meters in elevation. The only known Californian population, located near Otay Mountain, has less than 100 individuals.

Natural History:

Morphology: The Mexican flannelbush, a member of the cacao family, is a small shrub with evergreen, palmately lobed leaves. The flowers are 2.4 inches wide and lack petals, but have showy orange sepals that distinguish the shrub from *Fremontodendron californicum*.

Habitat: The flannelbush occurs primarily in closed-canopy coniferous forests dominated by Tecate cypress (*Cupressus forbesii*) and southern mixed chaparral, often on meta-volcanic soils. The chaparral that the flannelbush occupies has dense shrub cover of moderate height characterized by *Adenostoma fasciculatum, Ceanothus* sp., *Rhamnus ilicifolia*, *Arctostaphylos* sp., *Quercus berberidifolia*, *Rhus ovata*, *Malosma laurina*, *Heteromeles arbutifolia*, *Eriogonum fasciculatum*, and *Salvia mellifera.*

Threats: Urban and agricultural development.

U.S. Fish and Wildlife Service. 1995. “Endangered and threatened wildlife and plants; proposed endangered and threatened status for four chaparral plants from southwestern California and northwestern Baja California, Mexico.” *Federal Register* 60: 51443–51452.

Otay Mesa mint (*Pogogyne nudiuscula*)

Otay Mesa mint was listed as endangered on August 3, 1993.

Distribution: Currently, the Otay Mesa mint is known to occur only in seven vernal pool complexes on Otay Mesa located on the Mexican border in San Diego County, California.

Natural History:

Morphology: The Otay Mesa mint is an annual herb of the mint family that reaches 30 centimeters or more in height and blooms from May through early June. The vegetative and floral portions give off a strong, turpentine mint odor. The flowers are purple with a white throat, with six flowers per stem node.

Habitat: The Otay Mesa mint is an endemic species of vernal pools of Otay Mesa in Southern California. Vernal pools are seasonal depressional wetlands where the proliferation of flora and fauna may be related to the Mediterranean climate that prevails throughout their range.

Threats: Urban and agricultural development, livestock grazing, off-road vehicle use, trampling, and invasions of non-native plants.

U.S. Fish and Wildlife Service. 1998. *Vernal Pools of Southern California Recovery Plan.* U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

Otay tarplant (*Deinandra conjugens*)

The Otay tarplant was listed as threatened on October 13, 1998.

Distribution: The Otay tarplant is an endemic species of southwestern California with one population near the U.S. border in Baja California, Mexico. Within California, all known populations exist in San Diego County near Otay Mesa. Five populations contain 98 percent of all recorded plants: Rancho San Miguel, Rice Canyon, Dennery Canyon, Poggi Canyon, and Proctor Valley.

Natural History:

Morphology: The Otay tarplant is a glandular, aromatic annual plant of the aster family. It has a branching stem that ranges from 5 to 25 centimeters in height, with deep green or gray-green leaves covered in hairs. The flowers are yellow and composed of 8–10 ray flowers and 13–21 disk flowers. The Otay tarplant is self-incompatible and must be pollinated by a different plant.

Habitat: The Otay tarplant is restricted to clay soils, subsoils, or lenses. Historically, the Otay tarplant occupied areas vegetated with native grassland, open coastal sage scrub, and maritime succulent scrub. Currently, it occupies those communities, but is also found on the margins of disturbed sites and cultivated fields. Species commonly found with the tarplant include *Nassella* spp., *Bloomeria crocea*, *Dichelostemma pulchella*, *Chlorogalum* spp., *Bromus* spp., *Avena* spp., *Deinandra fasciculata*, *Lasthenia californica*, *Artemisia californica*, *Eriogonum fasciculatum*, *Lotus scoparius*, *Salvia* spp., *Mimulus aurantiacus*, *Malacothamnus fasciculatum*, *Malosma laurina*, *Rhus ovata*, *R. integrifolia*, *Lycium* spp., *Euphorbia misera*, *Simmondsia chinensis*, *Opuntia* spp., *Ferocactus viridescens*, *Ambrosia chenopodiifolia*, and *Dudleya* spp.

Threats: Urban and agricultural development and invasion of non-native species.

U.S. Fish and Wildlife Service. 2004. *Recovery plan for Deinandra conjugens (Otay tarplant).* Portland, Oregon. vii + 65 pp.

Quino checkerspot butterfly (*Euphydryas editha quino*)

The Quino checkerspot butterfly was listed as endangered on January 16, 1997.

Distribution: The historic distribution of the Quino checkerspot butterfly included coastal California south of Ventura County and inland valleys south of the Tehachapi Mountains. However, approximately 75 percent of the Quino checkerspot butterfly's historic range has been lost, and it is currently only found in western Riverside County, southern San Diego County, and northern Baja California, Mexico.

Natural History:

Habitat: The Quino Checkerspot butterfly is found in several plant communities, from scrub on coastal bluffs, coastal sage, chaparral, and oak woodlands to desert pinyon-juniper woodlands. However, it is only found in openings within these plant communities having a sufficient cover of larval food plants and annual forbs that provide nectar for adults.

Breeding: Adults are flying from late February to April. Females lay egg masses consisting of 120–180 eggs that hatch in 7–10 days. Total egg production ranges from 400 to 800 eggs per female. Predaipause larvae undergo two or three molts before entering diapauses as a third or fourth instar larvae. Prediapause larvae are communal, while postdiapauses larvae are solitary. Diapause breaks after sufficient rain falls to establish food plants. The postdiapause larvae progress through three to seven more instars before they pupate among low plants or under rocks. Adults emerge in about 10 days.

Diet: Larvae feed on dwarf plantain (*Plantago erecta*) and purple owl's clover (*Castilleja exserta*), White snapdragon (*Antirrhinum coulterianum*), woolly plantain (*Plantago patagonica*), and bird's beak (*Cordylanthus rigidus*).

Threats: This species is threatened by agricultural and urban development and other land use changes, habitat fragmentation, invasive non-native plant species, and disrupted fire regimes.

Mattoni, R., G.F. Pratt, T.R. Longcore, J.F. Emmel, and J.N. George. 1997. "The endangered quino checkerspot butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae)." *Journal of Research on Lepidoptera*. 34:99–118.

Riverside fairy shrimp (*Streptocephalus woottoni*)

The Riverside fairy shrimp was listed as endangered on August 3, 1993.

Distribution: Originally thought to be restricted to five vernal pools in a 13-by-7-kilometer area of Western Riverside County. Additional locations now include vernal pools in Los Angeles, Orange, Ventura, and San Diego counties. Total range for this species is now considered to extend from coastal Southern California, south to northwestern Baja California, Mexico.

Natural History:

Habitat: The Riverside fairy shrimp is found in seasonal pools filled by spring and winter rains. These vernal pools are generally located in earth slump basins or tectonic swales in grasslands and agricultural areas interspersed with coastal sage scrub. Minimum habitat size was 750 square meters at the original five sites, with a minimum water depth of 30 centimeters at maximum pool filling. The Riverside fairy shrimp can be found in turbid or clear water, in partially vegetated pools, and has been found to co-occur with the Versatile fairy shrimp (*Branchinecta lindahli*). The Riverside fairy shrimp is found in deeper water around loose emergent vegetation. This species appears late in the season and is considered a warm-water species.

Breeding: The Riverside fairy shrimp has a seasonal cycle that varies with the water level and water temperature. Mature individuals were not found until late March in type localities. Hatching of cysts has been observed from January to March, and early or late season rains may expand the hatching period. Riverside fairy shrimp mature in 48 to 56 days, depending on a variety of environmental factors. Cysts can survive extreme temperatures and extended dry periods. Not all eggs hatch during pool-filling events, creating an age structure in the egg bank that is key to species persistence.

Diet: Adults feed on detritus and small invertebrates.

Threats: Agricultural and urban development.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: November 30, 2007).

San Diego ambrosia (*Ambrosia pumila*)

The San Diego ambrosia was listed as endangered on August 3, 1993.

Distribution: The San Diego ambrosia is an endemic species of San Diego and Riverside Counties, California. 12 of the 15 known populations reside in San Diego County. The populations are found in the watersheds of the San Diego, San Luis Rey, Sweetwater, and San Dieguito Rivers. Populations have also been observed in Baja California, Mexico.

Natural History:

Morphology: The San Diego ambrosia is a herbaceous perennial plant that spreads vegetatively by means of slender, underground rhizome-like roots from which aerial stems arise. The stems are 5–30 centimeters in height and are densely covered with short hairs. The leaves are two to four times pinnately divided and are covered with gray-white, appressed hairs. The ambrosia flowers from May through October.

Habitat: San Diego ambrosia primarily occupies the upper terraces of rivers and drainages, as well as open grasslands, openings in coastal sage scrub, and occasionally in the areas adjacent to vernal pools. Species found near the San Diego ambrosia include *Distichlis spicata*, *Baccharis salicifolia*, *Baccharis sarathroides*, *Eriogonum fasciculatum*, and *Eremocarpus setigerus.*

Threats: Urban and agricultural development.

U.S. Fish and Wildlife Service. 2002. “Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for *Ambrosia Pumila* (San Diego Ambrosia) From Southern California.” *Federal Register* 67: 44372–44382.

San Diego button-celery (*Eryngium aristulatum var. parishii*)

San Diego button-celery was listed as endangered on August 3, 1993.

Distribution: The San Diego button-celery's range extends from Santa Rosa Plateau in Riverside County, California, to the mesas north of Ensenada, Mesa de Colonet, and San Quintin in Baja California, Mexico. In San Diego County, it is found on Otay Mesa, near lower Otay Reservoir, and in Proctor Valley.

Natural History:

Morphology: The San Diego button-celery is a perennial herb with a persistent tap root that is a member of the carrot family. It has a spreading to erect habit and reaches heights of 41 centimeters or more. The stems and toothed leaves are gray-green with spinose lobes. The flowers form on short peduncles with few to many heads.

Habitat: The San Diego button-celery is an endemic species of vernal pools of Southern California and northern Mexico. Vernal pools are seasonal depressional wetlands where the proliferation of flora and fauna may be related to the Mediterranean climate that prevails throughout their range.

Threats: Urban and agricultural development.

U.S. Fish and Wildlife Service. 1998. *Vernal Pools of Southern California Recovery Plan.* U.S. Fish and Wildlife Service, Portland, Oregon. 113+ pp.

San Diego fairy shrimp (*Branchinecta sandiegonensis*)

The San Diego fairy shrimp was listed as endangered on February 3, 1997.

Distribution: San Diego fairy shrimp are found in vernal pools from San Marcos and Ramona south to Otay Mesa and northwestern Baja California. Also found recently in shallow vernal pools in Orange County.

Natural History:

Habitat: The San Diego fairy shrimp is a vernal pool habitat specialist. It prefers smaller, shallower vernal pools and ephemeral basins, generally less than 30 centimeters deep and often on chaparral-covered mesas.

Breeding: Adult San Diego fairy shrimp are observed from January to March, but the hatching period may vary with the winter rains. They hatch and mature in 7 to 14 days, depending on water temperature. Eggs may be dropped to the pool bottom or retained in the female's brood sack until she dies and settles. The eggs or "cysts" can survive extended dry periods and high temperatures as they wait for the vernal pool to fill again. Not all eggs hatch during a pool filling event, resulting in an egg bank consisting of eggs from several breeding seasons. This age structuring within the egg bank is important for population persistence in unpredictably favorable or unfavorable environmental conditions.

Diet: The San Diego fairy shrimp is believed to feed on protozoa, rotifers, bacteria, and organic matter.

Threats: This species is threatened by habitat loss through urbanization and the conversion of habitat to agriculture.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: November 30, 2007).

Southwestern willow flycatcher (*Empidonax trailii extimus*)

The southwestern willow flycatcher was listed as endangered on February 27, 1995.

Distribution: Breeding range extends from Southern California north to Independence, AZ, southwestern New Mexico, and southern Utah, and formerly southern Nevada. Migrates to winter ranges in central Mexico to northwestern Colombia. Migration occurs through the desert regions in Southern California and sometimes along the coast and onto the Channel Islands.

Natural History:

Habitat: Present in California from late April to September and can be found in thickets, scrubby and brushy areas, open secondary growth, swamps, and open woodlands. They are also known to nest in tamarisk (*Tamarix* sp.) thickets.

Breeding: Nesting occurs in June through late July, with nests constructed in a fork or horizontal limb of a small tree, vine, or shrub, 2 to 3 meters high in dense vegetation. Three to 4 eggs are laid per clutch and hatch after 12 to 15 days. Incubation is conducted by the female, and chicks are tended by both parents. Fledging occurs after 12 to 15 days, generally in early to mid July. A pair will typically raise one brood per year.

Diet: Eats primarily insects caught on the wing, but will glean prey from foliage. They occasionally will also consume berries. In the breeding range, they forage within and sometimes above dense riparian vegetation.

Threats: This species is threatened by the loss and degradation of cottonwood-willow and structurally similar riparian habitats. Increased irrigated agriculture and livestock grazing have aided Brown-headed cowbird populations that in turn impact the southwestern willow flycatcher. The current population exists in small, fragmented populations, which increases the risk of local extirpation.

NatureServe. 2007. NatureServe Explorer: An online encyclopedia of life [web application]. Version 6.2. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed: November 30, 2007).

Spreading navarretia (*Navarretia fossalis*)

Spreading navarretia was listed as threatened on December 15, 1994.

Distribution: Spreading navarretia is distributed from western Riverside County through coastal San Diego County, California, to northwestern Baja California, Mexico. The majority of species in the United States occur on Otay Mesa in San Diego County and along the San Jacinto River and near Hemet in Riverside County.

Natural History:

Morphology: Spreading navarretia is a low, mostly spreading or ascending annual herb that is 10–15 centimeters tall. The leaves are soft and finely divided, and become spine-tipped when dry. The flowers are white to lavender and are arranged in flat-topped, compact, leafy heads.

Habitat: Spreading navarretia is an endemic species of vernal pools in Southern California. It occasionally occupies ditches and depressions that are the result of degraded vernal pool habitat.

Threats: Urban and agricultural development.

U.S. Fish and Wildlife Service. 1994. Endangered and threatened wildlife and plants; proposed rule to list four southwestern California plants as endangered or threatened. *Federal Register* 59: 64812–624823.

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APPENDIX I

Draft Cultural Resources Survey Report

DRAFT

CULTURAL RESOURCES SURVEY
SUPPORTING THE
ENVIRONMENTAL IMPACT STATEMENT
FOR THE
PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE
U.S. BORDER PATROL SAN DIEGO SECTOR, CALIFORNIA

Prepared for:

U.S. Customs and Border Patrol

Prepared by:

Solutions Today for a Sustainable Tomorrow

NOVEMBER 2007

ABBREVIATIONS AND ACRONYMS

APE	Area of Potential Effect
ARMR	Archaeological Resource Management Reports
ARPA	Archaeological Resources Protection Act
BLM	Bureau of Land Management
CBP	U.S. Customs and Border Protection
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHSC	California Health and Safety Code
cm	centimeter
CRHR	California Register of Historical Resources
CRTP	Cultural Resources Treatment Plan
CSHPO	State Historic Preservation Office
DHS	U.S. Department of Homeland Security
DPR	Department of Parks and Recreation (archaeological site form)
e²M	engineering-environmental Management, Inc.
GPS	Global Positioning System
m	meter
NADB	National Archaeological Database
NAGPRA	Native American Graves Protection and Repatriation Act
NHPA	National Historic Preservation Act
OMW	Otay Mountain Wilderness
OWA	Otay Wilderness Area
PRC	Public Resources Code
SBI	Secure Border Initiative
TCP	Traditional Cultural Property
U.S.	United States
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator

NATIONAL ARCHAEOLOGICAL DATA BASE INFORMATION

Report Author:	Dayle M. Cheever, Judy A. Berryman, and Jim Whitaker
Consulting Firm:	engineering-environmental Management, Inc. (e²M)
Report Date:	November 2007
Report Title:	Cultural Resources Survey Supporting the Environmental Impact Statement for the Proposed Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol San Diego Sector, California
Submitted to:	U.S. Army Corps of Engineers, Fort Worth
Contract Number:	DACA63-03-D-0009
USGS Quadrangle Maps:	Otay Mountain and Tecate USGS 7.5 Quads
Acreage:	Linear proposed project corridor: approximately 5 miles by 300 feet
Keywords:	Southern California, Prehistoric, Historic, Linear Survey, Positive, Flaked Stone Artifacts, Disturbed, International Boundary, Pack Trail, Traditional Cultural Property, Kuchumaa, Tecate Peak

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EXECUTIVE SUMMARY

This report presents the cultural resources management activities conducted in support of the Environmental Impact Statement addressing the proposed construction, operation, and maintenance of approximately 5 miles of tactical infrastructure in San Diego County, California for the U.S. Border Patrol (USBP) San Diego Sector of the U.S. Customs and Border Protection (CBP). The Area of Potential Effect (APE) for the proposed project includes lands owned or managed by the Bureau of Land Management (BLM) and private property. The results of cultural resources activities conducted in support of the proposed project are presented in accordance with the National Historic Preservation Act of 1966 - Section 106 and 36 Code of Federal Regulations (CFR) Part 800, Protection of Historic Properties, revised 2000. All cultural resources activities performed in support of the proposed project meet the requirements of the Archaeological Resources Protection Act (ARPA) of 1979, as amended (16 United States Code [U.S.C.] 470aa – 470mm), as defined in Section 36 CFR 60.4, and are presented in the format stipulated in *Archaeological Resource Management Reports* (ARMR) *Recommended Contents and Format* (California Office of Historic Preservation 2000). All engineering-environmental Management, Inc. (e²M) personnel performing cultural resources activities in support of the proposed project meet or exceed the requirements for professional education and experience as defined in 36 CFR Part 800 (National Historic Preservation Act [NHPA]), the Secretary of the Interior's Professional Qualifications Standards (Federal Register Notice, Vol. 48, No. 190, pp. 44738-44739, 1983), and ARPA standards (43 CFR Part 7).

USBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, patrol roads, and access roads along the U.S./Mexico international border in the San Diego Sector, Brown Field Station. The proposed tactical infrastructure would be constructed in two sections along the U.S./Mexico international border within USBP San Diego Sector, in San Diego County, California. Section A-1 is approximately 3.6 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The proposed section would be on and adjacent to the Otay Mountain Wilderness (OMW), would follow the Pack Trail, and would not connect to any existing fence. Section A-2 would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate, California. This fence section would be an extension of an existing fence on Tecate Peak

There is one known traditional cultural property (TCP) in the Section A-2 proposed project corridor. The landform known as Tecate Peak or Kuchumaa has been identified as a TCP and is on the National Register of Historic Places (Register #92001268).

A letter initiating consultation with associated Native American groups was sent to 18 tribal groups with cultural links to the proposed project corridor by the U.S.

Army Corps of Engineers (USACE), Fort Worth District (see **Appendix A**). The concerns of these groups is considered during the preparation of this document, and information regarding resources of traditional, cultural, or religious significance to Native American people has been considered as part of the impact analysis.

Although the proposed project represents a potential impact on five cultural resources sites for Section A-1 and one site on Section A-2, implementation of the stated cultural resources management recommendations and protocols, including archaeological monitoring and the development and implementation of a CRTP for the treatment of any inadvertently discovered cultural resources, would reduce potential project impacts on cultural resources to a level that is less than significant.

The impacts on Kuchumaa have not been defined and the development of protective measures has not been accomplished. Consultation with associated tribal groups has been initiated and ongoing and additional consultation would be necessary to arrive at appropriate project protocols. Additional information regarding design and project limits should be developed to facilitate the presentation of this project to concerned parties with respect to TCP issues.

DRAFT
CULTURAL RESOURCES SURVEY SUPPORTING THE ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED CONSTRUCTION, OPERATION, AND MAINTENANCE OF TACTICAL INFRASTRUCTURE U.S. BORDER PATROL SAN DIEGO SECTOR, CALIFORNIA

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1. INTRODUCTION

The U.S. Department of Homeland Security (DHS), U.S. Customs and Border Protection (CBP), U.S. Border Patrol proposes to construct, operate, and maintain approximately 5 miles of tactical infrastructure along the U.S./Mexico international border near the Otay Mountain Wilderness (OMW), San Diego County, California. Tactical infrastructure would consist of primary pedestrian fence, construction and patrol roads, and access roads in two sections along the U.S./Mexico international border within USBP's San Diego Sector. Proposed tactical infrastructure includes the installation of fence sections in areas of the border that are not currently fenced. The first section is approximately 3.6 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.8 miles in length and would connect with existing border fence west of Tecate, California (see **Figure 1-1**). The proposed fence and tactical infrastructure could encroach on both public lands managed by the Bureau of Land Management (BLM) and privately owned land parcels.

The mission of CBP is to prevent terrorists and terrorist weapons from entering the United States, while also facilitating the flow of legitimate trade and travel. In supporting CBP's mission, USBP is charged with establishing and maintaining effective control of the border of the United States. USBP's mission strategy consists of the following five main objectives:

- Establish substantial probability of apprehending terrorists and their weapons as they attempt to enter illegally between the Ports of Entry (POEs)
- Deter illegal entries through improved enforcement
- Detect, apprehend, and deter smugglers of humans, drugs, and other contraband
- Leverage "smart border" technology to multiply the effect of enforcement personnel
- Reduce crime in border communities and consequently improve quality of life and economic vitality of targeted areas.

USBP has nine administrative sectors along the U.S./Mexico international border. USBP San Diego Sector is responsible for 7,000 square miles of Southern California and 66 miles of the U.S./Mexico international border. USBP San Diego Sector is responsible for the entire county of San Diego, California (CBP 2007).

The Brown Field Station has responsibility for approximately 11.5 miles of the border within USBP San Diego Sector. During the 2006 calendar year, the Brown Field Station was responsible for 46,213 apprehensions, or 34 percent of

all apprehensions within USBP San Diego Sector. The Brown Field Station is the fifth busiest station (in terms of apprehensions) in USBP (CBP 2007).

Approximately half of the Brown Field Station area of responsibility has tactical infrastructure in place. The region without infrastructure is rugged mountainous terrain that is currently difficult to access and patrol. The majority of this unsecured area is to the south of BLM's OMW and has become a focal point of illegal immigrant traffic, where traffickers are well-funded and organized.

Figure 1-1 illustrates the proposed location of the new tactical infrastructure generally using the path known as the Pack Trail with access from the west along an existing dirt road. Construction of other tactical infrastructure might be required in the future as mission and operational requirements are continually being reassessed. **Figure 1-2** provides the location of the west of Tecate section and the proposed access route from the east.

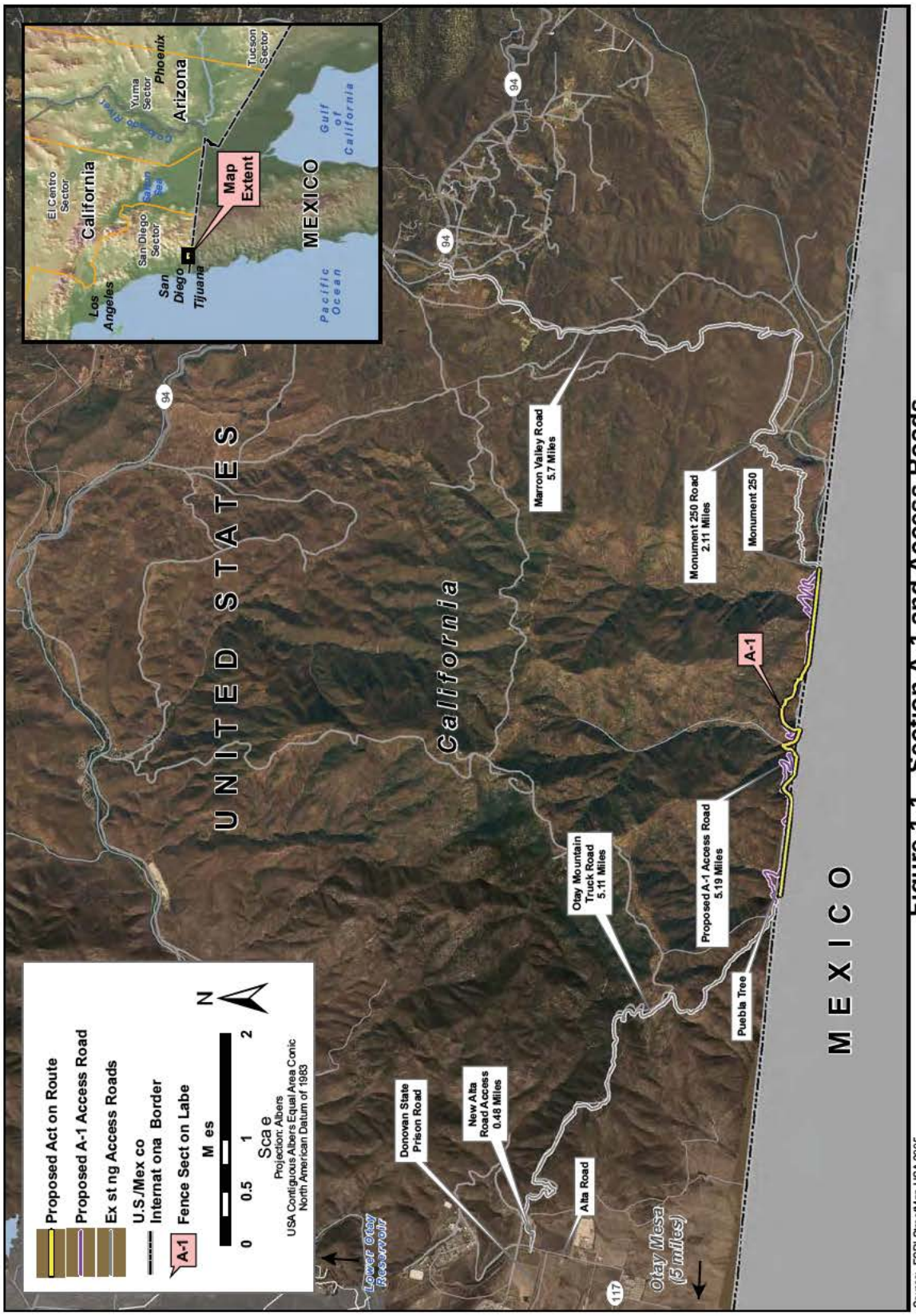

Figure 1-1. Section A-1 and Access Roads

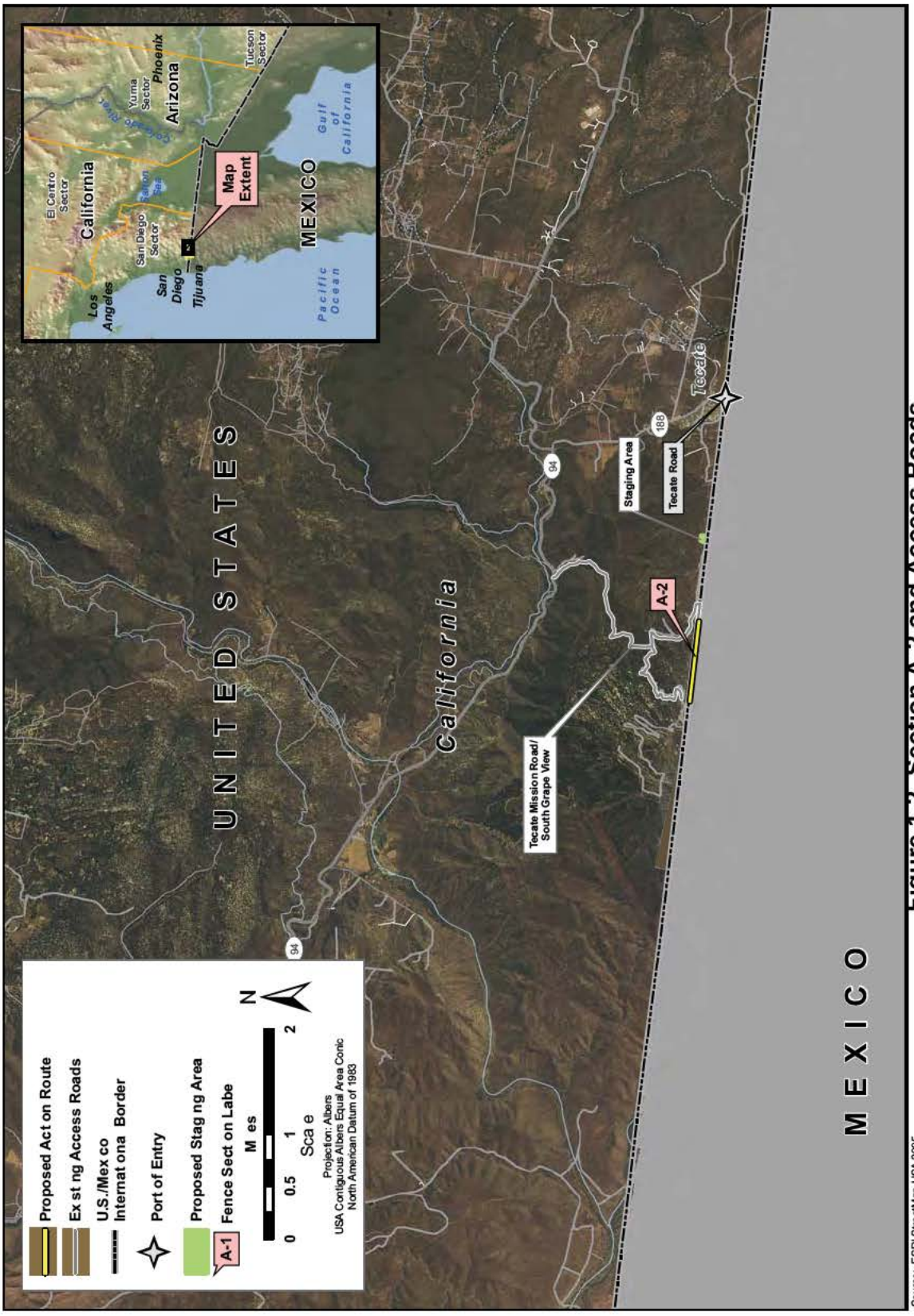

Figure 1-2 Section A-2 and Access Roads

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2. SETTING

2.1 ENVIRONMENTAL SETTING

The proposed project corridor lies within the Peninsular Range province, a well-defined geologic and physiographic unit that occupies the southwestern corner of California, as well as the Baja California peninsula. This province is characterized by northwesterly trending ranges and valleys that abruptly terminate on the north at the east-west-oriented Transverse Ranges. A large part of the province is submerged beneath the Pacific Ocean where it is represented by several of the southern Channel Islands. The rocks of the Peninsular Range province consist of a range of sedimentary, volcanic, and metamorphic rock types. The sedimentary strata are highly clastic, containing a wide range of rock inclusions. Volcanic rocks include the Santiago Peak volcanics and rocks of the southern California batholith, among others.

This topographic diversity is also reflected in the biological communities present. Vegetation in the project vicinity is varied, reflecting a complex interaction of soils, geology, topography, and hydrology. Plants typical of the coastal sage scrub and chaparral plant communities blanket many of the slopes, whereas riparian species grow along the floors of the larger drainage channels. These plant communities provide habitat for a range of small- to medium-sized animals.

Natural habitats in the project vicinity have undergone significant alteration as a result of modern encroachment. Livestock grazing and other agricultural activities have altered the native plant communities. Quarrying and other mining activities, as well as modern development have disturbed large areas. Extensive areas of native landscape remain in the more rugged portions of the project vicinity.

2.2 ETHNOGRAPHIC BACKGROUND

The proposed project corridor is in the southern portion of San Diego County within the historical territory of the Kumeyaay people. Kumeyaay is a native term referring to all Yuman-speaking peoples living in the region from the San Dieguito River south to the Sierra Juarez in Baja California and roughly west of present-day Salton Sea. Prior to European contact, Kumeyaay territory might have extended as far north as the San Luis Rey River. To the north of the Kumeyaay live the Takic-speaking Luiseño and Cahuilla. To the east and south are other peoples who speak a variety of distinct languages belonging to the Yuman language family.

The Kumeyaay have been referred to by a confusing array of names. The standard practice during the Spanish colonial era in California was to name all native peoples within the sphere of influence of a particular mission district after that mission; hence, the native people living around mission San Diego de Alcalá came to be known as Diegueño. Because this nomenclature generally ignored traditional sociopolitical divisions, anthropologists later began to apply the terms Tipai and Ipai to distinguish between two culturally and linguistically distinct

groups. More recent ethnographic data and historic records indicate that the native people refer to themselves as Kumeyaay, and this is now the most widely accepted name.

On the basis of linguistic and archaeological evidence, it has been suggested that the ancestors of the present-day Kumeyaay arrived in this part of California sometime between 1000 B.C. and A.D. 1000. Adding new cultural traditions to earlier patterns, the ancestral Kumeyaay seem to have assimilated with the earlier human inhabitants rather than displacing them.

The Kumeyaay were organized sociopolitically into autonomous bands, each controlling an area measuring approximately 10 to 30 miles, around a water source, typically a perennial drainage or occasionally a spring (Shipek 1982). Each band usually occupied a main village and several satellite living areas. These settlements were temporary, as the community would fission seasonally into smaller groups, which would establish camps to gather, process, and cache seasonally available resources. Seasonal movements were geared toward following the ripening of major plants dispersed from canyon floor to the higher mountain slopes. During the winter months, a band would typically aggregate back to the main village.

The complexity of Kumeyaay residential structures varied according to locality and need. In summer camps, for instance, a windbreak or rock-shelter might be sufficient protection from the elements. In winter, however, more substantial structures might be needed, in which case the Kumeyaay built a thatch-covered dome or gable house.

Leadership of each band was invested in a clan chief and at least one assistant. Positions were generally inherited, although a chief could be selected by consensus. Chiefs typically derived their authority through strength of personality and social skills rather than by force, as they had no real coercive powers. The duties of the chief included resolving disputes, advising about marriages, appointing leaders for important gathering expeditions, and directing clan and interclan ceremonies.

The Kumeyaay practiced a fairly typical California hunting and gathering subsistence regime based on a variety of locally abundant terrestrial and aquatic resources. The Kumeyaay diet was heavily dependent on harvesting wild plant foods, with a strong emphasis on acorns and pinion. An abundance of other plant food, including many different kinds of seeds, bulbs, and other plants, rounded out the diet. Meat was procured through hunting of small game, including rabbits, squirrels, and various reptiles. Many of these animals were captured with nets or by hand. Larger game, such as deer, was taken with bow and arrow, but probably did not figure prominently in the diet. Besides abundant plants, the inhabitants living in the coastal zone had access to rich marine environments, which provided abundant shellfish, fish, and sea birds and sea mammals.

Interaction with neighboring tribes was maintained through extensive trade networks involving the movement of goods and information across diverse ecological zones. The San Diego-area Kumeyaay appear to have maintained stronger trade relationships with their neighbors to the east than with groups to the north and south, as evidenced by a lively trade between the seacoast and inland areas as far east as the Colorado River (Luomala 1978). Acorns, dried seafood, ornamental marine shell, and other materials moved eastward from the coast and uplands, and salt, gourd seeds, and mesquite beans moved in the opposite direction.

Contact between the Kumeyaay and Europeans began in 1542 when Juan Rodríguez Cabrillo landed the first Spanish expedition in San Diego. Sustained cultural interaction did not develop, however, until the founding of Mission San Diego de Alcalá in 1769. Although the Kumeyaay culture was not as severely impacted by Spanish colonization as some other California tribes, its sociopolitical structure was drastically disrupted during the Mission period and later. Those Kumeyaay living closest to the mission were hardest hit by European civilization, whereas groups living in the mountains were less traumatized by cultural interaction and preserved more of their culture longer.

By the end of the 19th century, most Kumeyaay had been disenfranchised from their lands and relegated either to reservations or, in some cases, acculturated into mainstream Euro-american society in rural areas or at the edges of small towns on land that immigrants did not want. Employment opportunities were few. Most were poorly paid and labored in mines, on ranches, or in town, although some still supplemented their income with traditional subsistence activities (Chartkoff and Chartkoff 1984).

Throughout the 20th century, the Kumeyaay have struggled and worked toward maintaining their autonomy and sovereignty. Today their culture is thriving and the Kumeyaay are represented by federally recognized tribes with reservations throughout San Diego County. At present, about 20,000 Kumeyaay descendants live in San Diego County, with approximately 10 percent of the total population living on the 18 established Kumeyaay reservations.

2.2.1 Prehistoric Background

Southern San Diego County contains archaeological evidence of human use and occupation that spans thousands of years of prehistory. The earliest sites date to the early Holocene (9,000–7,500 years ago) and are known as the San Dieguito complex, so-named because the culture was first defined through the investigation of a site along the San Dieguito River, about 30 miles north of the current proposed project corridor. The archaeological remains of this period consist of large, stemmed projectile points and finely made scraping and chopping tools, which were used for hunting and processing large game animals (Moratto 1984). San Dieguito stone tools generally exhibit a high degree of workmanship and careful raw material selection. Leaf-shaped blades, occasionally with wide-stemmed hafting elements, are common point or knife

forms in this material culture. The hafting and delivery systems associated with these artifacts are widely debated but probably included hardened foreshafts fastened to atlatl darts and lances. Bows might have been used, but the mass (weight) of many of the projectiles associated with this cultural tradition implies that it was rare, if in fact present at all.

The La Jolla complex (i.e., 7,500–2,000 years ago) followed the San Dieguito complex. La Jolla Period sites are recognized by the presence of abundant milling stone implements and shell middens near lagoons and sloughs. This period brought a shift from hunting to a more generalized subsistence strategy relying on a broader range of resources, including plant, shellfish, and small game. During this period, the number of sites increased from the earlier San Dieguito, and sites are found across a greater range of environmental zones.

In addition to the presence of ground stone tools, La Jolla period sites are typically associated with flexed human burials with grave offerings and shell middens. Occasionally cog stones and discoidals are found in these assemblages. The flaked stone assemblages from these sites generally contain higher percentages of battering and crushing implements, with less emphasis on tools with a finely worked cutting edge, and collections with significantly lower percentages of large bifacially worked knives and unifacially worked scraper/cores.

The origin of the La Jolla cultural complex is unclear. Some researchers believe that it developed out of the earlier San Dieguito complex, whereas others feel that it might have coexisted with the San Dieguito, and merely represents use of distinct environments by the same culture. Regardless of the origins, the archaeological remains of these two complexes indicate very different subsistence strategies, with the San Dieguito complex focusing on hunting and the La Jolla complex based on a broader-based foraging strategy. Regional variants of the San Dieguito and La Jolla complexes are found in interior regions of San Diego County. The Pauma complex, originally believed to be a distinct archaeological culture, is more likely a regional variant of the better-known La Jolla complex.

As elsewhere during the late prehistory in southern California, the Yuman complex (i.e., 1,300–200 years ago) or Late Period was a time of cultural transformation. Beginning about 1,000 years ago, Yuman-speaking groups moved into the San Diego area. These later populations are identified by distinctive, small projectile points, ceramic vessels, and an increase in the use of mortars. The acorn became an increasingly important component of the diet, although subsistence pursuits from earlier periods continued.

Although there are differences in the settlement patterns noted for each successive prehistoric period, habitation sites from all periods are most commonly found near lagoons and the open coast, or along inland valley stream-channels and rivers. The study area is within a semi-arid climate with a distinct seasonal pattern to rain and relatively few reliable sources of potable water. In

general, the coastal zone and mouth of canyons or the confluence of streams are considered to be archaeologically sensitive and the most likely places to support archaeological sites ranging from small activity areas to habitation sites. Smaller special-use or satellite sites are found scattered across all environmental zones, particularly near water sources. Extensive prehistoric quarries are known from the general region, and milling features on bedrock outcrops are common in the inland portions of the county.

2.2.2 Historic Background

The historic period began in the San Diego area with the voyage of Juan Rodríguez Cabrillo, who landed near Point Loma on September 28, 1542. Although several expeditions were later sent to explore the Alta California coast, for nearly two centuries following Cabrillo's voyage the Spanish government showed little interest in the region, focusing instead on the Mexican mainland and on Baja California. In the 1760s, however, spurred on by the threat to Spanish holdings in Alta California by southward expansion of the Russian sphere of influence, the Spanish government began planning for the colonization of Alta California (Rolle 1978).

The Spanish originally planned to establish their first settlement in Alta California at San Diego using a four-pronged expedition. Two groups would arrive by sea and two over land. The various expeditions departed from their respective locations throughout the first half of 1769. The two ships and both overland parties eventually reached San Diego. A third supply ship was dispatched to join the expedition, but it was apparently lost at sea. Meeting in San Diego, the colonists succeeded in establishing Mission San Diego de Alcalá on July 16, 1769 at the present-day location of Presidio Park. The Mission was moved inland to its present location after the original setting proved unsatisfactory. The Presidio remained on the hillside overlooking present-day Old Town and the mouth of the San Diego River and gradually fell to disrepair.

For the next 50 years, mission influence grew in southern California: Mission San Luis Rey de Francia, north of San Diego in present-day Oceanside, was established on June 13, 1798 (James 1912), and the assistance of Santa Ysabel and a dam and flume in Mission Gorge constructed around 1818 (Collett and Cheever 2002, Luomala 1978). The mission economy was based on farming and open-range ranching over vast expanses of territory.

As part of their colonization goals, the church hierarchy felt an obligation to convert the native people to Christianity, and the church worked diligently at converting the local populations. The mission priests gathered as many Kumeyaay into the mission as possible. Once there, the neophytes essentially were held captive while they received religious instructions and provided free labor for the mission, often forcibly. The effects of mission influence upon the local native population were devastating. The reorganization of their traditional lifestyle alienated them from their previous subsistence patterns and social

customs. European diseases for which the Kumeyaay had no immunities reached epidemic proportions and many died.

Mexican independence from Spain in 1821 was followed by secularization of the California missions in 1832. Between 1833 and 1845, the newly formed Mexican government began to divide up the immense church holdings into land grants. By the 1840s, ranches, farms, and dairies were being established throughout the El Cajon Valley, along the Sweetwater River, and in nearby areas.

The rancho era in California was short-lived and in 1848 Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. Growth of the region was comparatively rapid after succession. Subsequent gold rushes, land booms, and transportation development all played a part in attracting settlers to the area. San Diego County was created in 1850, the same year that the City of San Diego was incorporated. Over the next 20 years the county's population increased six-fold and the city population more than tripled. By the late 1800s, the county was still growing and a number of outlying communities developed around the old ranchos and land grants, in particular, areas in the southern limits of the county (Collett and Cheever 2002).

Throughout the early 20th century most of San Diego County remained rural. Like most of southern California, this region changed rapidly following World War II when the pace of migration and growth quickened. Today, southern San Diego County has transformed into a burgeoning metropolis with unprecedented urban expansion.

The remoteness of the proposed project corridor has resulted in a generally undeveloped appearance with the exception of access roads, heavily used footpaths, and the accumulation of modern trash.

3. METHODS

3.1 RECORD SEARCH AND ARCHIVAL RESEARCH

An archaeological site record and archival search was conducted at the South Coastal Information Center in accord with the requirements of the National Historic Preservation Act (NHPA) Section 106 (Code of Federal Regulations [CFR] 800.4 [2, 3, and 4]). The archaeological site record and archival search were completed to identify and collect data related to cultural resources sites and isolates recorded within a 0.5-mile radius of the proposed project corridor of Potential Effect (APE) as shown on **Figures 1-1** and **1-2**. Pertinent site records were identified and collected and supporting cultural resources management reports were collected, reviewed, and evaluated. A search of the National Archaeological DataBase (NADB) was also completed in an effort to identify cultural resources management reports for previously completed cultural resources management activities (archaeological survey or evaluation excavations) in the study area and in the immediate vicinity. The National Register of Historic Places was reviewed for information on properties that are or have the potential to be listed.

A letter initiating consultation with local Native American groups was sent by the U.S. Army Corps of Engineers (USACE), Fort Worth District to 14 tribal groups with cultural links to the proposed project corridor (see **Appendix A**). This letter was prepared to initiate consultation and comment on TCPs and areas of concern to these affiliated groups. The concerns of these groups were considered during the preparation of this document and information regarding resources of traditional, religious, or cultural significance to Native American tribes will be considered throughout the planning process.

3.2 FIELD WORK

An intensive pedestrian survey of the entire project alignment was completed in November 2007 by archaeologists from engineering-environmental Management, Inc. (e²M). The survey was designed as a pedestrian coverage with transects spaced at an interval that did not exceed 15 meters between team members. The area of survey was established as a corridor between the boundary of the OWA and the U.S./Mexico international border and included potential access routes. The area surveyed was larger than the area necessary to construct the proposed barrier and improve the existing trail to a drivable road as a designed project was not finalized at the time of the cultural resources survey. The proposed access route, barrier alignment, and construction-related corridors were determined prior to the survey and a buffer of 300 feet around the identified areas was surveyed.

The alignment and identified access and potential construction lay down and staging areas were examined for surface evidence of cultural resources sites, features, or isolated finds. Aerial and topographic maps were used for orientation and coverage guides and all discovered cultural resource sites, features, and

isolates were plotted in the field using a Trimble global positioning system (GPS) field unit with submeter accuracy.

All of the locations of previously recorded sites or isolates within and in close proximity to the proposed project corridor were revisited to determine the accuracy of the original recording and to assess the current conditions. The Universal Transverse Mercator (UTM) information was downloaded to the field GPS and used to navigate to the recorded locations. The plotted locations on the U.S. Geological Survey (USGS) site location maps were also employed as a means of relocating previously recorded sites, as UTM data are not always 100 percent reliable.

Access to the proposed project corridor was gained through coordination with the USBP San Diego Sector and the BLM, Palm Springs/Bakersfield Field Office under a Fieldwork Authorization Permit. The survey team was escorted by a representative of the USBP and the fieldwork was completed in October 2007 under Fieldwork Authorization Permit No. CA-08-03.

The conditions at the time of the survey were dry and ground surface visibility was excellent. Vegetation in the area has burned in recent years, though there are still areas of dense vegetation, in particular in the drainages. In addition to the extensive and regular foot traffic, the Section A-1 proposed project corridor demonstrates evidence of human and large domestic animal activity. Cattle and horses from south of the border regularly graze the proposed project corridor and modern trash in the form of paper, plastic water containers, and miscellaneous personal items is scattered across the study area and in some areas is particularly heavy. The establishment of the OWA has created a buffer to access and development to the north; access from the south is not as restricted resulting in notable evidence of human and domestic animal presence. The proposed project corridor is extremely rugged and the topography is challenging with relatively few areas that can be classified as flat or level.

Section A-2 burned in October 2007 and the proposed project corridor was generally clear of vegetation. The access road is a well-established and well-used dirt road that has sufficient width for one vehicle. This road is referred to as Tecate Mission Road (also known as South Grape View). The area designated for barrier placement is on the flanks of Tecate Peak and had recently burned such that there was no vegetation masking the ground surface.

4. RECORD SEARCH RESULTS

A review of the archaeological site records and archival information, including site (CA-SDI) and Primary (P-37) plot USGS maps (Otay Mountain and Tecate, California quads) and the NADB, indicates that portions of the study areas and vicinity have been previously surveyed or subjected to archaeological excavation. Reports listed in the NADB documenting previously completed cultural resources management projects in and within the vicinity of the study area are summarized below. A review of the National Register provided information on one sacred site that is within the project vicinity. **Confidential Attachment 1** provides the results of the record search with site location information for Sections A-1 and A-2.

4.1 PREVIOUS STUDIES

There are records for seven cultural resources studies in the study area (**Confidential Attachment 1**). These work efforts include survey coverage of large areas associated with the Pack Trail also known as the Border Pack Trail.

The following reports are on file with the South Coastal Information Center for the proposed project corridor:

- Cultural Resources Report-Mission Park R&PP Application 1981
- Mission Park R&PP Application 1981
- Survey of the California Department of Forestry Evans-Wentz Property 1984
- Otay Mesa OHV Park Environmental Impact Report 1986
- Appendixes for the Environmental Impact Report for Otay Valley Water Reclamation Facility for the Clean Water Program for Greater San Diego 1990
- Historical and Architectural Assessment of Six Timber Box Flumes on the Delzura Conduit 1990
- National Register of Historic Places Registration for Kuchumaa (Tecate Peak) 1992
- National Register Application Form for Kuchumaa (Tecate Peak)
- Archaeological Survey for the Joint Task Force-Six Border Road Repair Project 1996
- A Cultural Resources Inventory of the Proposed Otay Mountain Horse Trail 1997
- Cultural Resource Survey: Tecate Trail and Puebla Tree Road 2002
- Final Cultural Resources Inventory of the Border Pack Trail, San Diego County, California 2002.

4.2 RECORDED SITE INFORMATION

The record search results indicate that there are four sites and five isolates recorded along the Pack Trail (see **Table 4-1**).

Table 4-1. Recorded Sites within the Project APE

Site Number	Section	Site Number	Section
CA-SDI-16368	A-1	P-37-015716	A-1
CA-SDI-16369	A-1	P-37-024688	A-1
CA-SDI-16370	A-1	P-37-024689	A-1
CA-SDI-16371	A-1	P-37-024691	A-1
P-37-015715	A-1		

Table 4-2 provides a summary of the recorded sites by project section within 0.5 miles of the project right-of-way. The site descriptions and recorders were derived from the site records.

Table 4-2. Recorded Sites by Section within 0.5 Miles of the Project

Site Number	Site Description	Reference and Date Recorded	Section
CA-SDI-190	Unknown	Alan Treganza Date Unknown	A-1
CA-SDI-9101	Sparse lithic scatter with bedrock milling	Pat Welch 1981	A-2
CA-SDI-9102	Sparse flaked lithic scatter	Pat Welch 1981	A-2
CA-SDI-9968	Extensive bedrock milling features with sparse flaked lithic scatter	Dan Foster and Rich Jenkins 1984	A-2
CA-SDI-16300	Lithic procurement and moderate flaked lithic scatter	Greig Parker 2002	A-1
CA-SDI-16368	Sparse flaked lithic scatter	Cary Cotterman and Maria Espinoza 2002	A-1
CA-SDI-16369	Small flaked lithic and prehistoric ceramic scatter	Cary Cotterman and Maria Espinoza 2002	A-1
CA-SDI-16370	Seasonal camp with two milling features and a sparse flaked lithic scatter	Cary Cotterman and Maria Espinoza 2002	A-1
CA-SDI-16371	Sparse flaked lithic scatter	Cary Cotterman and Maria Espinoza 2002	A-1
CA-SDI-16372	Dense flaked lithic scatter	Cary Cotterman and Maria Espinoza 2002	A-1

Site Number	Site Description	Reference and Date Recorded	Section
P-37-015715	Isolate-Interior dacite flake	Mike Mitchell 1997	A-1
P-37-015716	Border Pack Trail	Cary Cotterman and Maria Espinoza 2002	A-1
P-37-024688	Isolate-Dark gray basalt flake	Cary Cotterman and Maria Espinoza 2002	A-1
P-37-024689	Isolate- Light brown dacite core and light brown dacite flake	Cary Cotterman and Maria Espinoza 2002	A-1
P-37-024690	Isolate-Brown dacite flake	Cary Cotterman and Maria Espinoza 2002	A-1
P-37-024691	Isolate-Gray basaltic flake	Cary Cotterman and Maria Espinoza 2002	A-1

Traditional Cultural Properties

There is one known TCP in the proposed project corridor. The landform known as Tecate Peak or Kuchumaa has been identified as a TCP and is on the National Register of Historic Places (Register #92001268). The following is a presentation of the importance and definition of this area as a TCP from the *National Register Bulletin 38: Guidelines for Evaluating and Documenting Traditional Cultural Properties*.

> **Kuchumaa (Tecate Peak)**, Tecate, San Diego County, California, is a sacred mountain to the Kumeyaay Indians of southern California and northern Baja California, Mexico. Although there are modern intrusions (a road and communications facilities on the summit), the mountain is important to the Kumeyaay community's belief system. The peak is a special place, marking the location for the acquisition of knowledge and power by Kumeyaay shamans. Oral tradition records the use of Kuchumaa as the place where several important shamans instructed their initiates and the sacred place of vision quests and purification ceremonies. Contemporary Native Americans continue to use Kuchumaa during the full moon and at equinoxes, when they pray for renewal of Earth Mother and peace. Kuchumaa is significant under Criterion A for its association with Native American cultural history. A contour line and a legal boundary were used to define the National Register boundaries of the property. **Verbal boundary description:** Kuchumaa is 3,885 feet above mean sea level. The nominated area includes all land from the 3,000-foot contour level up to and including the peak. On the north it drops abruptly to Highway 94. The western flank consists of several dissected subpeaks and the eastern aspect is an upland spine. The southern boundary conforms to the

> international border [between the United States and Mexico]. This is a total of 510 acres, 320 to the west and 190 to the east. **Boundary justification:** Kuchumaa was and remains important to southern California Native Americans as a structural unit. If the mountain lacked its physical proportions and regional position, then it is quite possible that the peak would not have been revered. The physical stature of Kuchumaa constitutes one reason that it was used as a place of spiritual learning and worship. During a visit to Kuchumaa to evaluate a development proposal, Native Americans identified a sphere of spiritual influence extending for several miles from the mountain. This constitutes one zone of spirituality; approachable by both Kwisiyai (shamans) and ordinary people. Actual Native American use of Kuchumaa provides guidelines for establishing boundaries. This nomination includes that portion of the mountain located above an elevation of 3,000 feet above mean sea level. According to current data, this area is considered sacrosanct. In the ethnographic and prehistoric past, the summit was used for arcane rituals and approached only by shamans and their initiates. Cultural taboos prohibited common folk from ascending beyond a spring known as God's Tear. The location of God's Tear Spring has not been verified, but best estimates place it as the spring located just above the 3,000-foot level. Finally, according to Rosalie Pinto Roberston [granddaughter of the last traditional chief of the Kumeyaay], the high mountain slopes hold burials of cremated Kwisiyai. As with the spring, none of these have been verified. Their presence above the 3,000-foot level requires the use of the contour line as the boundary for the National Register district. The nominated portion of Kuchumaa includes 510 acres, with the eastern section, consisting of public lands, containing 190 acres. The western, state-owned parcel is demarcated by north-south section lines. This area contains 320 acres. The southern boundary conforms to the international border. Private lands occupy a large portion of the lower slopes of the mountain below the 3,000-foot contour line.

The following section was taken from a report for the California Division of Forestry report prepared by ASM Affiliates, Inc. (Hector and Garnsey 2006) for Tecate Peak and land to the west. The following excerpt provides an excellent summary of the known information on Tecate Peak or Kuchumaa and is repeated here as emphasis of the importance of this landform and surrounding area.

> Kuchumaa was first identified as a sacred site in ethnographic literature by Shipek (Cuero 1970) during her study of the Kumeyaay Indians. The site, commonly known as Tecate Peak, is located at an elevation of 3,885 feet above sea level, adjacent to the International Border and between the towns of Dulzura and Potrero in San Diego County; the southern portion of the mountain lies within Tecate, Mexico. To the Kumeyaay, the peak is one of

extreme religious and spiritual importance, as is denoted by the various translations of Kuchumaa, meaning, “high, exhalted place” (Winkler 1980) and “the ones that cure” or “the ones that life up” (Staniford 1977:44). Kuchumaa remains an extremely important religious site to the Native Americans in the region and is also the destination of followers of New Age religion. The mountain plays a part in a creation myth of the Kumeyaay (Fenly 1982). According to the Kumeyaay creation story, Kuchumaa became a sacred mountain because it was selected as such by Maiha (Fenly 1982), one of the “great creator gods” (Dubois 1908:223). The source of Kuchumaa’s power is not known. Kumeyaay elder Rosalee Robertson stated, “This is the hardest question. Its power comes from the spirit. From God… In the creation myth of the Kumeyaay, there was the prophecy of an all-powerful wise man who would arrive to Earth to show Indians the way to peace. This man came to be known as Kuchumaa….all Indians from as far south as central Baja California and as far east as Yuma came to the mountain centuries ago when they were called by the man.” (Fenly 1982).

Most of the evidence for the significance of Kuchumaa derives from oral tradition rather than archaeological remains. To date, little archaeological evidence has been identified to speak to the importance of the site in the ritual activities of the Kumeyaay. One small prehistoric temporary habitation or special use site (CA-SDI-3488) has been recorded approximately 150 m northeast of the peak itself (Foster and Jenkins 1984). The presence of rock art was reported by Dutton in 1982 (National Park Service 1992), and stone features and artifacts, including one projectile point and ceramic sherds, have also been reported (Winkler 1980). One of Hohenthal’s informants described finding a stone olla on the slopes of Kuchumaa in the mid-1940s, about which he speculates that it “may have actually been an example of the Chumash steatite bowls which occasionally filtered south through native trade” (Hohenthal 2001:88). Hohenthal (2001:89) also reported that a Sr. Barrios, who owned a ranch at the base of Kuchumaa, had also “collected metates, manos and stone points and blades of various sorts.” No systematic cultural resource surveys have been conducted on the mountain to date, and only two surveys have been conducted at the base of the mountain (Talley 1981, negative; and Welch 1981, positive). Large village sites have been reported for the region (Woods 1980), but none have been documented.

Knowledge of the peak and its importance was widespread among the Luiseño, Juaneño, Paipai, Quechan, Mohave, and possibly the Cahuilla, as well as the Kumeyaay (Fenly 1982). Traditionally, only shamans, or *kwisiyai*, were allowed on Kuchumaa (National Park Service 1992) and it was one of the few sites of *kwisiyai* initiation rites. Tofflemeir and Luomala (1936:200) report that the initiation

ceremonies took place on Kuchumaa after one year of training in "…diagnosis of disease, curing methods, dream interpretation, tribal and professional ethics, star lore, spirit communication, hunting secrets, witching sings, and how to prepare magic to insure success at gambling and love." Initiates participated in a period of fasting, purification, and meditation, an aspect of the shaman rites occasionally assisted by the use of datura (jimson weed) to enter a trance or hallucinogenic state. Shipek (1985:70) related that Kuchumaa later forbade the use of datura. According to oral tradition, *kwisiyai* learned healing from the mountain itself (Fenly 1982) after they had shown the capability to become shamans through revelation of their dreams and had participated in initiation rites; very few individuals were born into the position. One especially famous shaman named Kuchumaa lived in the 1800s and, according to McCain (1955:27), the mountain took its name from this individual. More likely, the opposite is true and the man was named for the mountain. Creation stories foretell the coming of Kuchumaa, the man. Hohenthal (2001:83) noted that the "name Cuchumá comes from a capitán grande after whom a large isolated peak nearby, the Picacho de Cuchumá, was also named."

Historically, Kuchumaa was the site of a number of intertribal battles, and when intertribal fighting became "…out of hand, the kwiyasi were called to hear Kuchumaa's words of peace…Unfortunately, the shamans were rarely able to hear his words and fighting invariably brewed again" (Fenly 1982). Kuchumaa was also the site of contests held between shamans during which the strength of individual's powers were pitted against one another. One story relates a battle between the shamans on the peak of Kuchumaa that ended in the deaths of some of the medicine men on the promontory below. During one such contest, a group of Kumeyaay *kwisiyai* and Luiseño battled and caused the mountain to split, opening a gorge on the east side of the mountain (Fenly 1982).

A sacred spring named God's Tears by the Kumeyaay (National Park Service 1992; Shipek 1985:70) is located around the 3,000-foot contour level, an elevation that marks the transition from a sphere of spiritual influence, accessible by ordinary people, to sacrosanct ground, where only shaman were allowed. Sacred dances such as the *horloi* (whirl dance) were performed on the mountain by the *kwisiyai* (Shipek 1985:70; Spier 1923; Talley 1981; Woods 1980). This dancing reportedly created a circular pit in the promontory located below the mountain's summit; a radio communications tower now stands here (Fenly 1982). *Kwisiyai* paid visits, both physical and spiritual (by way of dreams and through the use of datura), to Kuchumaa to increase their knowledge and interact with the spiritual world. Finally, the mountain was used as a

burial place for special people; *kwisiyai* were cremated and their ashes spread or placed on the slopes of Tecate Peak (Fenly 1982), while ordinary citizens were interred in communal cemeteries (Davis 1921).

The length of time that the Kumeyaay have been coming to Tecate Peak for spiritual and religious rites is not known. As Kumeyaay informants noted, it has been used for these purposes as long as there have been Kumeyaay (Fenly 1982). There is no mention of Kuchumaa in ethnographic accounts dating to the early 1900s. Because of the sensitive nature of the place, and the tenuous relationship between European and native people, it is likely that Native American informants would not have spoken of its importance to ethnographers. Even today, the Kumeyaay are reticent on the subject of Kuchumaa: "All (informants) indicated that it was forbidden to speak of the mountain or the beliefs associated with it except on proper occasions. Death would follow improper discussion of the mountain…" (Shipek 1985:68). The peak seems to have ceased being used by the *kwisiyai* for initiation ceremonies after Kuchumaa's death in the 1800s (Fenly 1982) and no *kwisiyai* are living today (Shipek 1985:68). The last shaman contest took place on Kuchumaa during the 1930s (National Park Service 1992). The mountain remains an important religious site to Native Americans, connecting the Kumeyaay and other Indians to their ethnic and religious heritage; it is also recognized and used as a spiritual destination by non-Native people.

In the early 1900s, Dr. Walter Evans-Wentz, an authority on Tibetan Buddhism, inherited 5,000 acres of land on Kuchumaa (Evans-Wentz 1981: xx). At his death, he willed 2,261 acres of the ranch to the State of California with the requirements that the property be "maintained forever as a mighty monument to symbolize goodwill and fraternity between the races and faiths of the Occident and the Orient across the wide ocean of peace over which it looms" (Evans-Wentz 1981).

Walter Yeeling Evans-Wentz was born February 2, 1878, in New Jersey, but followed his family to La Mesa, California (Peterson and Clebsch 1970). He attended Stanford University, graduating in 1906. At Stanford, Wentz developed his beliefs in eastern spirituality and Celtic religions. In his honor, Stanford has established the Evans-Wentz Lectureship in Asian Philosophy, Religion and Ethics in their Department of Religious Studies (http://arc.stanford.edu/archives/evans-wentz.html). He added the name Evans to his surname in recognition of his own Celtic ancestry. He received an honorary doctorate in Comparative Religion from Oxford University in 1931. He traveled widely, studying Tibetan Buddhism, and translated many texts into English.

Between 1922 and 1965, he worked on several books, including *The Sacred Mountains of the Western World*, which was finished by others and published after his death (as *Cuchama and Sacred Mountains*, W. Y. Evans-Wentz, edited by Frank Waters and Charles L. Adams). One of the mountains described in the book is Kuchumaa.

Dr. Evans-Wentz later bequeathed the land to the San Diego County Council of Boy Scouts, the San Diego YMCA, and CDF with the intention that the mountain would be preserved in perpetuity, and not developed. The CDF was selected as owner of the property because the agency has resource conservation as a primary part of its mission. His book *Cuchama and Sacred Mountains,* a review of Kuchumaa and other sacred mountains throughout the world, was published by the University of Ohio in 1981. It was later criticized as being "superficial and inaccurate" (Shipek 1983:279). A radio communications station was built on the summit of Tecate Peak by the U.S. Army Corps of Engineers in 1957 (Fenly 1982). A dirt road constructed to provide access to the station remains as the only access to the mountain's peak. A locked gate was installed to prevent unauthorized access to the radio facilities, but also cut off Kumeyaay access to this sacred site. In 1965, the year of Dr. Evans-Wentz's death, a number of state and federal agencies established other radio communications stations on the peak and a number of proposals to develop the land on and surrounding the peak and to place transmission lines across the mountain have since been presented.

In 1981, a proposal to build a campground on the lower slopes of Tecate Peak initiated the preparation of an Environmental Impact Report by the BLM. As a result of research into ethnographic literature and Native American consultation, BLM sought a nomination of Kuchumaa as a National Register of Historic Places (NRHP) district (National Park Service 1992). The Tecate Peak District encompasses 510 acres of both state and federal lands. The district was determined to be eligible for the National Register based upon its uniqueness as a site of extreme religious significance to the Kumeyaay and other Indians throughout southern California. It should be noted that portions of Kuchumaa are still privately owned. This creates a dilemma for the Kumeyaay, who feel that they risk personal harm by divulging information about their sacred mountain, but that, should portions of it be developed, the power of the site will be diminished.

5. FIELDWORK RESULTS

The survey of Sections A-1 and A-2 was conducted in November 2007 by archaeological professionals of e²M. The survey team was accompanied by agents from the CBP and access was coordinated through the USBP San Diego Sector. The area of survey was defined based on the project maps dated November 2007 and included the identified sections for barrier construction and access roads that could be altered as part of the construction and by future patrol and maintenance efforts. All accessible areas were carefully inspected for evidence of early historic and prehistoric cultural activity using a transect interval that did not exceed 15 meters between team members. The terrain in the proposed project corridor presented some safety concerns resulting in spot checking in some areas of extreme topography. Several weeks prior to the survey a severe wildfire burned all of the vegetation in the West of Tecate proposed project corridor and affected smaller portions of the Pack Trail.

5.1 PREVIOUSLY RECORDED RESOURCES FOR SECTION A-1

5.1.1 The Pack Trail (P-37-015716)

The Pack Trail winds over chaparral-covered slopes on the flank of the San Ysidro Mountains. The conditions are rocky and generally sloped with a series of north/south-trending ridges cut by deep canyons created by run-off to the Tijuana River from the mountain. Some of the drainages contain riparian vegetation, with shrubs and chaparral comprising the most common vegetation types. The area was dry and the ground surface visibility was generally excellent. The elevation range along the trail is from between 440 and 1,330 feet above mean sea level.

According to Mitchell (1997) the Pack Trail averaged approximately 20 inches in width and was formed by clearing brush and pushing “conspicuous” rocks to the side. The trail was difficult to follow in its entirety as heavy vegetation, topography, and “hundreds” of footpaths from migrant human groups as well as large livestock activity, obscure the primary path. Mitchell surveyed the trail in 1996, after a wildfire cleared vegetation from a large section of the trail. The trail was resurveyed in 2002 by Chambers Group, Inc. (2002) and found to be nearly 1 to 3 meters in width along its full length, brush-free, and easy to follow despite the many intersecting footpaths. Chambers noted the possibility that the trail had been altered through the use of picks and shovels to excavate a more suitable path along the steep ridge slopes and to form a more defined pathway. The path ranges from a surface manifestation to a path that is excavated as much as 60 centimeters (cm) into the hillsides. The path runs parallel to the international border and within 1 meter of the border in many sections and more than 550 meters from the border in other areas.

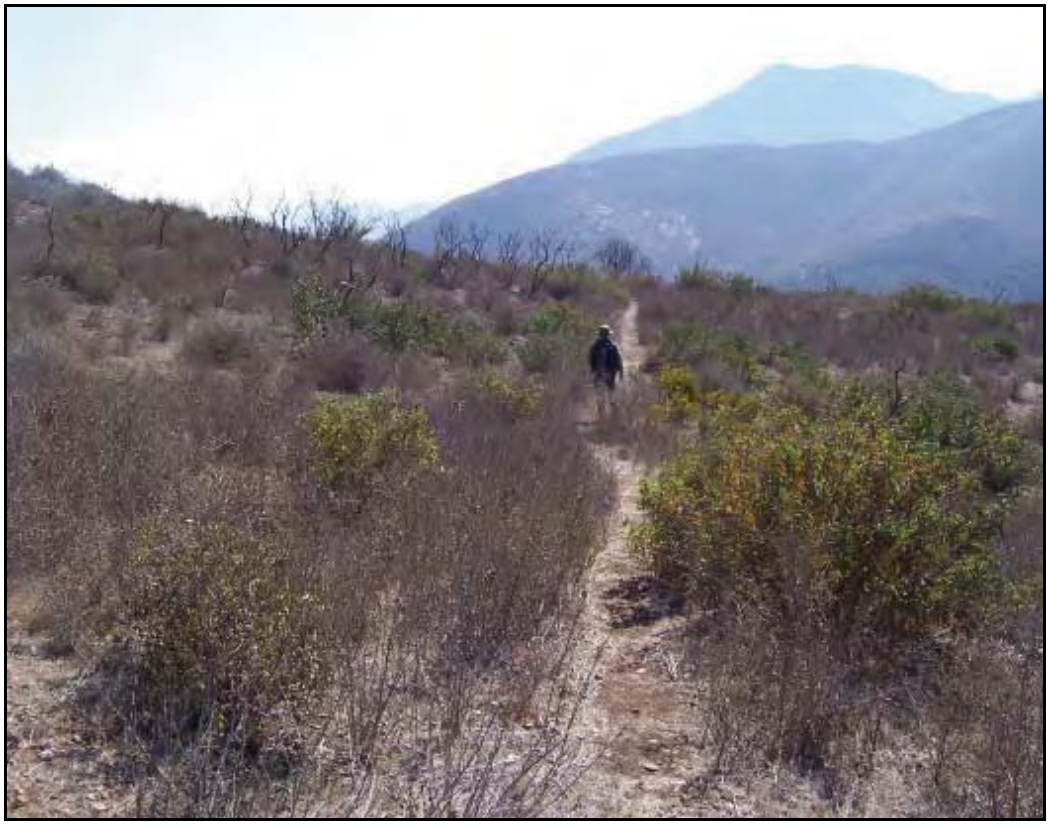
The research completed by Mitchell (1997) concluded that the trail was constructed in the 1930s or 1940s to bring fencing material up the steep mountain flanks, to construct a fence along the border. Mitchell (1997) presented the notion that the barbed wire fence was constructed to maintain a separation of

livestock and not as a means of controlling human population movement. Mitchell (1997) and the Chambers Group both concluded that the Pack Trail is not associated with any persons or events of particular importance in regional transportation history and is not the work of a master and in Chambers view the trail has been significantly modified from the original form and, as such, the trail is not eligible for nomination to the National Register of Historic Places.

The survey along the Pack Trail for this report confirmed both the configuration and condition of the trail. The inspection and survey followed the existing trail, beginning at the western end. The conditions along the trail are extremely rough with inclines in some portions of the trail in excess of 30 percent (see **Photographs 5-1** through **5-3**). There were no associated historic or prehistoric artifacts identified within the narrow confines of the trail.

Photograph 5-1. Example Showing Trail Condition and Width

Photograph 5-2. Eastern End of Trail (Trail meanders over hill slope)



Photograph 5-3. Example of Trail Width and General Condition

5.1.2 CA-SDI-16368

CA-SDI-16388 was recorded by the Chambers Group in 2002 and described as a sparse lithic scatter approximately 18 meters north of the U.S./Mexico international border. As defined by the California State Historic Preservation Office (CSHPO), a sparse lithic scatter contains the following elements: "only flaked-stone; lacks other classes of archaeological materials (ground stone, fire-affected rock, bone or shellfish remains, pottery), lacks a substantial subsurface deposit, and exhibits surface densities equal to or less than three flaked-stone items per square meter" (CSHPO 1998). In most cases, sparse lithic scatters do not meet the criteria for National Register eligibility.

CA-SDI-16368 is described as a single metavolcanic boulder measuring approximately 1.1 by 0.85 meters with several pieces of rock chipped from the surface of this boulder. Approximately 22 pieces of shatter were found scattered over a 31-by-40 meter area surrounding the boulder. The Chambers Group described the shatter as representing an opportunistic prehistoric quarry.

The UTM coordinates and the site area plotted on the USGS for this site were examined during the current study. According to the Department of Parks and Recreation (DPR) site record, the site is bisected by the Pack Trail. There was no evidence of flakes or shatter found at the plotted or UTM-based location.

5.1.3 CA-SDI-16369

CA-SDI-16369 is recorded as a prehistoric ceramic and stone artifact scatter approximately 8 meters north of the Pack Trail and 50 meters of the U.S./Mexico international border. As plotted, the site is outside the project alignment. The site is recorded as containing approximately 70 sherds of prehistoric pottery, approximately 10 pieces of stone shatter, and a core. In addition to the artifacts, a single granite outcrop was described as having a possible milling slick. The site record indicates that a subsurface component to this resource was not expected. As plotted, this site is on the Mexico side of the border and is outside the existing project.

5.1.4 CA-SDI-16370

CA-SDI-16370 is a sparse lithic scatter with two associated milling slicks. This site is recorded at the convergence of three tributaries of the Tijuana River, with materials found in both the United States and Mexico. The site is reported to be 10 meters south of the Pack Trail. During the initial survey (Chambers Group 2002), approximately 16 pieces of debitage (shatter) were found scattered over an area 18 meters by 10 meters. Two milling slicks were identified on a boulder in Mexico. As plotted, this site is in Mexico and the stone artifacts were not relocated during the current survey.

5.1.5 CA-SDI-16371

CA-SDI-16371 is categorized as a sparse lithic scatter with approximately 8 pieces of chipping waste and a single metavolcanic core scattered over an area 8 by 4 meters. As recorded, the site is plotted on a southeast-facing slope, 30 meters northwest of the bottom of Buttewig Canyon (Chambers Group 2002). The site form indicated that a subsurface component to the site was not expected. This site was not relocated during the current survey.

5.1.6 CA-SDI-16300

CA-SDI-16300 is a moderately dense stone artifact scatter at the intersection of Puebla Tree and White Cross Road (see **Photograph 5-4**). This site is not within the Pack Trail route, but along an access road to the proposed project. The site is approximately 800 by 600 meters in size and is on the eastern side of a small hill. Artifacts include approximately 300 pieces of chipping waste and several cores.

Photograph 5-4. Puebla Tree Access Road
(CA-SDI-16300 is to the right side of the road along the ridge)

The site was identified during the current survey at the location plotted on the site record. Although the recorded information for this resource suggests that CA-SDI-16300 is potentially eligible for National Register nomination, eligibility evaluations have not been conducted. This site appears to be one of several

opportunistic quarries where available fine-grained metavolcanic stone was tested for suitability for prehistoric tool manufacture. There was no evidence at the site of a buried component or of formal tools such as blades, performs, or hammerstones.

5.1.7 Previously Recorded Isolates

Four prehistoric isolates (P-37-15715, P-37-024688, P-37-024689, and P-37-024691) were recorded by the Chambers Group in 2002. Each isolate is a single piece of metavolcanic chipping waste (flake or shatter) with no other associated artifacts or features. None of the isolates were relocated during the current survey. As defined, isolates are not eligible for National Register consideration since they do not contain the potential to address regional research questions.

5.2 NEWLY RECORDED RESOURCES

During the course of the current survey, two newly discovered archaeological sites and two isolated finds were identified and recorded by the e²M team. Both archaeological sites are small, prehistoric quarries with a limited amount of debitage scattered over the ground surface. These quarries represent opportunistic extraction and sampling of the naturally occurring metavolcanic stone to determine its overall suitability for creating flaked-stone implements. It appears that these naturally occurring outcrops were examined for quality stone material, which was reduced with the removal of cortex followed by the transport of usable stone to various field camps and habitation areas for further reduction and tool manufacture. The locations of these field camps and habitation areas are not known, although it is likely there are a number of them in the project vicinity.

The individual artifacts found at the newly discovered sites do not represent a specific period of occupation other than an association with the broad prehistoric past. The previously recorded site CA-SDI-16300 and the two newly discovered sites CA-SDI-18578 and -18579 are representative of special use prehistoric quarry areas. The study area contains a number of exposed Santiago Peak metavolcanic cobbles or boulders that are suitable for making prehistoric tools. This is a fine-grained stone, generally blue to blue-green in color which provides a predictable fracture plane and is seen throughout the southern part of San Diego County as a source stone for flaked stone tools. Based on the current survey these small quarry locales do not include an associated buried deposit or other evidence of prehistoric settlement or use.

The appropriate DPR forms have been completed and submitted to the South Coastal Information Center for assignment of official trinomials and Primary designations.

5.2.1 Pack Trail- CA-SDI-18578

Pack Trail CA-SDI-18578 represents a location where a limited number of flakes were removed from small metavolcanic boulders (see **Photographs 5-5** through **5-7**). This site is on a small plateau that is bisected by the Pack Trail. The site assemblage consists of approximately 50 pieces of fine-grained metavolcanic debitage. This material appears to have been removed from several moderately sized metavolcanic cobbles. The site appears to have been created by "testing" or extraction of usable stone material for making formal tools such as scrapers and projectile points. With the exception of a few cores and the debitage, no other artifacts were found.

Vegetation within the site area consists of burned scrub with little low growing ground cover. Because of recent wildfires, the ground surface visibility was excellent. The artifact scatter measures approximately 20 by 30 meters, with the majority of the artifacts found on the north side of the Pack Trail. Given the soil conditions and the geology of the area the potential for a subsurface deposit is considered very low for this site.

Although CA-SDI-18578 is approximately 250 meters to the east of CA-SDI-16370 and contains similar artifacts, this site is believed to be a new resource. While it is possible that the plotted location of CA-SDI-16370 could be offset by 250 meters, this is not supported by the current work effort.

Photograph 5-5. Pack Trail CA-SDI-18578 - View to the East

Photograph 5-6. Pack Trail CA-SDI-18578 - View to the Southwest

Photograph 5-7. Core and Chipping Waste at CA-SDI-18578

5.2.2 Pack Trail- CA-SDI-18579

Pack Trail CA-SDI-18579 is a small flake scatter with a scraper and a broken mano. The site is at the east end of the Pack Trail, on a small plateau overlooking the Tijuana River drainage. As with CA-SDI-18578, this site is defined by a number of moderate sized metavolcanic cobbles that appear to have been tested for suitability for the creation of flaked stone tools (see **Photograph 5-8**). The resulting debitage and cores are what define this site area.

Photograph 5-8. CA-SDI-18579 - View to the East
(Example of exposed cobbles tested for prehistoric tool use)

This site is on a small knoll with limited vegetation cover. The area is also used as a helicopter landing pad (Pad 33) by USBP. The Pack Trail passes approximately 20 meters to the north of the site. Surface artifacts consist of approximately approxiamtely 15 pieces of fine-grained metavolcanic chipping waste, a scraper, and a mano fragment, scattered over an area 20 by 30 meters.

The two formal tools are a fine-grained metavolcanic scraper (see **Photograph 5-9**) and a granite mano fragment (see **Photograph 5-10**). The cobbles, debitage, and the scraper are all the same blue-green fine-grained stone material. The mano probably originated near the drainage and was brought to the site. Based on the geology and location of this site, a subsurface deposit is unlikely as there is generally no accumulated soil and no indications of darker, midden-like soil in the site area.

Photograph 5-9. Stone Tool at CA-SDI-18579

Photograph 5-10. Mano Fragment Found at CA-SDI-18579

5.2.3 Newly Discovered Isolates

Two isolated finds, both fine-grained metavolcanic flakes, were found along the survey route. These items were not recorded but were noted on the project maps. No additional artifacts or archaeological resources (prehistoric or historic) were found during the survey.

5.3 SECTION A-2 (WEST OF TECATE)

5.3.1 Previously Recorded Sites

CA-SDI-9101

This two locus site is a bedrock milling complex with a scatter of flaked stone artifacts and a second locus with a scatter of flaked stone and one ground stone artifacts. This site was recorded in 1981 by the BLM as part of the Mission Park R&RR application. The site is south of the access road (South Grape View) for Section A-2 and outside of the proposed project corridor with a sufficient buffer.

CA-SDI-9102

This site is several thousand meters to the west of CA-SDI-9102 and is a small scatter of flaked stone artifacts. This site was recorded in 1981 by the BLM during the survey for the Mission Park application. The site is south of the access road for Section A-2 (South Grape View) and is outside the proposed project corridor with a sufficient buffer.

CA-SDI-9968

This site was recorded in 1984 and is known as the Heard Ranch site. The site occupies land on both sides of the international border and surrounds an historic residence that is currently occupied. The site is at the southern end of the access road (South Grape View) for Section A-2 and is on private property. There is a large grove of oak and a stream associated with the site area, though the oak grove was burned in the October 2007 wildfire. There are numerous bedrock milling features on the large granite boulders with a surface scatter of flaked and ground stone artifacts as well as pockets of dark soil which could indicate accumulated midden. Inspection of the site was limited during the survey because of private property restrictions, though surface indications did not demonstrate that this site extends to the access road.

5.3.2 Newly Recorded Sites

The survey of the Section A-2 proposed project corridor resulted in the recording of one new cultural resource site. This site is referred to as GV-1 and was identified along South Grape View Road (see **Figure 5-1**). The site is a bedrock milling station with a light surface scatter of debitage. A total of three slicks were recorded on a single, large granite boulder. The site is on the edge of the existing

road with no evidence that it continues into the road right-of-way. **Figure 5-1** provides the location of this site relative to the access road.

Figure 5-1. Location of GV-1 on West of Tecate Access (confidential information, not for public review)

6. CULTURAL RESOURCES MANAGEMENT RECOMMENDATIONS

The proposed project corridors were surveyed and both previously recorded and newly discovered resource areas were encountered. The following recommendations apply to the project as proposed in November 2007. The following information does not include feedback from the initiated consultation with local tribal groups. The input from these groups is critical to the final formulation of project design and implementation of mitigation and avoidance measures and will be incorporated into the final report.

6.1 RECOMMENDATIONS

Potential impacts on cultural resources associated with the project are limited to ground-disturbing construction and future maintenance and patrolling activities and indirect impacts from increased access. Based on the results of a cultural resources survey of the proposed project corridor and data provided on the site records, archaeological monitoring is recommended at five specific locations (CA-SDI-18578, CA-SDI-18579, CA-SDI-16300, CA-SDI-16388, and CA-SDI-16371) during all ground-disturbing activities associated with the project. All ground-disturbing activity within this portion of the study area should be monitored by a professional archaeologist who meets the requirements for archaeological monitors set by the reviewing agency.

Evaluations for eligibility to the National Register have not been conducted on newly recorded sites CA-SDI-18578 and CA-SDI-18579, or for CA-SDI-16300, -16388, or -16371 on Section A-1 or GV-1 on Section A-2. It is recommended that prior to construction of the proposed fence or use of the Pack Trail and South Grape View in the vicinity of these site areas, the boundaries of the sites should be clearly marked with flagging and/or protective fencing to avoid inadvertent impacts on the resources. Because each of the sites appears to have limited potential for subsurface deposits, it is recommended that an evaluation program be developed to determine their significance. The evaluation program would include additional mapping and excavation of exploratory units to determine the nature and character of any subsurface deposits. In addition, evaluation would result in more accurate definitions of the extent and nature of these site areas. If the individual sites are determined not to be eligible, monitoring would not be required.

The Pack Trail (recorded as P37-015616) was recommended as not eligible for National Register considerations as the result of previously completed study. Impacts on this resource will not require a monitoring or mitigation program, though additional documentation of the trail might be appropriate.

The objective of the evaluation program would be to gather sufficient data to determine the potential National Register nomination eligibility of the five archaeological sites recorded along the Pack Trail using the criteria set forth in

36 CFR Part 800. Eligibility determinations for each site under criterion D (significance or scientific importance of the site) will be established by evaluating each site's potential to contribute data that are meaningful for regional research themes for southwestern California. If an evaluation program is developed, each site will be evaluated for the integrity of the archaeological deposit, the chronological and cultural affiliation of the deposit, site function and subsistence behavior as expressed by the preserved artifacts and ecofacts, its place in the regional settlement pattern, and the presence or absence of items or features with Native American heritage value.

Based on the records and site visits, these resources represent homogeneous, small artifact collections that are believed to have limited potential to provide information that can be applied to regional questions pertaining to settlement patterns, cultural affiliation, culture change, or subsistence. None of the sites listed above are expected to meet National Register criteria.

Since no cemeteries, or isolated Native American or other human remains have been documented within the study area, the potential for impacts on unrecorded Native American or other human remains during proposed construction appears to be relatively low. If Native American or other human remains are inadvertently discovered during the course of project actions, there will be no further excavation or disturbance of the remains or the vicinity until the remains and the vicinity have been evaluated in accordance with California Environmental Quality Act (CEQA) Section 10564.5, California Health and Safety Code (CHSC) Section 7050.5, Public Resources Code (PRC) Section 5097.98, and the Native American Graves Protection and Repatriation Act (NAGPRA), as appropriate.

6.2 PROTOCOLS

Inadvertently discovered cultural resources will be immediately reported to the previously designated environmental/cultural resources management point of contact and will be evaluated by a qualified archaeologist who meets the requirements of the SHPO. If preliminary evaluation indicates that the resource is potentially significant or potentially eligible for nomination to the National Register, a Cultural Resources Treatment Plan (CRTP) will be developed. The CRTP will contain protocols for the treatment of the cultural resource, a detailed description of report and documentation requirements, curation requirements for any cultural materials collected during treatment, and the qualifications for archaeologists involved in the proposed treatment activities, as mandated by the SHPO.

If treatment activities provide information that results in the determination that the resource is eligible for nomination to the California Register of Historical Resources (CRHR) and cultural resources mitigation measures are necessary, the results of such mitigation measures must be analyzed and the findings must be submitted to the SHPO for concurrence. Work may not resume in the vicinity of potentially eligible cultural resources until the SHPO has determined that sufficient mitigation measures have been completed, and has concurred with the

findings and conclusions contained in the mitigation report, as stipulated in the CRTP. Mitigation measures can include relocation of ground-disturbing project activities that results in the avoidance of the resource. If avoidance is not possible, data recovery excavation could be implemented to mitigate potential project impacts on a potentially eligible resource that cannot be avoided.

6.3 SUMMARY

The cultural resources survey completed for this project resulted in the recording of two newly discovered stone artifact scatters in Section A-1 (CA-SDI-18578 and -18579) and one newly recorded site (GV-1) in Section A-2. In addition to these sites, two previously recorded sites, CA-SDI-16388 and -16371 were identified in the immediate vicinity of the Pack Trail and one previously recorded site (CA-SDI-9968) and one TCP (Kuchumaa/Tecate Peak) are known to be associated with Section A-2. The current survey did not identify artifacts associated with CA-SDI-16388 and -16371 although it is possible that both resources were plotted inaccurately. It is also possible that in the time since the original recording, the noted surface items have become displaced and are no longer apparent.

The fifth previously recorded site in the study area, CA-SDI-16300, is plotted near an access route that will be used for project implementation. Although this site, a large stone tool scatter, appears to lack a subsurface deposit and has a limited number and diversity of stone tools on the surface, it was proposed as potentially eligible for National Register listing on the site record. Based on preliminary design information, this site could be impacted if a staging area is placed near its location. It is recommended that the perimeter of the site be staked prior to initiation of construction and access to the area of the site should be restricted for the duration of construction.

Although the proposed project represents a potential impact on five cultural resources sites for Section A-1 and one site on Section A-2, implementation of the stated cultural resources management recommendations and protocols, including archaeological monitoring and the development and implementation of a CRTP for the treatment of any inadvertently discovered cultural resources, will reduce potential project impacts on cultural resources to a level that is less than significant.

The impacts on Kuchumaa have not been defined and the development of protective measures has not been accomplished. Consultation with associated tribal groups has been initiated and ongoing and additional consultation will be necessary to arrive at appropriate project protocols. Additional information regarding design and project limits should be developed to facilitate the presentation of this project to concerned parties with respect to TCP issues.

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CULTURAL RESOURCES STUDY
APPENDIX A

CONSULTATION LETTERS WITH ASSOCIATED NATIVE AMERICAN GROUPS

1

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 25 2007

Honorable H. Paul Cuero, Jr., Chairman
Campo Band of Kumeyaay Indians
36190 Church Road, Suite 1
Campo, California 91906

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Cuero:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable H. Paul Cuero, Jr.
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A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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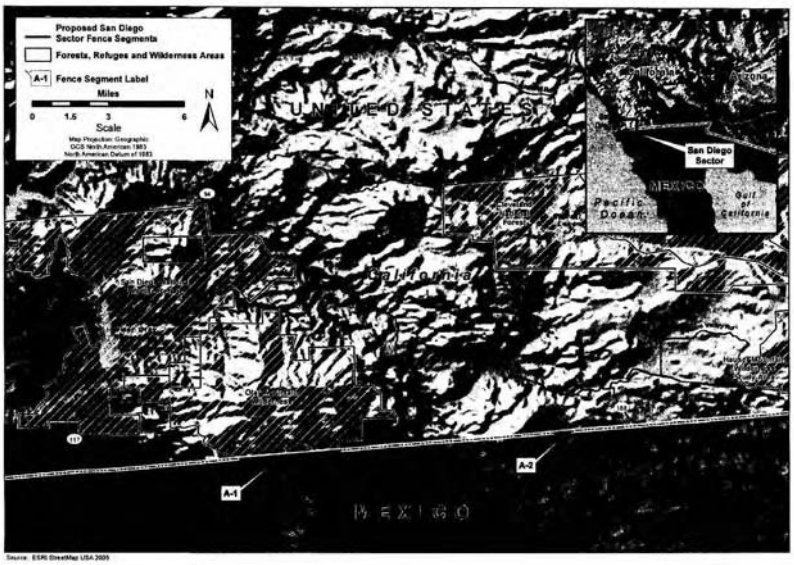
Proposed San Diego Sector Fence Segments
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You may submit comments to CBP by contacting the SBInet, Tactical Infrastructure Program Office. To avoid duplication, please use only one of the following methods:

(a) Electronically through the Web site at: *http://www.BorderFenceNEPA.com;*

(b) By e-mail to: *SDcomments@BorderFenceNEPA.com;*

(c) By mail to: San Diego Tactical Infrastructure EIS, c/o e²M, 2751 Prosperity Avenue, Suite 200, Fairfax, Virginia 22031; or

(d) By fax to: (757) 257–7643.

Comments and related material must reach CBP by October 15, 2007. CBP will consider all comments and material received during the NOI comment period. If you submit a comment, please include your name and address, and identify your comments as for the San Diego Sector EIS. Comments received after October 15, 2007 will receive responses following the publication of the draft EIS.

This scoping period is not the only opportunity you will have to comment. A draft EIS will be prepared, and prior to the development of a final EIS, CBP will release the draft EIS for public review. At that time, a Notice of Availability (NOA) will be published in the **Federal Register**, the *San Diego Union Tribune*, and the *San Diego Daily Transcript*. The NOA will announce the availability of the draft EIS, how to obtain a copy, and the dates, times, and places of any associated public informational meetings.

Dated: September 19, 2007.

Eugene H. Schied,

Assistant Commissioner, Office of Finance.

[FR Doc. E7–18830 Filed 9–21–07; 8:45 am]

BILLING CODE 9111–14–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

Coastal Barrier Improvement Act of 1990; Amendments to the John H. Chafee Coastal Barrier Resources System

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of distribution and availability of replacement maps of eight of the John H. Chafee Coastal Barrier Resources System.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), have replaced maps of eight John H. Chafee Coastal Barrier Resources System units in North Carolina, Georgia, Florida, and Texas, as directed by Congress. We are using this notice to inform the public about the distribution and availability of the replacement maps.

DATES: The replacement map for Units T07/T07P became effective on December 1, 2003. The replacement maps for Unit NC–07P became effective on October 18, 2004. The replacement map for Units P25/P25P became effective on October 30, 2004. The replacement maps for Units FL–95P, FL–96, and GA–06P became effective on October 16, 2006.

ADDRESSES: For information about how to get copies of the maps or where to go to view them, see **SUPPLEMENTARY INFORMATION**.

FOR FURTHER INFORMATION CONTACT: Ms. Katie Niemi, Department of the Interior, U.S. Fish and Wildlife Service, Division of Habitat and Resource Conservation, (703) 358–2161.

SUPPLEMENTARY INFORMATION:

Background

In 1982, Congress passed the Coastal Barrier Resources Act (Pub. L. 97–348) to restrict Federal spending that has the effect of encouraging development on undeveloped coastal barriers along the Atlantic and Gulf of Mexico coasts. In the Coastal Barrier Improvement Act of 1990 (Pub. L. 101–591), Congress amended the 1982 Act to broaden the definition of a coastal barrier, and approved a series of maps entitled "John H. Chafee Coastal Barrier Resources System" dated October 24, 1990. These maps identify and depict those coastal barriers located on the coasts of the Atlantic Ocean, Gulf of Mexico, Great Lakes, Virgin Islands, and Puerto Rico that are subject to the Federal funding limitations outlined in the Act.

The Act also defines Service responsibilities regarding the John H. Chafee Coastal Barrier Resources System maps. We have official custody of these maps and prepare and distribute copies. In the **Federal Register** on June 6, 1991 (56 FR 26304), we published a notice of the filing, distribution, and availability of the maps entitled "John H. Chafee Coastal Barrier Resources System" and dated October 24, 1990. We have announced all subsequent map revisions in the **Federal Register**.

Revisions to the John H. Chafee Coastal Barrier Resources System in Texas

Public Law 108–138, enacted on December 1, 2003, replaced one of the six maps relating to Matagorda Peninsula Units T07/T0P in Matagorda County, Texas, with a revised map entitled "John H. Chafee Coastal Barrier Resources System, Matagorda Peninsula Unit T07/T07P" for that area. The changes to the map ensure that the boundary of Unit T07 does not include property within the Matagorda Dunes Homesites Subdivision. A full complement of infrastructure was available to each lot within the subdivision prior to 1982, therefore meeting the Coastal Barrier Resources Act definition of "developed" at the time the subdivision was included within Unit T07 in 1982. Under the new map, 76 acres (23 fastland acres and 53 associated aquatic habitat acres) were removed from Unit T07, and 3 acres of associated aquatic habitat were added to Unit T07. Additionally, 80 acres were reclassified from Unit T07 to Unit T07P.

Revisions to the John H. Chafee Coastal Barrier Resources System in North Carolina

Public Law 108–339, enacted on October 18, 2004, replaced the two maps relating to Cape Fear Unit NC–07P in New Hanover and Brunswick Counties, North Carolina, with two revised maps entitled "John H. Chafee Coastal Barrier Resources System, Cape Fear Unit NC–07P." The changes to the maps ensure that the boundary of Unit NC–07P follows the exterior boundaries of lands held for conservation or recreation. Under the new maps, 273 acres (13 acres of fastland and 261 acres of associated aquatic habitat) were removed from Unit NC–07P, and 8,117 acres (2,714 acres of fastland and 5,403 acres of associated aquatic habitat) were added to Unit NC–07P.

Revisions to the John H. Chafee Coastal Barrier Resources System in Florida

Public Law 108–380, enacted on October 30, 2004, replaced one of the two maps relating to Cedar Keys Units P25/P25P in Levy County, Florida, with a revised map entitled "John H. Chafee Coastal Barrier Resources System, Cedar Keys Unit P25/P25P." The changes to the map clarify the boundaries of an excluded area on Cedar Key so that the Unit P25 boundary more precisely follows geomorphic features. Under the new map, 41 acres (32 fastland acres and 9 associated aquatic habitat acres) were removed from Unit P25, and 56 acres (1 acre of fastland and 55 acres of associated aquatic habitat) were added to Unit P25.

Public Law 109–355, enacted on October 16, 2006, replaced the map relating to Grayton Beach Unit FL–95P and Draper Lake Unit FL–96 in Walton County, Florida, with a revised map entitled "John H. Chafee Coastal Barrier Resources System, Grayton Beach Unit FL–95P Draper Lake Unit FL–96." The changes to the map ensure that the boundary of Unit FL–95P follows the exterior boundaries of Grayton Beach

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review. At that time, a Notice of Availability (NOA) will be published in the **Federal Register**, the *Brownsville Herald* (Brownsville, Texas), and *The Monitor* (McAllen, Texas). The NOA will announce the availability of the draft EIS, how to obtain a copy, and the dates, times, and places of any associated public informational meetings.

Dated: September 19, 2007.

Eugene H. Schied,

Assistant Commissioner, Office of Finance.

[FR Doc. E7–18829 Filed 9–21–07; 8:45 am]

BILLING CODE 9111–14–P

DEPARTMENT OF HOMELAND SECURITY

Bureau of Customs and Border Protection

Notice of Intent To Prepare an Environmental Impact Statement (EIS) and Request for Public Comments Concerning Proposed Construction and Operation of Tactical Infrastructure for the U.S. Customs and Border Protection, Office of Border Patrol San Diego Sector

AGENCY: U.S. Customs and Border Protection, Department of Homeland Security.

ACTION: Notice of Intent to Prepare an Environmental Impact Statement and Request for Public Comments.

SUMMARY: Pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.* (NEPA), U.S. Customs and Border Protection (CBP) will prepare an Environmental Impact Statement (EIS) to identify and assess the potential impacts associated with a proposal to construct and operate approximately four miles of tactical infrastructure and supporting patrol roads along the U.S./Mexico international border south of and adjacent to Otay Mountain Wilderness area in San Diego County, California (the Proposed Action). The purpose of the Proposed Action is to further CBP's ability to gain effective control of the border by denying pedestrian and other access in this high priority section of the Office of Border Patrol's (OBP's) San Diego Sector. CBP is the decision-making agency for this Proposed Action.

Notice is hereby given that the public scoping process has been initiated to prepare an EIS that will address the impacts and alternatives of the Proposed Action. The purpose of the scoping process is to solicit public comment regarding the range of issues, including potential impacts and alternatives that should be addressed in the EIS.

FOR FURTHER INFORMATION CONTACT: Visit *http://www.BorderFenceNEPA.com* or e-mail: *information@BorderFenceNEPA.com*. Written requests for information may be submitted to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102; Phone: (817) 886–1585; and Fax: (817) 886–6404.

Background: An EIS is being prepared in support of a proposal by OBP's San Diego Sector for controlling and deterring the influx of illegal immigration and contraband into the United States. To assist Border Patrol officers, OBP is proposing to install and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, lights, and other infrastructure along approximately four miles of the U.S./Mexico international border within OBP's San Diego Sector.

In order to secure the nation's borders, CBP is developing and deploying the most effective mix of proven technology, infrastructure, and increased personnel. In some locations, fencing is a critical element of border security. OBP has identified this area of the border as a location where fence would significantly contribute to CBP's priority mission homeland security. As a part of this Proposed Action, two segments of fence are proposed for construction.

One segment is approximately 3.4 miles long and would start at the Puebla Tree and end at boundary monument 250. The proposed segment would be adjacent to and south of the Otay Mountain Wilderness; would follow the Pack Truck Trail; and would not connect to any existing fence. The Otay Mountain Wilderness is on public lands administered by the Bureau of Land Management (BLM), U.S. Department of the Interior in San Diego County, California. The wilderness boundary is at least 100 feet from the U.S./Mexico border, and the proposed fence would occur in this corridor between the U.S./Mexico border and the wilderness boundary. However, due to steep topography, a portion of road or other tactical infrastructure might encroach into the wilderness area.

The second segment would be approximately 0.6 miles long and would connect with existing border fence west of Tecate. This fence segment is an extension of existing fence up Tecate Peak and would pass through a riparian area. This proposed fence segment would be on privately owned land

Potential alternatives for environmental impacts analysis will consider location, construction, and operation of tactical infrastructure. Potential alternatives must meet the need to gain effective control of our nation's borders, as well as essential technical, engineering, and economic threshold requirements to ensure that the Proposed Action is environmentally sound, economically viable, and meets all applicable laws and regulations.

The EIS will comply with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality regulations in 40 CFR Parts 1500–1508, and Department of Homeland Security (DHS) Management Directive 5100.1 (*Environmental Planning Program*).

Consistent with 40 CFR 1508.28, the EIS will analyze the site-specific environmental impacts of the proposed action which were broadly described in two previous programmatic EISs prepared by the former U.S. Immigration and Naturalization Service (which now falls under the responsibility of CBP), Department of Defense, and Joint Task Force 6 (JTF–6). The *Programmatic EIS for JTF–6 Activities Along the U.S./Mexico Border*, August 1994, and its supplementing document, *Supplemental Programmatic EIS for INS and JTF–6 Activities*, June 2001, were prepared to address the cumulative effects of past and reasonably foreseeable projects undertaken by JTF–6 for numerous law enforcement agencies within the four southwestern states (California, Arizona, New Mexico, and Texas). These documents can be obtained from the U.S. Army Corps of Engineers, Fort Worth District, Engineering Construction and Support Office Web site, at *https://ecso.swf.usace.army.mil/*; by sending an e-mail to *charles.mcgregor@swf02.usace.army.mil*; or by mailing a request to: Charles McGregor, U.S. Army Corps of Engineers, Engineering Construction and Support Office, 819 Taylor St., Room 3A14, Fort Worth, Texas 76102.

Public Participation: Pursuant to the Council on Environmental Quality's regulations, CBP invites public participation in the NEPA process. This notice requests public participation in the scoping process, establishes a public comment period, and provides information on how to participate.

Public scoping is an open process for determining the scope of the EIS and identifying significant issues related to the proposed action. Anyone wishing to provide comments, suggestions, or relevant information on the Proposed Action may do so as follows:

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 22 2007

Honorable Bobby L. Barrett, Chairman
Viejas Band of Mission Indians
P.O. Box 908
Alpine, California 91903

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Barrett:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 23 2007

Honorable Leroy Elliott, Chairman
Manzanita Band of Mission Indians
P.O. Box 1302
Boulevard, California 91905

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Elliott:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Johnny Hernandez, Spokesman
Santa Ysabel Band of Mission Indians
P.O. Box 130
Santa Ysabel, California 92070

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Hernandez:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable John James, Chairman
Cabazon Band of Mission Indians
84-245 Indio Springs Pkwy
Indio, California 92203

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. James:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable John James
Page 2

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Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Allen E. Lawson, Spokesman
San Pasqual Band of Mission Indians
27458 North Lake Wolford Rd., Level #3
Valley Center, CA 92082

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Lawson:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Howard Maxcy, Chairman
Mesa Grande Band of Mission Indians
P.O. Box 270
Santa Ysabel, California 92070

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Maxcy:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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Honorable Howard Maxcy
Page 2

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We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

2

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Richard Milanovich, Chairperson
Agua Caliente Band of Cahuilla Indians
600 East Tahquitz Canyon Way
Palm Springs, CA 92262

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Milanovich:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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Sincerely,

For R Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

1

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Gwendolyn Parada, Chairperson
La Posta Band of Mission Indians
1048 Crestwood Road
Boulevard, California 92905

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Ms. Parada:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Gwendolyn Parada
Page 2

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Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Harlan Pinto, Chairman
Cuyapaipe Band of Mission Indians
4054 Willows Road
Alpine, California 91903-2250

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Pinto:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

Honorable Harlan Pinto
Page 2

A Notice of Intent (NOI) to prepare an EIS was published in the *Federal Register* on September 24, 2007. A copy of the NOI is enclosed, which provides additional information about the proposed project, background information, and the framework for Federal environmental review requirements under NEPA.

We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Catherine Saubel
Page 2

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Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

Honorable Catherine Saubel, Spokeswoman
Los Coyotes Band of Mission Indians
2300 Camino San Ignacio
Warner Springs, California 92086

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Ms. Saubel:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 2 2 2007

Honorable Rhonda Welch-Sealco, Chairwoman
Barona Band of Mission Indians
1095 Barona Road
Lakeside, CA 92040

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Ms. Welch-Sealco:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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Honorable Rhonda Welch-Sealco
Page 2

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We welcome your comments on this undertaking and look forward to hearing any concerns you may have regarding known sacred sites or other traditional cultural properties within the proposed project area. A cultural resources survey is currently being conducted on the project corridor, and we will provide you a copy of the cultural resources report for your review and comment once it has been prepared. We will also provide a copy of the EIS for your review and comment. If you have any questions, please contact Mr. Charles McGregor by mail at USACE, Fort Worth District, Engineering Construction Support Office by mail at P.O Box 17300, Forth Worth, Texas 76102-0300 or by telephone at (817) 886-1585 or by contacting Supervising Patrol Agent Oscar Pena, USBP San Diego Sector at (619) 216-4028.

Sincerely,

For R. Janson

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 2 3 2007

Honorable Daniel J. Tucker, Chairman
Sycuan Band of Mission Indians
5459 Dehesa Road
El Cajon, CA 92019

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Tucker:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Pueblo Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. Maps presenting the proposed project sites are enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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Honorable Daniel J. Tucker
Page 2

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Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

2

U.S. Department of Homeland Security
Washington, DC 20229

U.S. Customs and Border Protection

OCT 23 2007

Honorable Leon Acebedo, Chairman
Jamul Band of Mission Indians
13910 Lyons Valley Road
Jamul, California 91935

Subject: Environmental Impact Statement (EIS) for Proposed Construction, Maintenance, and Operation of Tactical Infrastructure, U.S. Department of Homeland Security, U.S. Customs and Border Protection, U.S. Border Patrol San Diego Sector

Dear Mr. Acebedo:

While no final decisions on the fence locations have been made, U.S. Customs and Border Protection (CBP), U.S. Border Patrol (USBP), a component of the Department of Homeland Security, is preparing an Environmental Impact Statement (EIS) to address the potential environmental impacts and feasibility of constructing, maintaining, and operating tactical infrastructure in segments totaling approximately 5.6 miles within USBP San Diego Sector. In preparing the EIS, CBP will be working directly with the United States Army Corps of Engineers, Fort Worth District (USACE), who will provide technical expertise and other support to CBP. At this time, in accordance with Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR Part 800, CBP wishes to initiate its consultation process with appropriate federally-recognized tribes who historically used this region and/or continue to use the area.

To assist USBP in gaining and maintaining operational control of the border, CBP proposes to construct, maintain, and operate tactical infrastructure consisting of pedestrian fence, vehicle barriers, supporting patrol roads, and other infrastructure in 2 high priority segments along the U.S./Mexico international border. The first segment is approximately 4.9 miles in length and would start at Puebla Tree and end at Boundary Monument 250. The second would be approximately 0.7 miles in length and would connect with existing border fence west of Tecate. A map presenting the proposed project site is enclosed.

Based on Congressional and Executive mandates, CBP and USBP are assessing operational requirements and land issues along the entire Southwest border. Preparing the EIS does not necessarily mean the 5.6 miles of tactical infrastructure will be installed within USBP San Diego Sector. Rather, this effort is a prudent part of the planning process needed to assess any environmental concerns in accordance with the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act (NHPA), the Clean Water Act (CWA), and other applicable environmental laws and regulations.

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Sincerely,

Robert F. Janson
Acting Executive Director
Asset Management
U.S. Customs and Border Protection

Enclosures

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FINAL

ENVIRONMENTAL ASSESSMENT
FOR THE PROPOSED SBI*NET* AJO-1 TOWER PROJECT
AJO STATION'S AREA OF RESPONSIBILITY
U.S. BORDER PATROL,
TUCSON SECTOR

U.S. Department of Homeland Security
U.S. Customs and Border Protection
SBI*net*

December 2009

BWT-FOIA CBP 001683

FINDING OF NO SIGNIFICANT IMPACT
Environmental Assessment
for the Proposed SBI*net* Ajo-1 Tower Project
Ajo Station's Area of Responsibility
U.S. Border Patrol, Tucson Sector, Arizona

PROJECT HISTORY: The following description of the project history is incorporated by reference from the *Environmental Assessment for the Proposed SBInet Ajo-1 Tower Project Ajo Station's Area of Responsibility, U.S. Border Patrol Tucson Sector.* The Secure Border Initiative (SBI) is a comprehensive, multi-year plan established by the Department of Homeland Security (DHS) in November 2005 to secure America's borders and reduce illegal immigration. SBI was created to bring clarity of mission, effective coordination of DHS assets, and greater accountability in securing the Nation's borders. The SBI mission is to promote border security strategies that protect against and prevent terrorist attacks and other transnational crimes. Additionally, SBI will coordinate DHS efforts to ensure the legal entry and exit of people and goods moving across our borders, and improve the enforcement of immigration, customs, and agriculture laws at our borders, within the country, and abroad.

SBI*net* is the component of SBI charged with developing and installing technology and attendant tactical infrastructure (TI) solutions to help United States (U.S.) Customs and Border Protection (CBP) gain effective control of our Nation's borders. The goal of SBI*net* is to field the most effective, proven technology and response platforms, and integrate them into a single, comprehensive border security system for DHS. CBP is the agent for SBI*net*, carrying out the program to better execute this vital mission.

CBP implements the National Border Patrol Strategy with the goal of establishing and maintaining effective control of the borders. The U.S. Border Patrol (USBP) maximizes border security with an appropriate balance of personnel, technology, and infrastructure. Effective control exists when CBP is consistently able to: (1) detect illegal entries into the U.S. when they occur; (2) identify the entry and classify its level of threat; (3) efficiently and effectively respond to these entries; and, (4) bring each event to an appropriate law enforcement resolution.

This Environmental Assessment (EA) was prepared in compliance with provisions of the National Environmental Policy Act (NEPA) of 1969 as amended (42 U.S. Code [U.S.C.] 4332 *et seq*.), the Council on Environmental Quality's (CEQ) NEPA implementing regulations at 40 Code of Federal Regulations (CFR) Part 1500, and the DHS *Management Directive 023-01, Environmental Planning Program* (71 *Federal Register* [FR] 16790).

The EA analyzes various aspects of a proposed project that would be carried out under SBI and be implemented as a part of the SBI*net* program. It addresses the potential direct and indirect effects, beneficial and adverse, of the proposed construction, operation, and maintenance of 10 sensor and communication towers, which creates a communications network in support of a Common Operating Picture (COP) among components of CBP and other Federal, state, and local partners outside CBP. Further, it analyzes the construction of access roads; construction of a new road; repair and improvement of authorized roads; repair and improvements to an authorized corridor;

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maintenance of authorized roads and a corridor; deployment of two towers with the use of a helicopter; deployment and maintenance of remote sensors; relocation and operation of a forward operating base (FOB); and implementation of conservation measures to avoid, minimize, and offset effects to protected species and other Department of the Interior (DOI) trust resources within the USBP, Tucson Sector, Arizona.

PROJECT LOCATION: The affected area for this EA covers approximately 517 square miles of southwest Arizona in the area between Why and Lukeville, Arizona and approximately 30 linear miles of U.S. border. All activities included as part of the Proposed Action are within Pima County.

PURPOSE AND NEED: The purpose of the proposed project is to improve CBP's efficiency and probability of detection, identification, and apprehension of cross border violators (CBV). Achieving effective control of the borders of the U.S is a key mission of CBP. The objective of this SBI*net* project is to maximize surveillance along approximately 30 linear miles of U.S. border within Organ Pipe Cactus National Monument (OPCNM) in the USBP Tucson Sector. Meeting this purpose would provide more efficient and effective interdiction while reducing impacts to the natural environment in the Ajo Station's area of responsibility.

The frequency and nature of illegal cross border activities and the geographic area over which these activities occur, create a need for a technology-based solution that can effectively collect, resolve, and distribute the information among CBP agents. The SBI*net* system is expected to allow CBP to spend less time locating CBVs and focus efforts on interdiction of those involved in illegal cross border activities.

This SBI*net* Ajo-1 Tower Project is needed to:

1) provide more efficient and effective means of assessing border activities;
2) provide rapid detection and accurate characterization of potential threats (e.g., illegal aliens [IA], smugglers and other CBVs);
3) provide coordinated deployment of resources in the apprehension of CBVs;
4) reduce crime in border communities and improve the quality of life and economic vitality of border regions through provision of the tools necessary for effective law enforcement; and
5) increase surveillance and interdiction efficiency, reduce environmental impacts, and enhance restoration efforts.

ALTERNATIVES: Nine alternatives were identified and considered during the planning stages of the proposed project. However, only the No Action Alternative and Proposed Action were carried forward for analysis in the EA. Other alternatives considered but rejected and not further analyzed in this EA were the use of:

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- Unmanned aircraft systems;
- Remote sensing satellites;
- Unattended ground sensor;
- Increased CBP workforce; and
- Increased aerial reconnaissance/operations.

No Action Alternative: The No Action Alternative describes future circumstances if the proposed tower construction does not take place, and can be characterized as the continuation of current practices and procedures. While the No Action Alternative does not satisfy the stated purpose and need, its inclusion in this EA is required by NEPA regulations as a basis of comparison to the anticipated effects of the proposed action.

Proposed Action: The Proposed Action includes the construction, operation, and maintenance of 10 sensor and communication towers, which creates a communications network in support of a COP among components of CBP and other Federal, state, and local partners outside CBP. The Proposed Action also includes the construction of seven access roads (0.07 linear mile); construction of a new road to proposed tower site TCA-AJO-310 (1.2 linear miles); repair of four authorized roads (3.9 linear miles); improvement of four authorized roads (0.22 linear mile); improvements of an authorized corridor (1.7 linear miles); repair of an authorized corridor (4.4 linear miles); maintenance of access and approach roads (38.2 linear miles); deployment of two towers with the use of a helicopter (TCA-AJO-189 and 204); deployment and maintenance of remote sensors; relocation and operation of a FOB; and implementation of conservation measures to avoid, minimize, and offset effects to protected species and other DOI trust resources.

In general, a typical new tower in the SBI*net* Ajo-1 Tower project would:

- be 30 to 180 feet high;
- have a permanent tower site footprint of 14- x 14-foot, 50- x 50-foot, or 80- x 80-foot depending on type of tower structure;
- have a temporary construction buffer of 35- x 35-foot or 100- x 100-foot;
- have an equipment shelter with an approximately 8-foot X 12-foot footprint;
- have perimeter fencing;
- not have guy wires; and
- consist of one of the three power systems: commercial grid power, where available; hybrid propane-solar generator system and a 1,000-gallon propane fuel tank; or a solar panel.

Three types of tower structures are proposed for this project: self standing towers (SST), rapidly deployed towers (RDT), and a remote access tower (RAT). A RAT is designed for remote sites that have limited or no access by standard wheeled vehicles and their

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construction would require helicopter deployment. RDTs and RATs are temporary structures than can be disassembled and relocated, as necessary.

Access roads would need to be improved or constructed in order to install, operate, and maintain the proposed SSTs and RDTs. Access roads would be short road segments from authorized roads to the tower site. The access roads would be constructed to provide a 12-foot wide driving surface with 2-foot wide shoulders on each side (16 feet total). Road and corridor repair would include minor grading, leveling, and installation of nuisance drainage structures, while road and corridor improvements would include reconstruction of the existing road, and installation of major drainage structures.

As part of the Proposed Action, the towers would require bi-monthly maintenance, although some communication towers and those towers connected to commercial grid power may require less maintenance visits. This necessitates vehicle travel to each of the proposed tower sites for propane delivery, maintenance, and operations of the towers. However, RAT (TCA-AJO-189 and 204) towers would require maintenance four times per year and one RAT tower (TCA-AJO-189) would require helicopter lifts for maintenance personnel access.

The USBP Ajo Station currently maintains and operates a FOB on OPCNM at the Bates Well historic site. FOBs allow the USBP to forward deploy agents closer to the U.S border for the purpose of detecting and responding to IA, smuggler, and CBV activities. This forward deployment decreases travel and response time to CBV activities. The USBP proposes to move the FOB at Bates Well to a 1-acre site near proposed tower site TCA-AJO-302 and disassemble the existing FOB infrastructure at Bates Well historic site.

ENVIRONMENTAL CONSEQUENCES: Implementation of the Proposed Action would permanently affect 18.8 acres for the construction of all towers and roads, road repairs and improvements, and relocation of the FOB. Of this, 15.8 acres have been previously disturbed (i.e., only 3 acres of new ground disturbance). Additionally, approximately 6.5 acres would be temporarily disturbed during construction activities. The proposed project has been thoroughly coordinated with National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and Bureau of Land management (BLM) and these land management agencies are cooperating agencies for the proposed project. The issuance of special use permits and right-of-way grants would be required from these land management agencies for the construction of the proposed project.

The Proposed Action would require the conversion of 18.8 acres of NPS, USFWS, BLM, and Arizona State Trust Lands primarily for CBP enforcement and would have a long-term, negligible impact on land use. Although none of the towers are located in designated wilderness on OPCNM, the towers would be readily visible from adjacent Organ Pipe Cactus Wilderness and Cabeza Prieta Wilderness. Further, proposed tower TCA-AJO-189 is located within Cabeza Prieta Wilderness and would be readily visible

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from Cabeza Prieta Wilderness and Organ Pipe Cactus Wilderness. The towers' generators would also be audible at a level of 35 dBA at a distance of 492 feet, thus affecting a portion of the designated wilderness areas. The generators would not operate continuously. The Proposed Action would also adversely affect other wilderness characteristics such as a sense of solitude and unconfined recreation. Adverse effects on designated wilderness characteristics would be localized and the Proposed Action would have a long-term, moderate adverse effect on designated wilderness. However, the Proposed Action would have an indirect beneficial impact on land use, including designated wilderness, as a result of enhanced detection capabilities, improved interdiction capabilities, increased deterrence of cross-border violators, and a reduced enforcement footprint for interdiction activities. Implementation of the Proposed Action is also expected to result in the long-term benefit of allowing OPCNM to reopen areas that are currently closed due to high CBV traffic.

The proposed construction of towers and roads and repair and improvement of roads would have a long-term, moderate adverse effect on soils, and long-term, minor adverse effects on floodplains as a result of increased erosion and sedimentation. Potential effects on hydrology and groundwater would be short-term and minor. Tower and road construction would have both short-term and long-term minor to moderate impacts on surface waters as a result of sedimentation. A total of 69 potential Waters of the U.S. would be impacted as a result of the proposed project. Construction and other road improvements within these washes are authorized under a Nationwide Permit 14. The permanent loss of approximately 3 acres of vegetation would have a long-term, minor adverse effect on the total amount of similar Sonoran Desert vegetation on Cabeza Prieta National Wildlife Refuge (CPNWR) and BLM lands, and vegetation types on OPCNM. Loss of habitat and disturbance from construction activities and tower operations would have a long-term, minor adverse effect on wildlife. Additionally, the Proposed Action would have negligible to minor impacts on air quality, roadways and traffic, radio frequency, and utilities and infrastructure. Impacts to cultural resources would be minor from the implementation of the Proposed Action. Construction of the proposed towers and roads would have a long-term, moderate adverse effect on aesthetics.

Seven proposed tower sites are located within the current range of Sonoran pronghorn (*Antilocarpa americana sonoriensis*) and all towers are located with foraging habitat for lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), both Federally endangered species. CBP has determined the proposed project may affect and is likely to adversely affect Sonoran pronghorn, lesser long-nosed bat, and desert pupfish (*Cyprinodon macularius*). However, the proposed project would have a long-term, indirect beneficial affect on vegetation communities used by Sonoran pronghorn and lesser long-nosed bat through the reduction in IA, smuggler, and other CBV traffic. Additionally, the relocation of the FOB would move the existing Bates Well site from a narrow migration corridor use by Sonoran pronghorn. This would allow Sonoran

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pronghorn unimpeded movement into habitat historically used by Sonoran pronghorn and result in a permanent, indirect beneficial effect on Sonoran pronghorn. Further, conservation measures to be implemented as part of the Proposed Action would have a beneficial effect on the recovery of Sonoran pronghorn and restoration of its habitat.

Noise generated by heavy construction equipment and helicopters would be intermittent and last up to 8 weeks to excavate and prepare the foundation to install each tower, after which, noise levels would return to pre-construction levels. Noise impacts from construction activities would be temporary and minor. Noise generated by generators and air-conditioning associated with the operation of the proposed towers, with the exception of tower TCA-AJO-189, would have a long-term, moderate impact to the noise environment, including designated wilderness. Adverse impacts associated with the operations of the proposed project would be localized to the tower sites.

The proposed project would result in overall beneficial impacts within the region through a reduction in illegal activities and the resulting decreased human activity in sensitive areas such as designated wilderness and protected species habitat. A reduction in illegal activities and resulting law enforcement efforts would reduce adverse impacts to the natural and human environment and allow currently disturbed areas to rehabilitate through natural processes or management efforts. In addition, areas within OPCNM that are currently closed due to CBV activity could be reopened upon completion of the Proposed Action and a reduction in CBV activity. Long-term, minor benefits to socioeconomics could occur as a result of propane purchase for generators. No significant adverse effects to the natural or human environment, as defined in 40 CFR Section 1508.27 of the CEQ's Regulations for Implementing NEPA, are expected upon implementation of the Proposed Action.

OFFSETTING MEASURES: Through coordination with NPS, USFWS and BLM, and as part of formal Section 7 consultation pursuant to the ESA, the following offsetting measures were identified and are included as part of USFWS's Biological Opinion for the SBInet Ajo-1 Tower Project. These measures were developed to offset potential impacts to Sonoran pronghorn and lesser long-nosed bat resulting from implementation of the Proposed Action.

Offsetting Measures for Sonoran Pronghorn

1) Unauthorized Vehicle Route (UVR) Assessment and Restoration

   a. <u>UVR ASSESSMENT</u>: SBInet will provide $200,000 to DOI by the initiation of the SBInet Ajo-1 Tower Project construction to assess and map the number and extent of unauthorized, repetitively used vehicle routes (UVR) in Sonoran pronghorn habitat or potential habitat on CPNWR, OPCNM, and BLM lands within the Ajo-1 project area. This assessment will locate, record, and map UVR occurrences throughout pronghorn habitat within the project area. The

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assessment will also quantify UVR dimensions and severity as well as determine restoration potential and needs. The assessment will be conducted by DOI in years one and two (from the initiation of project construction). Additionally, CBP and DOI will investigate the possibility of using existing remote sensing technology to supplement or replace a portion of SBI*net*'s funding for this assessment. Further, CBP and DOI will work together to improve the reporting of off-road incursions that occur within Sonoran pronghorn habitat and wilderness.

b. UVR CLOSURE AND RESTORATION: SBI*net* will provide funding to DOI to close and restore UVRs documented as a result the UVR assessment. DOI will prioritize areas to close and restore based on importance of the areas to Sonoran pronghorn and on CBP information regarding anticipated continued use of UVRs (i.e., UVRs that will likely continue to be used by USBP due to emergency and exigent circumstances will receive a lower restoration priority as restoration in continuously used areas will not likely be successful). DOI will conduct the restoration work between years 2 through 5 (from the initiation of project construction) or beyond, depending on the feasibility of restoration determined by the land management agencies. Total Funding: $1,750,000

c. UVR REASSESSMENT: CBP and DOI will cooperatively reassess the issue of UVRs within Sonoran pronghorn habitat and wilderness after 5 years (2014) and will resume discussions concerning evaluation of success of these efforts.

2) Vehicular use of the pole-line road (TCA-AJO-170) will continue to be only for exigent circumstances as per the 2006 Memorandum of Understanding (MOU). Routine patrols will occur along State Route 85 (SR 85). Additionally, a horse staging area will be established outside of wilderness in the 66 Hills/Alamo Canyon wash area of OPCNM. DOI will work with CBP to establish this horse staging area, the exact size and location of which, along with any associated infrastructure, will be mutually agreed upon in writing prior to its establishment. The intent of this horse staging area is to support CBP horse patrol operations in and around the Valley of the Ajo. Every effort will be made to limit the overall area of disturbance while maximizing safety and the adequacy of the site towards meeting its intended purpose.

3) Consistent with 2006 MOU, USBP will conduct patrol activities by horseback to the greatest extent practicable within the Sonoran pronghorn range, particularly from March 15 to July 31 (the Sonoran pronghorn closure season). DHS will follow all horse patrol BMPs coordinated with resource agencies (i.e., feed horses weed free pellets).

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4) CBP will fund a portion of Arizona Game and Fish Department (AGFD) Sonoran pronghorn aerial monitoring efforts for 5 years. Funding will be provided for one full-time employee for 5 years, the purchase of collars and collaring costs for five Sonoran pronghorn, and 100 tracking flights (20 per year for 5 years). Total Funding: $346,000.

5) CBP will contract for cultural surveys at two proposed forage enhancement sites for Sonoran pronghorn on BLM lands. One site is located at UTM 0320443 x 3564606 and the second is located at Cameron Tank. The sites are approximately 12 acres each. Total Cost: $17,000.

6) CBP will provide funding for three full-time personnel (1 at $70,000 per year for 4 years [USFWS will fund the 5th and final year] and two at $60,000 per year for 5 years) to: 1) monitor the effects of human activities on Sonoran pronghorn; 2) conduct surveys for and monitoring of Sonoran pronghorn; and 3) implement other Sonoran pronghorn recovery activities. Employees will implement the aforementioned activities within the project area. CBP will also provide funding for Sonoran pronghorn recovery projects (i.e., collars and collaring costs for 25 pen raised Sonoran pronghorn ($137,000), three water tanks ($60,000), and one forage enhancement plot ($215,000). Total Funding: $1,292,000.

7) CBP will provide funding ($20,000) to move pronghorn back into the Valley of the Ajo if they do not move on their own within 3 years (by September 2012). Total Funding: $20,000.

8) CBP will provide funding to assist with the establishment of a second Arizona Sonoran pronghorn population in southern Arizona. Funding will be for purchase of pen materials and construction, transport of Sonoran pronghorn from CPNWR (from captive breeding pen) to the identified second population area, and other establishment projects needs as determined by the Sonoran Pronghorn Recovery Team. Total Funding: $470,000.

9) CBP will provide funding to AGFD to conduct weekly aerial surveys for Sonoran pronghorn throughout the fawning season of 2010. AGFD will conduct aerial surveys to assist CBP monitor Sonoran pronghorn at sites where project work will be conducted during the fawning season. Total Funding: $14,000 (plus USFWS or National Fish and Wildlife Foundation [NFWF]).

10) CBP will provide funding to OPCNM to develop and operate five temporary/emergency food and water plots for Sonoran pronghorn for 6 months. The purpose of these plots is to lure pronghorn away from tower sites and to buffer effects of disturbance on Sonoran pronghorn. If range conditions are

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determined by the Sonoran Pronghorn Recovery Team to be good, these measures would not be necessary. Cost Estimate: $1,000 per site ($5,000 total) and $18,000 for one GS-5 employee for 6 months. Total Funding: $23,000 (plus USFWS or NFWF overhead).

Lesser Long-nosed Bat

1) CBP will provide funding for monitoring Copper Mountain and Bluebird Mine lesser long-nosed bat maternity roosts. Total Funding: $35,000 (3,500 for each site for 5 years.

2) CBP will provide funding for a study to identify unknown roosts and to determine roost occupancy patterns of all roosts in the Action Area. Total Funding: $140,000 ($70,000 per year for two years).

3) CBP will develop and implement a monitoring plan and program to document and assess tower related mortality of lesser long-nosed bats beginning once tower construction is completed (this will likely correspond to the 2010 lesser long-nosed bat season) and continuing 5 years after the towers are fully operational. Monitoring will be conducted at an appropriate sample of tower sites where it does not conflict with Sonoran pronghorn conservation measures; these sites will be determined by USFWS and the land management agencies. The monitoring plan will be developed with and approved by USFWS and the land management agencies before construction is completed. If lesser long-nosed bat mortality is documented at tower sites, CBP shall a) notify USFWS and the land management agencies in writing (via electronic mail) within 48 hours, b) work with USFWS and the land management agencies to develop site-specific measures to reduce bat mortality, and c) continue monitoring beyond the 5 years until project related mortality and injury is reduced as described below. CBP will, in coordination with USFWS, use information gained from monitoring to develop tower retrofits to reduce lesser long-nosed bat mortality and injury, if collisions are documented, and incorporate the bat mortality and injury monitoring associated with the Proposed Action into an annual report for a minimum of 5 years. If no take is documented, as stated above, monitoring will no longer be required 5 years after the towers are operational. If take occurs at or below authorized levels within year 1 through 3, DHS will implement measures to reduce mortality and injury the same year take is documented and will continue to monitor until the end of the original 5-year period. If take occurs during year 4 or 5, DHS will implement measures to reduce mortality the same year take is documented and will continue to monitor for 2 years after the take is documented and measures implemented. If at any point, take exceeds the amount anticipated in this Biological Opinion, DHS shall reinitiate formal consultation as stated in the Reinitiation Notice in USFWS's Biological Opinion.

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MITIGATION: Measures to avoid, minimize, or mitigate potential impacts to natural and cultural resources were identified in Section 5 of the EA. Many of the best management practices (BMP) detailed in the EA have been incorporated as standard operating procedures by CBP in similar past projects and will be included as requirements in construction contracts associated with the SBI*net* Ajo-1 project. Additionally, project specific BMPs were developed through coordination with NPS, USFWS, and BLM to avoid or minimize impacts to trust resources managed by these agencies. The following project specific management and mitigation measures are incorporated from the EA and are incorporated to this FONSI.

Project Planning/Design – Communication Towers

The following measures were adapted from the *Interim Guidance on Siting, Construction, Operation, and Decommissioning of Communication Towers* (USFWS 2000).

- CBP will minimize bird perching and nesting opportunities for new towers.
- CBP will not site towers in or near wetlands, other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. If this is not an option, mitigation will be required.
- Where CBP will be constructing taller (>199 feet above ground level) towers requiring lights for aviation safety, the minimum amount of pilot warning lights and obstruction avoidance lighting required by the Federal Aviation Administration (FAA) will be used (FAA 2000). Unless otherwise required by the FAA, CBP will use only white (preferable) or red strobe lights at night, and these will be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA. CBP will not use solid red or pulsating red warning lights at night.
- CBP will not use tower designs that require guy wires for tower support to reduce the probability of bird and bat collisions.
- CBP will use security lighting for on-ground facilities and equipment that is down-shielded to keep light within the boundaries of the site.
- CBP will site, design, and construct towers and appendant elements to avoid or minimize habitat loss within and adjacent to the tower "footprint." CBP will minimize road access and fencing to reduce or prevent habitat fragmentation and disturbance, and to reduce above-ground obstacles to birds in flight.
- Where feasible, CBP will place electric power lines underground or on the surface as insulated, shielded wire to avoid electrocution of birds and bats. CBP will use recommendations of the Avian Power Line Interaction Committee (APLIC

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[1994, 1996]) for any required above-ground lines, transformers, or conductors. CBP will use raptor protective devices on above ground wires.

- For upgrading towers, CBP will follow the guidelines for new construction as closely as possible. CBP will retro-fit sites with high bird or bat mortality.
- Once CBP has determined that towers are no longer needed, CBP will remove them within 12 months. CBP will restore footprint of towers and associated facilities to natural habitat.

Wildlife Resources

The Migratory Bird Treaty Act (16 U.S.C. 703-712, [1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989]) requires that Federal agencies coordinate with the USFWS if a construction activity would result in the take of a migratory bird. If construction or clearing activities are scheduled during nesting seasons (February 15 through August 31); surveys will be performed to identify active nests. If construction activities will result in the take of a migratory bird; then CBP will coordinate with the USFWS and AGFD and applicable permits would be obtained prior to construction or clearing activities. Another mitigation measure that would be considered is to schedule all construction activities outside nesting seasons negating the requirement for nesting bird surveys. The proposed sensor and communication towers would also comply with USFWS guidelines for reducing fatal bird strikes on communication towers (USFWS 2000) to the greatest extent practicable. Guidelines recommend co-locating new antennae arrays on existing towers whenever possible and to build towers as short as possible, without guy wires or lighting, and to use white strobe lights whenever lights are necessary for aviation safety. CBP will use the most recent bird and bat strike avoidance guidance during tower design.

Towers, light poles, and other pole-like structures will be designed and constructed to discourage roosting and nesting by birds, particularly ravens or other raptors that may use the poles for hunting perches. Tubular supports with pointed tops will be used rather than lattice supports to minimize bird perching and nesting opportunities. Tower designs will avoid placing external ladders and platforms on tubular towers to minimize perching and nesting.

To prevent entrapment of wildlife species during construction, CBP will cover all excavated, steep-walled holes or trenches more than 2 feet deep at the end of each working day with plywood or provide these holes with escape ramps of earth fill or wooden planks. Ramps will be located at no less than 1,000 feet apart and provide slopes less than 45 degrees. Biological monitors will thoroughly inspect all holes and trenches for trapped animals, and if animals are present, no construction can resume until the animals are out of the pit or trench.

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No more than 10 percent of vegetation will be removed from suitable nesting or migration habitat or reduce it to less than 10 acres in size. CBP will avoid the removal of dense understory or midstory vegetation from breeding and migration habitat to the extent possible.

Biological monitors will check under construction equipment for wildlife species (e.g., desert tortoise) prior to moving equipment that has sat idle for more than 1 hour.

Protected Species

CBP will minimize impacts to listed species and their habitats by adhering to the standard BMPs detailed in Section 5 of the EA and will further implement the following species specific measures to avoid, minimize, or mitigate potential impacts.

Lesser Long-nosed Bat

If results of the Ajo-1 lesser long-nosed bat telemetry study or the Tucson-West Tower Project bat and bird monitoring studies indicate that towers result in significant disturbance to bats or birds, with the guidance of USFWS and the land management agencies, CBP will modify and update bird and bat strike avoidance equipment on the Ajo-1 towers and implement techniques that reduce the disturbance to birds and bats.

CBP will avoid disturbing areas containing columnar cacti (saguaro, organ pipe, senita) or agaves to the extent reasonable. If they cannot be avoided, columnar cacti and agaves will be salvaged and transplanted. When salvage is not possible, columnar cacti and agaves will be purchased and planted at a 3:1 ratio. Salvage, transplantation, and container planting will be done in accordance with a restoration plan, approved by the land manager and USFWS, that includes success criteria and monitoring.

CBP will avoid construction and maintenance activities within 4 miles of lesser long-nosed bat roosts between May 1 and September 30.

CBP will avoid entering lesser long-nosed bat maternity roosts (except in emergency/exigent circumstances).

Sonoran Pronghorn

CBP will minimize to the greatest extent possible the number of roads, detection and communication towers, and other infrastructure in Sonoran pronghorn habitat, particularly in movement corridors and areas important to Sonoran pronghorn during the fawning season (March 15 to July 31).

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CBP will minimize the number of construction and maintenance trips to all tower sites, particularly those in important Sonoran pronghorn areas.

CBP will provide for an on-site biological monitor to be present during work activities for all construction activities in Sonoran pronghorn and lesser long-nosed bat habitats. At a time interval (i.e., daily, weekly) determined by the land management agency, the monitor will check in and out of the land management unit (with the land manager or his/her representative). The biological monitor will have the following duties: ensure and document that agreed upon BMPs (both those relating to construction and protection of individuals of Sonoran pronghorn and lesser long-nosed bat on or adjacent to the project site) are properly implemented. The monitor will use a daily BMPs monitoring checklist. The monitor will additionally ensure a copy of this information as well as a weekly summary report is sent via electronic mail to the DOI land managers and USFWS Arizona Ecological Services Office (AESO) every Friday. The biological monitor will notify the construction manager who has the authority to temporarily suspend activities not in compliance with all agreed upon BMPs. This authority will be provided to the biological monitor by the construction manager during worker orientation training. The biological monitor will be notified 5 days in advance of any ground-breaking activity.

CBP will ensure a qualified Sonoran pronghorn monitor is on-site during tower construction (and maintenance where specified) in Sonoran pronghorn habitat. Land management agencies within Sonoran pronghorn habitat and USFWS-AESO will work with DHS to define "qualified Sonoran pronghorn monitor". DOI will develop Sonoran pronghorn monitoring and communication protocols for each tower site and provide them to CBP; protocols may vary among tower sites depending on various factors including the location of the tower in relation to Sonoran pronghorn use and time period (i.e., within or outside of the fawning season). Unless otherwise detailed in the tower-specific protocols, before any construction work commences in Sonoran pronghorn habitat, the monitor will conduct hilltop surveys (visual and telemetry, if appropriate) for Sonoran pronghorn at sunrise in close coordination with land managers and AGFD. If Sonoran pronghorn are detected within 2 miles of proposed daily project activities, no construction work will begin until Sonoran pronghorn move on their own volition to a distance greater than 2 miles from the activities (note: monitoring method and buffer distance is project specific; 2 miles is for tower construction, see criteria for project maintenance below). The Sonoran pronghorn monitoring protocols will include procedures to be followed if and when Sonoran pronghorn are detected within the 2-mile radius around work activities, including CBP Sonoran pronghorn monitor communications with DOI land manager, cessation of construction, and egress from the construction site. Additionally, the protocol will require the Sonoran pronghorn monitor to contact AGFD on a weekly basis to obtain the results of the telemetry surveys (note these are different than fawning season aerial surveys) and use the information to aid in weekly monitoring. A communication protocol regarding these surveys will be

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developed as part of the overall monitoring protocol. Daily Sonoran pronghorn monitoring reports will be provided (electronically mailed) to USFWS and DOI land managers on a weekly basis (due the following Monday). Sonoran pronghorn detections (with coordinates and time of detection) will be reported by electronic mail or phone call to the land managers with 24 hours of the detection. CBP and their environmental monitors, DOI, and AGFD will meet at least two weeks prior to the initiation of any tower construction activities to discuss Sonoran pronghorn monitoring protocols.

DOI will develop a protocol that will include procedures to be followed if and when Sonoran pronghorn are detected within a 1-mile radius around maintenance activities, including CBP Sonoran pronghorn monitor communications with DOI land manager, cessation of maintenance, and egress from the maintenance site. Unless otherwise detailed in the aforementioned protocol, for project maintenance and maintenance access, CBP and their contractors will cease all work that may disturb a Sonoran pronghorn if one is seen within 1 mile of the project site or any access road to the site. For vehicle operations, this entails stopping the vehicle until the animal moves away on its own volition. Vehicles may then continue on at no more than 15 miles per hour. Maintenance crews and personnel in vehicles will wait up to 3 hours from the initial sighting from the animal to move beyond 1 mile. If the animal has not moved the required distance, all personnel will retreat back away from the animal. CBP will ensure all maintenance-related personnel are trained to identify Sonoran pronghorn. CBP will report pronghorn detections (with coordinates and time of detection) by electronic mail or phone call to land managers within 24 hours of the detection.

For sensor payload installation and tower testing during the Sonoran pronghorn fawning season, CBP will conduct Sonoran pronghorn monitoring at all tower sites in Sonoran pronghorn habitat per the USFWS Biological Opinion. However, during sensor payload installation and testing during the fawning season at towers TCA-AJO-302 and 003, CBP will provide two monitors. During sensor payload installation and testing during the fawning season at other towers in Sonoran pronghorn habitat, CBP will provide a minimum of one and up to two monitors, depending on whether or not Sonoran pronghorn are detected by aerial surveys. During the testing phase only, Sonoran pronghorn monitors could also serve as environmental monitors.

Apart from site security, sensor payload installation, tower, testing, and maintenance, CBP will avoid Ajo-1 Tower Project work activities from March 15 to July 31 (i.e., the Sonoran pronghorn fawning season) in Sonoran pronghorn habitat (towers TCA-AJO-301 and 310 are outside of Sonoran pronghorn habitat). Sensor payload installation will be conducted on towers TCA-AJO-302 and 003 prior to March 15. CBP will also make every attempt possible to complete sensor payload installation and testing of other towers in Sonoran pronghorn habitat prior to March 15.

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CBP will place restrictions on construction vehicle activity during the Sonoran pronghorn fawning season (March 15 to July 31) to avoid disturbance to females and fawns.

CBP will minimize animal collisions, particularly with Sonoran pronghorn, by not exceeding construction and maintenance speed limits of 25 miles per hour on all unpaved roads.

CBP and contractors will significantly minimize the level of construction and maintenance noise of tower project within Sonoran pronghorn and lesser long-nosed bat habitat. If helicopters must be used, CBP will work with USFWS and the land manager(s) to ensure measures are implemented to significantly minimize the potential for the maintenance work/access to result in adverse effects to Sonoran pronghorn (e.g., access the site outside of the Sonoran pronghorn closure period, and before any work commences in Sonoran pronghorn habitat, a qualified Sonoran pronghorn monitor will conduct hilltop surveys [visual and telemetry, if appropriate] for Sonoran pronghorn at sunrise in close coordination with land managers). If Sonoran pronghorn are detected within 2 miles of maintenance and maintenance access activities that require helicopters, no work will begin until Sonoran pronghorn move on their own volition to a distance greater than 2 miles from the activities. Hilltop surveys will be required if helicopters are to be used for maintenance activities. If helicopters are not used for maintenance, hilltop surveys are not required and the distance restriction will be reduced to 1 mile.

CBP will minimize noise levels for day and night operations of towers and associated infrastructure within Sonoran pronghorn and lesser long-nosed bat habitat by using either baffle boxes (a sound-resistant box that is placed over or around a generator, air-conditioning unit, or any other sound producing equipment) or other noise-abatement methods for all generators, air-conditioning units, or any other sound producing equipment. Specifically, for Sonoran pronghorn, CBP will limit operational noise emissions from each tower so as not to exceed 35 dBA (measured ambient noise) at 492 feet distance from the noise source. CBP will use an acoustical professional consultant to ensure that building and/or sound barrier design details are sufficient to achieve the aforementioned criteria. CBP will provide acoustic professional's findings to USFWS-AESO, OPCNM, CPNWR, Ajo Station Tower Project, and BLM.

CBP will design and locate new access roads in a manner that minimizes impacts to Sonoran pronghorn and lesser long-nosed bats and their habitats. Corrective maintenance will be provided as needed.

CBP will develop and implement site restoration plans for Sonoran pronghorn and lesser long-nosed bats and habitat during project planning and provide an achievement goal to be met by the restoration activity. The site restoration plan will be approved by the USFWS and appropriate DOI land management agencies. The need for and extent

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of site restoration will be determined on a project-by-project basis. The Erosion Control Plan will include provisions to re-contour the site, replace soils and provide proper drainage; replant native plants salvaged prior to construction and provide for re-seeding with native, locally adapted plant species. The plan will also address monitoring of establishment of non-native plants and appropriate control measures. Training to identify non-native plants will be provided to contractor personnel as needed. The plan will also identify success criteria and monitoring and reporting requirements.

Post-Construction – Tower Implementation and Patrol Activities

CBP will provide a report including a complete description of the action (construction component) implemented (including photographs; total acres impacted; total acres of Sonoran pronghorn habitat impacted; total number of lesser long-nosed bat food plants impacted; length of time to complete the project; all environmental design [i.e., BMPs] and conservation measures implemented, including all Sonoran pronghorn daily and other biological monitoring reports; etc.) to USFWS and DOI land management agencies within 90 days of project construction completion. As implementation of some measures will continue after project construction is completed, the report will also identify environmental design and conservation measures still under implementation or proposed for implementation and a timeframe for completing the measures. Until all environmental design and conservation measures are fully implemented, CBP will provide reports annually by February 1 to the USFWS and DOI land management agencies that describe implementation of the measures. In both the initial and the annual reports, CBP will provide a description of the performance of environmental design and conservation measures, suggestions for improvements to the measures, and implementation of any restoration plan and monitoring post-construction.

CBP will avoid the spread of non-native plants by feeding horses that are housed or ridden near natural areas weed-free feed.

If horses are housed anywhere within OPCNM, CPNWR, or BLM lands, CBP will avoid contamination of ground and surface waters by removing animal waste from areas where horses are housed and disposing of it at an appropriate waste facility.

Per the 2006 MOU between DHS, DOI, and U.S. Department of Agriculture, if USBP agents pursue or apprehend suspected CBVs in wilderness areas or off-road in an area not designated for such use, USBP will use the lowest impact mode of travel practicable to accomplish its mission and operate all motorized vehicles in such a manner as will minimize the adverse impacts on threatened or endangered species and on the resources and values of the particular Federal lands. Officer safety is not to be compromised by the type of conveyance selected.

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FINDING OF NO SIGNIFICANT IMPACT
Environmental Assessment
for the Proposed SBI*net* Ajo-1 Tower Project
Ajo Station's Area of Responsibility
U.S. Border Patrol, Tucson Sector, Arizona

Once remote sensors are installed, CBP will only conduct essential maintenance and site visits will be limited to the minimum amount practicable.

Appropriate training for USBP agents focusing on DOI Trust Resources, as addressed in the MOU (page 7, IV.B.7), will be provided by DOI agencies and formatted to meet operational constraints.

CBP will minimize duration of noise exposure during maintenance activities in Sonoran pronghorn habitat. If helicopters must be used, CBP will work with USFWS and the land manager(s) to ensure measures are implemented to significantly minimize the potential for the maintenance work/access to result in adverse effects on Sonoran pronghorn (i.e., access the site outside of the Sonoran pronghorn closure period. Before any work commences in Sonoran pronghorn habitat, a qualified Sonoran pronghorn monitor will conduct hilltop surveys (visual and telemetry, if appropriate) for Sonoran pronghorn at sunrise in close coordination with land managers. If Sonoran pronghorn are detected within 2 miles of maintenance and maintenance access activities, no work will begin until Sonoran pronghorn move on their own volition to a distance greater than 2 miles from the activities).

FINDING: Based upon the analyses of the EA and the mitigation measures to be incorporated as part of the Proposed Action, it has been concluded that the Proposed Action will not result in any significant adverse effects to the environment. Therefore, no further environmental impact analysis is warranted.

Stephen S. Martin FOR
Acting Chief
Strategic Planning, Policy, and Analysis Division
Office Border Patrol

12-22-09
Date

Gregory L. Giddens
Executive Director
Facilities Management and Engineering
U.S. Customs and Border Protection

23 Dec 09
Date

FINAL

ENVIRONMENTAL ASSESSMENT
FOR
THE PROPOSED SBI*net* AJO-1 TOWER PROJECT
AJO STATION'S AREA OF RESPONSIBILITY
U.S. BORDER PATROL, TUCSON SECTOR

December 2009

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EXECUTIVE SUMMARY

INTRODUCTION

The Secure Border Initiative (SBI) is a comprehensive, multi-year plan established by the Department of Homeland Security (DHS) in November 2005 to secure America's borders and reduce illegal immigration. The SBI mission is to promote border security strategies that protect against and prevent terrorist attacks and other transnational crimes. Additionally, SBI will coordinate DHS efforts to ensure the legal entry and exit of people and goods moving across our borders and improve the enforcement of immigration, customs, and agriculture laws at our borders, and within the country.

SBI*net* is the component of SBI charged with developing and installing technology and attendant tactical infrastructure (TI) solutions to help United States (U.S.) Customs and Border Protection (CBP) gain effective control of our Nation's borders. The goal of SBI*net* is to field the most effective, proven technology and response platforms, and integrate them into a single, comprehensive border security system for DHS. The proposed SBI*net* project would enhance CBP's detection capabilities, interdiction efficiency, and deterrence of illegal cross border activities, thus resulting in reduced impacts to natural resources.

CBP implements the National Border Patrol Strategy with the goal of establishing and maintaining effective control of the borders. The U.S. Border Patrol (USBP) maximizes border security through an appropriate balance of personnel, technology, and infrastructure. Effective control exists when CBP is consistently able to: (1) detect illegal entries into the U.S. when they occur; (2) identify the entry and classify its level of threat; (3) efficiently and effectively respond to these entries; and, (4) bring each event to an appropriate law enforcement resolution.

This Environmental Assessment (EA) addresses proposed project alternatives developed to assist CBP in their goal of establishing and maintaining effective control of the border.

PURPOSE AND NEED

The purpose of the proposed project is to improve CBP's efficiency and probability of detection, identification, and apprehension of illegal aliens (IAs), smugglers, and other cross border violators (CBV). Achieving effective control of the borders of the U.S is a key mission of CBP. The objective of this SBI*net* project is to maximize surveillance along approximately 30 linear miles of U.S. border within the National Park Service's (NPS) Organ Pipe Cactus National Monument (OPCNM) in the U.S. Border Patrol (USBP) Tucson Sector, encompassing border zones in and around the Ajo Station Area of Responsibility (AOR).

This SBI*net* Ajo-1 Tower Project is needed to:

1) provide more efficient and effective means of assessing border activities;
2) provide rapid detection and accurate characterization of potential threats (e.g., IA, smugglers and other CBVs);
3) provide coordinated deployment of resources in the apprehension of CBVs;
4) reduce crime in border communities and improve the quality of life and economic vitality of border regions through provision of the tools necessary for effective law enforcement; and
5) increase surveillance and interdiction efficiency, reduce environmental impacts, and enhance restoration efforts.

DESCRIPTION OF ATERNATIVES

Nine alternatives were identified and considered during the planning stages of the proposed project. However, only two alternatives, Proposed Action and No Action alternatives, were carried forward in the analysis of alternatives.

Proposed Action

The Proposed Action includes the construction, operation, and maintenance of 10 sensor and communication towers, which creates a communications network in support of a common operating picture (COP) among components of CBP and other Federal, state, and local partners outside CBP. The Proposed Action also includes the construction of seven access roads (0.07 linear mile); construction of a new road to proposed tower site TCA-AJO-310 (1.2 linear miles); repair of four authorized roads (3.9 linear miles); improvement of four authorized roads (0.22 linear mile); improvements of an authorized corridor (1.7 linear miles); repair of an authorized corridor (4.4 linear miles); maintenance of access and authorized roads (38.2 linear miles); deployment of two towers with the use of a helicopter (proposed tower sites TCA-AJO-189 and 204); deployment and maintenance of remote sensors; conduct of USBP operations, including relocation and operation of a forward operating base (FOB); and implementation of conservation measures to avoid, minimize, and offset effects to protected species and other U.S. Department of the Interior (DOI) trust resources. Information gathered from the proposed towers and placement of remote sensors would further contribute to the comprehensive operability of the COP. The COP would also provide mechanisms to communicate comprehensive situational awareness, including information to incorporate intelligence-driven capabilities at all operational levels and locations.

No Action Alternative

Under the No Action Alternative, no towers would be constructed as part of the SBI*net* Ajo-1 Tower Project. The No Action Alternative serves as a baseline against which the impacts of the Proposed Action are evaluated.

AFFECTED ENVIRONMENT AND CONSEQUENCES

The Proposed Action would have a direct permanent impact on 18.8 acres, of which only 3 acres would be previously undisturbed areas. The Proposed Action would also temporarily disturb approximately 6.5 acres. Adverse and beneficial indirect impacts would also occur throughout the project area as a result of the Proposed Action.

Five of the proposed tower sites (TCA-AJO-003, 170, 204, 302, and 303) and the proposed FOB, are located on NPS (i.e., OPCNM) lands which are all undeveloped lands used primarily for the protection of the Sonoran Desert Ecosystem, and recreational and educational purposes. Proposed tower sites TCA-AJO-004, and 216 are located on Bureau of Land Management (BLM) lands; however, access and approach roads to proposed tower site TCA-AJO-004 are located on BLM and OPCNM lands, respectively. Authorized land uses on BLM lands include roads, utility right-of-way (ROW), pipeline ROWs, livestock grazing, recreation, water encatchments, highway ROWs, USBP facilities, and fences. Proposed tower site TCA-AJO-189 is located on Cabeza Prieta National Wildlife Refuge (CPNWR) which is undeveloped lands established for the recovery of the desert bighorn sheep. Proposed tower sites TCA-AJO-301 is located on CBP leased lands at the Lukeville Port of Entry and proposed tower site TCA-AJO-310 is located on Arizona State Trust Lands with approach roads on OPCNM lands.

Currently, none of the 10 towers proposed as part of the Proposed Action are located in Organ Pipe Cactus Wilderness. However, proposed tower site TCA-AJO-170 and its associated approach roads and the proposed approach road to proposed tower site TCA-AJO-310 are located within potential wilderness. Under the Proposed Action, one proposed tower site, TCA-AJO-189, is located in Cabeza Prieta Wilderness and would require a Minimum Requirements Analysis (MRA) from the refuge manager at CPNWR. Adverse effects on designated wilderness would be localized and the Proposed Action would have a long-term, moderate adverse effect on designated wilderness. However, the Proposed Action would have an indirect beneficial impact on the remaining designated wilderness as a result of enhanced detection capabilities, improved interdiction capabilities, increased deterrence of CBVs, and a reduced enforcement zone for required interdiction activities. The decrease in illegal traffic and a reduced enforcement footprint would reduce adverse impacts to designated wilderness and allow the conduct of restoration activities.

The installation of towers would detract from the aesthetic resources of the project area. Infrastructure components would be located primarily within undeveloped areas, the majority of which are located adjacent to designated wilderness. The Proposed Action would have a long-term, moderate adverse effect on aesthetic qualities within the immediate vicinity of the proposed towers and FOB. Additionally, the Proposed Action would have an indirect beneficial impact on land use as a result of enhanced detection capabilities, improved interdiction capabilities, increased deterrence of CBVs, and a reduced enforcement footprint for required interdiction activities.

Under the Proposed Action there would be direct and indirect effects to threatened and endangered species and their habitats. The Proposed Action would have a long-term, moderate adverse effect on Sonoran pronghorn (*Antilocapra americana sonoriensis*) and lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*). USBP operations may affect and are likely to adversely affect the desert pupfish (C*yprinodon macularius*) and Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*). Acuna cactus (*Echinomastus erectocentrus* var. *acunensis)* may be affected, but these effects would not be adverse. Long-term, beneficial effects would occur by lessening impacts of CBV activity and consequent law enforcement actions on habitats throughout the project area and surrounding areas. The restoration of unauthorized vehicle routes as part of the Proposed Action would restore Sonoran pronghorn habitat and assist the recovery of Sonoran pronghorn.

A total of 14 recorded archaeological sites are located within the project site. Impacts to 11 previously recorded archaeological sites from the Proposed Action would be avoided through a combination of project design and monitoring. Three newly recorded sites would potentially be impacted by ground disturbance within the archeological site. These impacts would not affect the integrity of the sites and are considered long-term and minor. Long-term, moderate adverse effects on soils, as a result of accelerated erosion, would be expected under the Proposed Action. The Proposed Action would result in increased short-term sediment production from construction and would have a minor to moderate adverse effect on surface waters. However, long-term, minor impacts from sedimentation would also be expected from road construction and maintenance. Additionally, the Proposed Action would have a long-term, minor adverse effect on floodplains as a result of road construction prior to the development of engineering plans and mitigation. Engineering solutions and mitigation included as part of the engineering plans would decrease erosion and sedimentation. Overall, the Proposed Action would have long-term, minor adverse effects on floodplains in the project area.

A total of 69 waters of the U.S. (WUS) were observed crossing either the access or approach roads associated with the proposed tower sites. Construction and repair activities within the potential WUS would be authorized under Nationwide Permit 14. Additionally, the Proposed Action would have minor short-term, minor impacts to air and long-term minor impacts to roadways and traffic. The Proposed Action would result in 18.8 acres of permanent and 6.5 acres of temporary impact to vegetation in the project area. However, only 3 acres of undisturbed vegetation would be permanently affected and the remainder of the permanent impacts would occur on previously disturbed areas (i.e., roads). Increased noise emissions associated with the construction, operation and maintenance of the proposed towers and construction, repair, or maintenance of associated access roads would have a long-term, moderate adverse effect on the soundscape and designated wilderness. No utilities would be impacted as a result of the Proposed Action, although long-term benefits to socioeconomics could occur.

No significant adverse effects to the natural or human environment, as defined in 40 Code of Federal Regulations Section 1508.27 of the Council on Environmental Quality's

Regulations for Implementing National Environmental Policy Act, are expected from implementation of any of the action alternatives.

FINDINGS AND CONCLUSIONS

Based upon the analyses of the EA and the environmental design and mitigation measures to be implemented, the Proposed Action would not have a significant adverse effect on the environment. Therefore, no additional environmental evaluation is warranted.

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1.0 BACKGROUND

1.1 INTRODUCTION

This Environmental Assessment (EA) analyzes various aspects of a proposed project that would be carried out under the United States (U.S.) Customs and Border Protection (CBP) Secure Border Initiative (SBI) and be implemented as a part of the SBI*net* program. It addresses the potential direct and indirect effects of the proposed construction, installation, operation, and maintenance of a system of up to 10 sensor and communication towers; construction, improvements, repairs, and maintenance of roads; and relocation of an U.S. Border Patrol (USBP) forward operating base (FOB) within the USBP Ajo Station's area of responsibility (AOR) in southwest Arizona (Figure 1-1). The proposed project is known as the SBI*net* Ajo-1 Tower Project. An 11th tower, TCA-AJO-305, and communication facility (C2 Facility) would be constructed as part of the SBI*net* Ajo-1 Tower Project; however, TCA-AJO-305 is located at the Ajo Station and has been previously assessed in the EA for the SBI*net Tucson West Project for Ajo, Tucson, Casa Grande, Nogales, and Sonoita Stations' Areas of Operations, U.S. Border Patrol, Tucson Sector, Arizona* (CBP 2008a); thus, it will not be addressed in this EA. The C2 Facility, also located at the Ajo Station, was assessed in a 2009 Categorical Exclusion in accordance with U.S. Department of Homeland Security's (DHS) Environmental Planning Management Directive 023-01 (*Federal Register* [FR] 16790).

This EA was prepared in compliance with provisions of the National Environmental Policy Act (NEPA) of 1969 as amended (42 U.S. Code [U.S.C.]. 4321 *et seq*.), the Council on Environmental Quality's (CEQ) NEPA implementing regulations at 40 Code of Federal Regulations (CFR) Part 1500, and DHS's *Environmental Planning Management Directive 023-0*1.

Consistent with 40 CFR 1508.28, this EA analyzes direct and indirect site-specific and cumulative environmental impacts of the proposed project. The affected area for this EA covers approximately 517 square miles of southwest Arizona in the area between Why and Lukeville, Arizona and 30 linear miles of U.S. border within Organ Pipe Cactus National Monument (OPCNM). In connection with earlier border infrastructure projects, much of this area and similar actions were analyzed in previous NEPA documents prepared by CBP and the legacy Immigration and Naturalization Service (INS). Accordingly, this EA tiers from a July 2001 INS and Joint Task Force-Six (JTF-6) NEPA document entitled, *Supplemental Programmatic Environmental Impact Statement, INS and JTF-6 Activities on the Southwest U.S.-Mexico Border* (INS and JTF-6 2001) and the *Programmatic Environmental Assessment for the Proposed Installation and Operation of Remote Video Surveillance Systems in the Western Region of Immigration and Naturalization Service* (INS 2003). Where this EA incorporates previously documented information, the appropriate NEPA document is cited and the incorporated content is summarized in this EA, such as from the 2008 and 2007 CBP documents

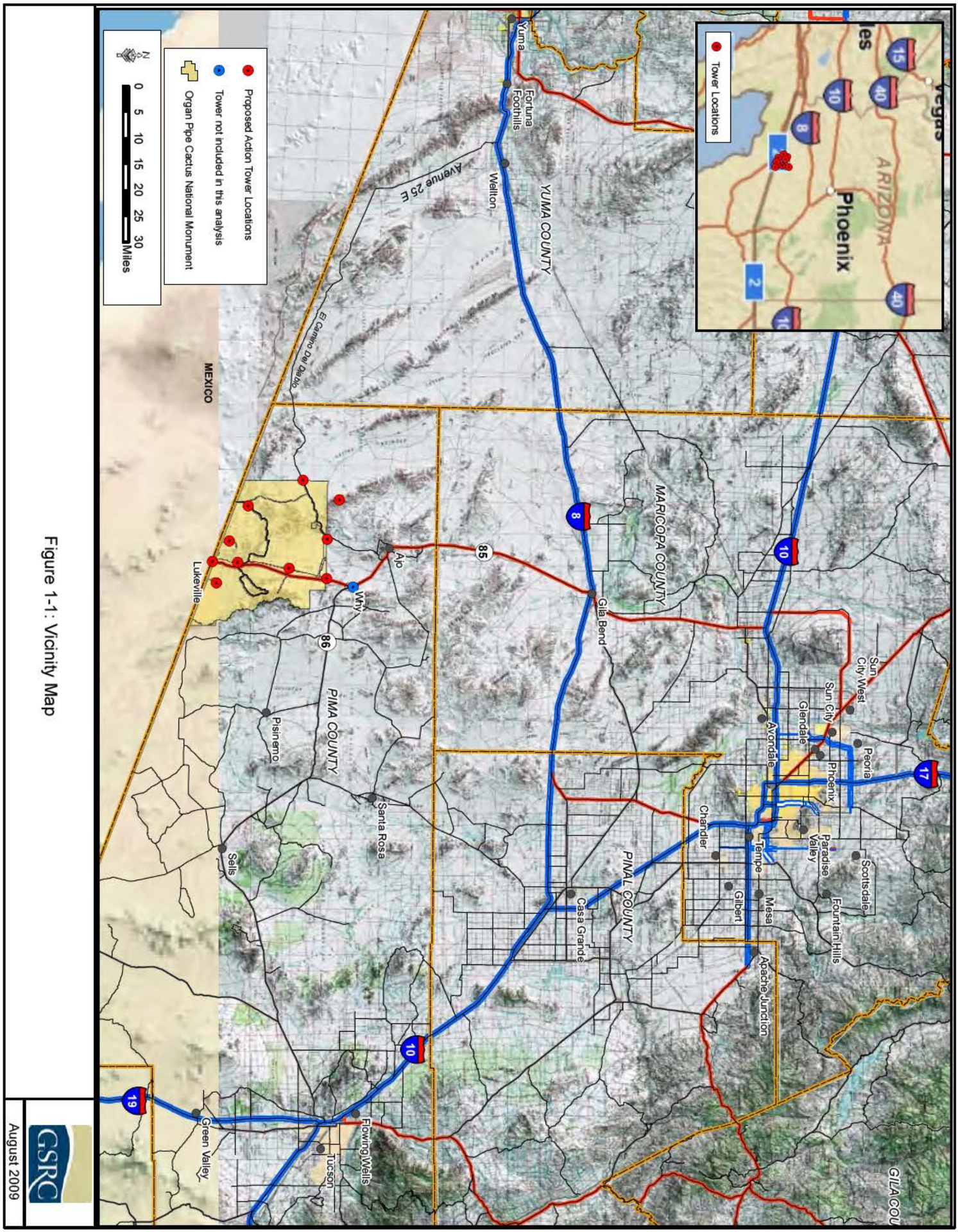

Figure 1-1: Vicinity Map

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August 2009

entitled, *Environmental Assessment For The Proposed Installation, Operation, and Maintenance of Primary Pedestrian Fence Near Lukeville, Arizona, U.S. Border Patrol (USBP), Tucson Sector* (CBP 2008a) and *Environmental Assessment For The Installation of Permanent Vehicle Barrier on the Cabeza Prieta National Wildlife Refuge, Office of Border Patrol, Tucson and Yuma Sectors, Arizona* (CBP 2007a), respectively. Where previous NEPA documents do not provide sufficient information for the analysis required in this EA, new surveys for sensitive resources and tower site characterization were completed. That information is included in this EA.

USBP Tucson Sector provides law enforcement support for the Arizona counties of Maricopa, Pima, Santa Cruz, Pinal, and Cochise. Only one USBP station (Ajo) would be affected by the proposed project. CBP proposes to design, develop, and deploy technology-based solutions to decrease illegal cross border activities and deter and detect illegal entries in the Ajo Station's AOR. This project would support the CBP's mission by strengthening National security between ports of entry (POE) to prevent illegal entry of illegal aliens (IA), smugglers, and other cross border violators (CBV) into the U.S.

The SBI*net* project described and analyzed in this EA is anticipated to achieve CBP operational requirements and CBP's mission of improving land border security. This EA describes the project goals that SBI*net* is required to support and analyzes the potential environmental impacts of the proposed tower construction, installation, operation, and maintenance of its component structures and facilities.

1.1.1 Program Background

The U.S. experiences substantial cross border traffic of CBVs, illegal drugs, and other contraband every year. These illegal cross border activities not only violate U.S. law, but adversely affect natural resources on public and private lands through the creation of illegal roads and trails, the degradation and loss of habitat resulting from fires set by CBVs, the deposition of trash and human waste, and destruction of fences. Additionally, CBVs pose a threat to public safety from high speed vehicle chases on public roads, smuggling, and all degrees of crime. For example, the land manager has closed a majority of the western portion of OPCNM to the public as a result of the high levels of illegal activity in this portion of OPCNM (National Park Service [NPS] 2009a).

SBI is a comprehensive, multi-year program established by DHS in November 2005 to provide the tools necessary to CBP to secure the U.S. borders and reduce illegal immigration. SBI was created to bring effective coordination of DHS assets and greater accountability in securing the U.S. borders. The SBI mission is to promote border security strategies that protect against and prevent terrorist attacks and other transnational crimes. Additionally, SBI will coordinate DHS efforts to ensure the legal entry and exit of people and goods moving across U.S. borders, and improve the enforcement of immigration, customs, and agriculture laws at U.S. borders and within the U.S.

SBI*net* is the component of SBI charged with developing and installing technology and attendant tactical infrastructure (TI) solutions to help CBP gain effective control of the U.S. borders. The goal of SBI*net* is to field the most effective, proven technology and response platforms, and integrate them into a single, comprehensive border security system for DHS. SBI*net* is the CBP program charged with carrying out the program to better execute this vital mission. The proposed SBI*net* Ajo-1 Tower Project would enhance CBP's detection capabilities and interdiction efficiency, and provide a deterrence to illegal cross border activities, thus resulting in reduced impacts to natural resources.

CBP implements the National Border Patrol Strategy (NBPS) with the goal of establishing and maintaining effective control of the borders. USBP maximizes border security with an appropriate balance of personnel, technology, and infrastructure. SBI*net* is a part of the NBPS and this proposed action helps to achieve aspects of the NBPS within the Tucson Sector. Effective control exists when CBP is consistently able to: (1) detect illegal entries in to the U.S. when they occur; (2) identify the entry and classify its level of threat; (3) efficiently and effectively respond to these entries; and, (4) bring each event to an appropriate law enforcement resolution.

1.1.2 Cooperating Agencies

The U.S. Department of the Interior (DOI) is a cooperating agency (40 CFR § 1502.14(d)) on SBI projects including the SBI*net* proposed project included in this EA. A Memorandum of Understanding (MOU) was entered into in March 2006 between DHS, DOI and U.S. Department of Agriculture (USDA). The MOU outlines the cooperative efforts between DOI and USDA agencies' land managers and DHS agencies with operations in the southwest border region when planning and negotiating project details to best meet each agency's goals and objectives. Additionally, a Memorandum of Agreement (MOA) entered into in January 2008 between CBP and DOI for SBI projects formalized the commitment among CBP and DOI to coordinate the review of projects subject to NEPA and CEQ regulations implementing NEPA. Further, DOI agencies' actions, such as issuance of special use permits and right-of-way (ROW) grants, associated with this proposed action are included as part of this NEPA analysis.

1.1.3 Legislative Background

Several documents, legislative acts, and policies provide guidance to ensure the proposed action described in this EA satisfies the purpose and need state below. All applicable legislation was considered during the preparation of this EA.

1.1.3.1 Department of Homeland Security

Among its many functions, DHS is charged with enforcing the Immigration and Naturalization Act, which includes the authority and duty to control and guard the boundaries and borders of the U.S. against the illegal entry of aliens (8 U.S.C. 1103). Pursuant to Section 1502 of the Homeland Security Act (Public Law (P.L.) 107-296, 116 Stat. 2135 [2002]), the President's reorganization plan of January 30, 2003, established CBP, which has responsibility for the resources and missions of the legacy Customs

Service and USBP relating to borders and POEs. CBP's core mission is to defend U.S. borders against all threats while facilitating legitimate trade and travel.

As a component of DHS that is responsible for border security, CBP shares DHS' mandate from Congress to achieve and maintain effective control of the U.S. borders (8 U.S.C. 1701). Pursuant to Section 102 of the Illegal Immigration Reform and Immigrant Responsibility Act, as amended, Congress provided DHS with authorities necessary to accomplish this mandate. Section 102(a) provides that the Secretary of Homeland Security shall take such actions as may be necessary to install additional physical barriers and roads in the vicinity of the U.S. borders to deter illegal crossings in areas of high illegal entry. SBI*net* is also working to design, develop, and deploy the technology-based solutions that will help DHS meet Congress' mandate to achieve and maintain effective control of the U.S. borders.

1.1.3.2 National Park Service

NPS was established by the Organic Act of 1916 (16 U.S.C. 1 2 3 and 4), which directs DOI and NPS to manage units of the National Park system, "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (16 U.S.C. 1). The Redwood National Park Expansion Act of 1978 iterates this mandate by stating that NPS must conduct its actions in a manner that will ensure no "derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress" (16 U.S.C. 1a-1).

<u>Organ Pipe Cactus National Monument</u>

OPCNM was established by Presidential Proclamation on April 13, 1937. The proclamation states that OPCNM has been reserved under NPS management and control. The purpose and objectives for OPCNM are described below:

- Perpetuate for future generations a representative sample of the natural and cultural resources and processes of the Sonoran Desert and provide for public understanding, use, and enjoyment;
- Preserve for future use and enjoyment the character and values of the designated wilderness within OPCNM under the Wilderness Act;
- Serve as a natural outdoor laboratory for understanding and managing Sonoran Desert Ecosystems;
- Serve as a baseline indicator against within environmental changes can be identified; and
- Establish a mutually agreeable relationship with the Tohono O'odham Nation to ensure perpetuation of their participation in and with OPCNM, and to preserve and continue their important relationship with this ecosystem.

The National Parks and Recreation Act of 1978 (P.L. 95-625) designated more than 94 percent (approximately 312,600 acres) of OPCNM as Organ Pipe Cactus Wilderness. Additionally, 1,240 acres of Arizona State Trust Lands (ASTL) within OPCNM were

designated potential wilderness. The potential wilderness areas are managed to preserve wilderness values under a cooperative arrangement between NPS and the State of Arizona.

1.1.3.3 U.S. Fish and Wildlife Service

U.S. Fish and Wildlife Service (USFWS) was created under the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742J). The USFWS is "the principal Federal agency responsible for conserving, protecting and enhancing fish, wildlife, and plants, and their habitats for the continuing benefit of the American people". USFWS enforces Federal wildlife laws, administers the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531-1544), as amended, manages migratory bird populations, restores nationally significant fisheries, and helps foreign governments with their conservation efforts (USFWS 1999).

National Wildlife Refuge System

The National Wildlife Refuge System Administration Act of 1966 (16 U.S. Code [U.S.C.] 668dd-668ee) provided guidelines and directives for administration and management of the National Wildlife Refuge System. In October 1997, the National Wildlife Refuge System Improvement Act (P.L. 105-57) clarified and formalized the mission of the National Wildlife Refuge System. The National Wildlife Refuge System Improvement Act provides an "organic act" in that it designates the fundamental guiding principles of the National Wildlife Refuge System. It ensures that the National Wildlife Refuge System is effectively managed as a National system of lands, waters, and interests for the protection and conservation of our Nation's wildlife resources. The National Wildlife Refuge System Improvement Act defines the mission of the National Wildlife Refuge System as, "To administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

Cabeza Prieta National Wildlife Refuge (CPNWR)

CPNWR was established in 1939 as a "Game Range" by President Franklin Roosevelt for the recovery of desert bighorn sheep (Executive Order [EO] 8038). The CPNWR encompasses over 800,000 acres of Sonoran Desert along the U.S./Mexico border (USFWS 2005). Four subsequent EOs signed by President Franklin Roosevelt and two public orders signed by the Secretary of Agriculture between 1941 and 1943 withdrew nearly 3 million acres including the "Game Range" for military flight training needs for World War II (USFWS 2005). Most of the air space above the "Game Range" was used as a bombing and aerial gunnery range during World War II (1941-1946) and the Korean Conflict (activated in 1951). Public Land Order 5493 of March 21, 1975, amended the EO 8039 and changed the name of the Game Range to CPNWR. Further, Public Land Order 5493 gave sole jurisdiction of CPNWR to the USFWS. The Game Range Bill amendments to the National Wildlife Refuge Administration Act (P.L. 94-223) affirmed the Secretary of the Interior's responsibility to protect the integrity of the former Cabeza Prieta Game Range as part of the National Wildlife Refuge System and the integrity of the original purposes for which the refuge was established. Until 1999, the CPNWR was included as part of the U.S. Air Force's Barry M. Goldwater Range (BMGR).

The Arizona Desert Wilderness Act of 1990 (P.L. 101-628) designated approximately 93 percent (approximately 803,418acres) of CPNWR as Cabeza Prieta Wilderness. The refuge's wildlife management responsibilities remain unchanged, but must be implemented within the context of legal requirements set forth in the Wilderness Act of 1964 (P.L. 88-577).

1.1.3.4 Bureau of Land Management

The Federal Land Policy Management Act (FLPMA [P.L. 94-579]) established the guidelines for the administration and management of public lands by Bureau of Land Management (BLM). FLMPA is BLM's "organic act" in that it establishes the agency's multiple-use mandate to serve present and future generations. Multiple use management is defined as the management of public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people.

1.1.4 Framework for Analysis

NEPA is the Federal statute that requires agencies to identify and analyze the potential impacts of the proposed Federal action to the natural and human environment before those actions are taken. NEPA also established the CEQ as the executive agency charged with administering and interpreting NEPA's intent and ensuring agencies' compliance with NEPA. The NEPA regulations mandate that all Federal agencies use a systematic, interdisciplinary approach to environmental planning and evaluation of actions that might affect the human or natural environment. The NEPA process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decision-making.

The process for implementing NEPA is codified at 40 CFR 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, and forms the basis for DHS's *Management Directive 023-01, Environmental Planning Program* (71 FR 16790). The NEPA regulations specify that the following must be accomplished when preparing an EA:

- Briefly provide evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI);
- Aid in an agency's compliance with NEPA when an EIS is unnecessary; and
- Facilitate preparation of an EIS when one is necessary (40 CFR 1501.3, 1501.4).

As noted earlier, NEPA requires an interdisciplinary approach to environmental analysis. Table 1-1 summarizes some of the applicable laws and regulations that were considered in the development of this EA. An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, and historians analyzed the proposed alternatives, regarding existing conditions of the region and specific tower sites and existing structures, and has identified relevant beneficial and

adverse effects associated with the action. In addressing these effects, numerous guidelines, regulations, and EOs were considered (Table 1-1).

1.2 PURPOSE AND NEED

The purpose of the proposed project is to improve CBP's efficiency and probability of detection, identification, and apprehension of CBVs. Achieving effective control of the borders of the U.S is a key mission of CBP. The objective of this SBI*net* project is to maximize surveillance along approximately 30 linear miles of U.S. border within OPCNM in the USBP Tucson Sector. Meeting this purpose would provide more efficient and effective interdiction while reducing impacts to the natural environment in the Ajo Station's AOR.

The implementation of this proposed SBI*net* Ajo-1 Tower Project would support CBP's mission and activities of predicting, detecting, identifying, classifying, tracking, and responding to illegal cross border activities at and between POEs and within the Tucson Sector. The project would provide necessary decision support information to assist CBP officers and agents in the resolution of all border incursions. Additionally, information gathered from all technology would further contribute to the comprehensive operability of the common operating picture (COP). The COP would also provide mechanisms to communicate comprehensive situational awareness, including information to incorporate intelligence-driven capabilities at all operational levels and locations.

The frequency and nature of illegal cross border activities and the geographic area over which these activities occur, create a need for a technology-based solution that can effectively collect, resolve, and distribute the information among CBP agents. The SBI*net* system is expected to allow CBP to spend less time locating CBVs and focus efforts on interdiction of those involved in illegal cross border activities.

This SBI*net* Ajo-1 Tower Project is needed to:

1) provide more efficient and effective means of assessing border activities;
2) provide rapid detection and accurate characterization of potential threats (e.g., IA, smugglers and other CBVs);
3) provide coordinated deployment of resources in the apprehension of CBVs;
4) reduce crime in border communities and improve the quality of life and economic vitality of border regions through provision of the tools necessary for effective law enforcement; and
5) increase surveillance and interdiction efficiency, reduce environmental impacts, and enhance restoration efforts.

Table 1-1. Summary of Guidance, Statutes, and Relevant Regulations Including Compliance Requirements

Issue	Acts Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status
Wilderness	Wilderness Act of 1964, 16 United States Code (U.S.C.) § 1131-1136, Public Law [P.L.] 88-577)	Land administrating agency	Approval from land administrating agency that action is minimum necessary to manage an area as Wilderness
	Arizona Desert Wilderness Act of 1990 (P.L. 101-628)	Land administrating agency	Approval from land administrating agency that action is minimum necessary to manage an area as Wilderness
	National Parks and Recreation Act of 1978 (P.L. 95-625)	NPS	Approval from land administrating agency that action is minimum necessary to manage an area as Wilderness
Soils	Resource Conservation and Recovery Act of 1976, 42 U.S.C. § 6901 et seq., as amended	U.S. Environmental Protection Agency (EPA)	Proper management, and in some cases, permit for remediation
	Comprehensive, Environmental Response, Compensation, Liability Act of 1980, 42 U.S.C. § 9601et seq., as amended	EPA	Development of emergency response plans, notification, and cleanup
	Farmland Protection Policy Act of 1981, 7 U.S.C. §4201 *et seq*. 7 CFR 657-658 Prime and unique farmlands	Natural Resource Conservation Service (NRCS)	NRCS determination via Form AD-1006, if prime or unique farmlands are present
Natural Resources	Endangered Species Act of 1973, 16 U.S.C. § 1531 et seq., as amended	USFWS	Compliance by lead agency and/or consultation to assess impacts and, if necessary, develop mitigation measures
	Migratory Bird Treaty Act of 1918, 16 U.S.C. § 703 et seq.	USFWS	Compliance by lead agency and/or consultation to assess impacts and, if necessary, develop mitigation measures
	National Wildlife Refuge System Administration Act of 1966, 16 U.S.C. § 668dd-668ee, and amendments	USFWS	Compliance by lead agency to ensure the protection and conservation of National wildlife resources
	National Wildlife Refuge Improvement Act of 1997, 16 U.S.C. § 668dd *et seq*., P.L. 105-57	USFWS	Administer a National network of lands and waters for the conservation, management and restoration of the fish, wildlife, and plant resources and their habitats within the U.S. for the benefit of present and future generations. Compliance by lead agency

BW1 FOIA CBP 001729

Table 1-1, continued

Issue	Acts Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status
Natural Resources, continued	Organic Act of 1916 (U.S.C. 1 2 3 and 4)	NPS	Manage units of the NPS system "to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." Compliance by lead agency
	Federal Land Policy Management Act (P.L. 94-579)	BLM	Administer and manage public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people. Compliance by lead agency
Cultural/ Archaeological	National Historic Preservation Act of 1966 (16 U.S.C. § 470a *et seq*.)	Advisory Council on Historic Preservation (ACHP) through State Historic Preservation Officer (SHPO)	Section 106 Consultation
	Archaeological Resources Protection Act of 1979 (16 U.S.C. § 470aa *et seq*.)	Affected land-managing agency	Permits to survey and excavate/ remove archaeological resources on Federal lands; Native American tribes with interests in resources must be consulted prior to issue of permits
	Native American Graves Protection and Repatriation Act of 1990	Affected land-managing agency	Compliance by lead agency
	Indian Sacred Sites of 1996 (EO 13007)	Affected land-managing agency and affected Native American tribe	Compliance by lead agency
	Consultation and Coordination with Indian Tribal Governments of 2000 (EO 13175)	Affected land-managing agency and affected Native American tribe	Compliance by lead agency
	Government-to-Government Relations with Native American Tribal Governments of 1994 (Presidentail Memorandum)	Affected land-managing agency and affected Native American tribe	Compliance by lead agency

BW1 FOIA CBP 001730

Table 1-1, continued

Issue	Acts Requiring Permit, Approval, or Review	Agency	Permit, License, Compliance, or Review/Status
Air	Clean Air Act, and amendments of 1990 (42 U.S.C. § 7401 et seq.)	EPA and Arizona Department of Environmental Quality (ADEQ)	Compliance with National Ambient Air Quality Standards (NAAQS) and emission limits and/or reduction measures; Conformity to *de minimis* thresholds; preparation of a Record of Non-Applicability (RONA)
Water	Federal Water Pollution Control Act of 1977 (also known as the Clean Water Act [CWA]) (33 U.S.C. § 1251 et seq.)	EPA	Section 402(b) National Pollutant Discharge Elimination System General Permit for Storm Water Discharges for Construction Activities-Storm Water Pollution Prevention Plan (SWPPP)
	Executive Order 11988 (Floodplain Management), 42 Federal Register (FR) 26,951 (May 24, 1997), as amended.	Water Resources Council, Federal Emergency Management Agency (FEMA), CEQ	Compliance
	Executive Order 11990 (Protection of Wetlands), 42 FR 26,691(May 24, 1977), as amended	U.S. Army Corps of Engineers (USACE) and U.S. Fish and Wildlife Service (USFWS)	Compliance
	CWA of 1977 (33 U.S.C. § 1341 et seq.)	USACE and Arizona Department of Water Resources	Section 401/404 Permit
Social/ Economic	Executive Order 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) of 1994, 59 FR 7629 (February 11, 1994)	EPA	Compliance
Sound/ Noise	Noise Control Act of 1972, 42 U.S.C. § 4901 et seq., as amended	EPA	Compliance with surface carrier noise emissions
Health and Safety	Occupational Health and Safety Act of 1970, 29 U.S.C. §651 et seq.	Occupational Safety and Health Administration	Compliance with guidelines including Material Safety Data Sheets

BW1 FOIA CBP 001731

1.3 PUBLIC INVOLVEMENT

SBI*net* initiated public involvement and scoping activities as directed by 40 CFR Section 1501.7, 1503, and 1506.6 to identify any significant issues related to this proposed project. A public scoping meeting was held on July 17, 2007, in Tucson to present and discuss plans for this proposed project and to explain how this action would be analyzed in this EA. Members of the public in attendance were invited to provide comments and questions about the proposed project after the presentation. A transcript of this public scoping meeting is included in Appendix A.

The draft EA and draft FONSI were released to the public and Federal, state, and local agencies for 30-day public review and comment period on September 11, 2009 and comments were received until October 10, 2009. The Notice of Availability (NOA) announcing the availability of the draft EA and draft FONSI for public review and comment was published in the *Arizona Daily Star*, *Copper News*, and *Arizona Republic News* newspapers. Proof of Publication of the NOA is provided in Appendix B. Two comments letters, one from NPS and one signed by Defenders of Wildlife, National Parks Conservation Association, and Sierra Club were received. These letters, as well responses to these letters, are provided in Appendix B. The final EA and FONSI will be released to the public.

1.3.1 Agency Coordination

Coordination and consultation with stakeholder agencies and other potentially affected parties occurred at the initial preparation stages of this EA. This began in June 2007 through the issuance of 47 agency coordination letters to potentially affected Federal, state, and local agencies and Indian tribes, inviting their participation and input regarding the proposed project. Six responses were received. In February 2009, 11 agency coordination letters specifically addressing the proposed SBI*net* Ajo-1 Tower Project were issued to potentially affected Federal, state, and local agencies and Indian tribes, inviting their participation and input regarding this project. Three responses to the February 2009 coordination letters were received by SBI*net*. Copies of correspondence generated during the preparation of this EA are presented in Appendix B. Formal and informal coordination was conducted and is on-going with the following agencies:

- U.S. Department of the Interior (DOI)
  - National Park Service (NPS), OPCNM
  - Bureau of Land Management (BLM)
  - U.S. Fish and Wildlife Service (USFWS), Arizona Ecological Service Office (AESO) and CPNWR
- U.S. Section, International Boundary and Water Commission (USIBWC)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (EPA)
- Arizona Game and Fish Department (AGFD)
- Arizona State Historic Preservation Officer (SHPO)
- Arizona Department of Environmental Quality (ADEQ)
- Arizona Department of Transportation (ADOT)

SECTION 2.0
PROPOSED ALTERNATIVES

2.0 PROPOSED ALTERNATIVES

Nine alternatives were identified and considered during the planning stages of the proposed project: the Full Build Out, Proposed Action, Fiber Optics, Unmanned Aircraft Systems, Remote Sensing Satellites, Remote Sensors, Increased CBP Workforce, Increase Aerial Reconnaissance/Operations, and No Action alternatives. However, only two alternatives, Proposed Action and No Action alternatives, were carried forward in the analysis of alternatives. The following paragraphs describe the alternative selection process and the alternatives considered.

2.1 ALTERNATIVES AND ALTERNATIVES SELECTION

As the proponent agency preparing this EA, CBP developed a range of alternatives with consideration of the purpose and need outlined above and of the potential effects to the environment. CBP considered various technological systems and equipment capable of providing spatially and temporally continuous surveillance across the entire 30-mile border region of this project. Each of these alternatives was fully evaluated in terms of the purpose and need, as well as costs, operability, and potential impacts to the environment. Alternatives which did not fully meet the purpose of this project were eliminated from further analysis and are discussed in Section 2.5, below. The Proposed Action described in Sections 2.3 fully meets the purpose and need of this project within the constraints of environmental and operational considerations. The No Action Alternative, described in Section 2.4, is assessed as required by NEPA and CEQ regulations (40 CFR §.1508.5).

The towers planned for the SBI*net* Ajo-1 Tower Project comprise a single system designed to enhance CBP's detection and deterrence of IAs in the Ajo Station's AOR. Geographic features such as mountain ranges isolate the project from other stations' AORs. The proposed SBI*net* Ajo-1 Station Tower Project is considered a stand alone project that could function independently of other SBI*net* Tucson Sector projects. However, future SBI*net* projects could be designed to communicate with the SBI*net* Ajo-1 Tower Project towers to enhance the COP within the Tucson Sector.

2.2 CRITERIA FOR TOWER SITE SELECTION

The sensor and communications tower site selection process identifies potential suitable site locations and their alternatives. Key tower site evaluation considerations take into account constructability, operability, and environmental factors. The site selection process began with multiple conceptual field laydowns, where maximum surveillance capability is achieved with a minimum number of tower sites using mapping programs and a modeling and analysis process. Operationally preferred site locations were selected by CBP personnel based on their knowledge of the terrain, environment, land ownership, and operational needs. Selected tower sites were screened for constructability, operability, and environmental constraints. The selection process was iterated until full surveillance and communications capabilities were deemed achievable.

The site selection team first employed a Boeing proprietary Wide Area Surveillance Sensor Placement Tool (WASSPT), which is a four-stage, integrated analysis, and visualization tool for cost-effective placement of towers across areas of interest. The WASSPT helps determine the minimum number of towers needed for maximum coverage of a given area. After a conceptual field laydown of prospective tower sites was agreed to by CBP, the project's environmental, construction, and operational team personnel conducted site visits and completed site visit reports with site ranking matrices for each site. During site visits, project team personnel used site ranking criteria to establish whether sites exhibit exclusionary, restrictive, and/or selective characteristics from constructability, operability, and/or environmental criteria perspectives.

The SBI*net* Ajo-1 Tower Project preliminary site surveys were conducted in July 2007, following comprehensive map reviews of terrain types and achievable surveillance coverage requirements with CBP and DHS personnel. Detailed environmental and cultural resources surveys followed, beginning in October 2007. During those surveys, 25 sites were evaluated by additional team personnel for both sensor and communication efficiencies and overall compatibility with SBI*net* network design and connectivity. Of the sites surveyed, 15 sites were eliminated as unsuitable for tower construction due to terrain or access considerations, the presence of cultural and/or sensitive resources, or technical requirements that could not be met in a particular location. These sites are summarized in Table 2-1 with the reasons for their elimination as proposed tower sites.

Table 2-1. Alternate Sites Proposed but Eliminated

Tower ID	Station	Reason for Elimination*
TCA-AJO-006	Ajo	O, T, C
TCA-AJO-008	Ajo	T, E
TCA-AJO-088	Ajo	C
TCA-AJO-091	Ajo	T, E
TCA-AJO-155	Ajo	C, E
TCA-AJO-173	Ajo	C
TCA-AJO-188	Ajo	R
TCA-AJO-200	Ajo	O, T
TCA-AJO-203	Ajo	O, T
TCA-AJO-205	Ajo	O, T
TCA-AJO-209	Ajo	E
TCA-AJO-218	Ajo	O, T
TCA-AJO-296	Ajo	O, T
TCA-AJO-304	Ajo	T
TCA-AJO-308	Ajo	E

O—operational, T—technical, C—constructability, E—environmental, R-real estate

2.3 PROPOSED ACTION

The Proposed Action includes the construction, operation, and maintenance of 10 sensor and communication towers, which creates a communications network in support of a COP among components of CBP and other Federal, state, and local partners outside CBP. The Proposed Action also includes the construction of seven access roads (0.07 linear mile); construction of a new road to proposed tower site TCA-AJO-310 (1.2 linear miles); repair of four authorized roads (3.9 linear miles); improvement of four authorized roads (0.22 linear mile); improvements of an authorized corridor (1.7 linear miles); repair of an authorized corridor (4.4 linear miles); maintenance of access and approach roads (38.2 linear miles); deployment of two towers with the use of a helicopter (TCA-AJO-189 and 204); deployment and maintenance of remote sensors; relocation and operation of a FOB; and implementation of conservation measures to avoid, minimize, and offset effects to protected species and other DOI trust resources.

The Proposed Action described in this EA represents CBP's plan to develop a combination of technology, infrastructure, transportation assets, and deployment of CBP personnel to achieve effective control of 30 miles of border in the Tucson Sector. Technology to be considered in the design includes: sensors and other surveillance assets, and communications, command and control systems along the border, within command centers within vehicles and among CBP personnel. Infrastructure to be considered within CBP's plan includes roadways to/from communication and sensor towers, and support utilities. As part of the COP, the 10 towers would be able to communicate with the Ajo Station. This would provide an overall network system of communications and surveillance along the 30 linear miles of border region (Figure 2-1).

2.3.1 Tower Characteristics

Three types of tower structures are proposed for this project: self standing towers (SST), rapidly deployed towers (RDT), and remote access towers (RAT). These towers are described in the following paragraphs. None of the proposed tower types would require guy wires. SSTs are steel, lattice style structures which that have three circular concrete pilings approximately 4 feet in diameter, and would be placed at each site to anchor the tower legs in the ground (Figure 2-2). A typical profile of a SST tower is provided as Figure 2-3. Depth of the pilings is dependent on tower height and geotechnical characteristics at each tower site, but would not be expected to be greater than 60 feet below ground surface (bgs). SSTs would typically be up to 180 feet high.

RDTs are lattice style structures which use pre-cast modular stacked slabs for the foundation and are typically 8- x 8-foot x 6 inches, 8- X 8-foot X 6 inches and 10- x 10-foot x 6 inches or 12- x 12-foot x 6 inches depending upon tower height (Figures 2-4). A typical profile of a RDT tower is provided as Figure 2-5. The lowermost foundation slab rests on top of approximately 2 feet of crushed stone at the base of the excavated area. The depth of each tower foundation is dependent on tower height and geotechnical characteristics at each tower site. Tower foundations would be placed at a depth of 3 to 5 feet bgs depending on tower height and geotechnical characteristics at each tower site. The uppermost tower foundation slab may potentially extend from 7 to 26 inches above the existing surface grade. RDTs will range in height from 80 feet to 120 feet.

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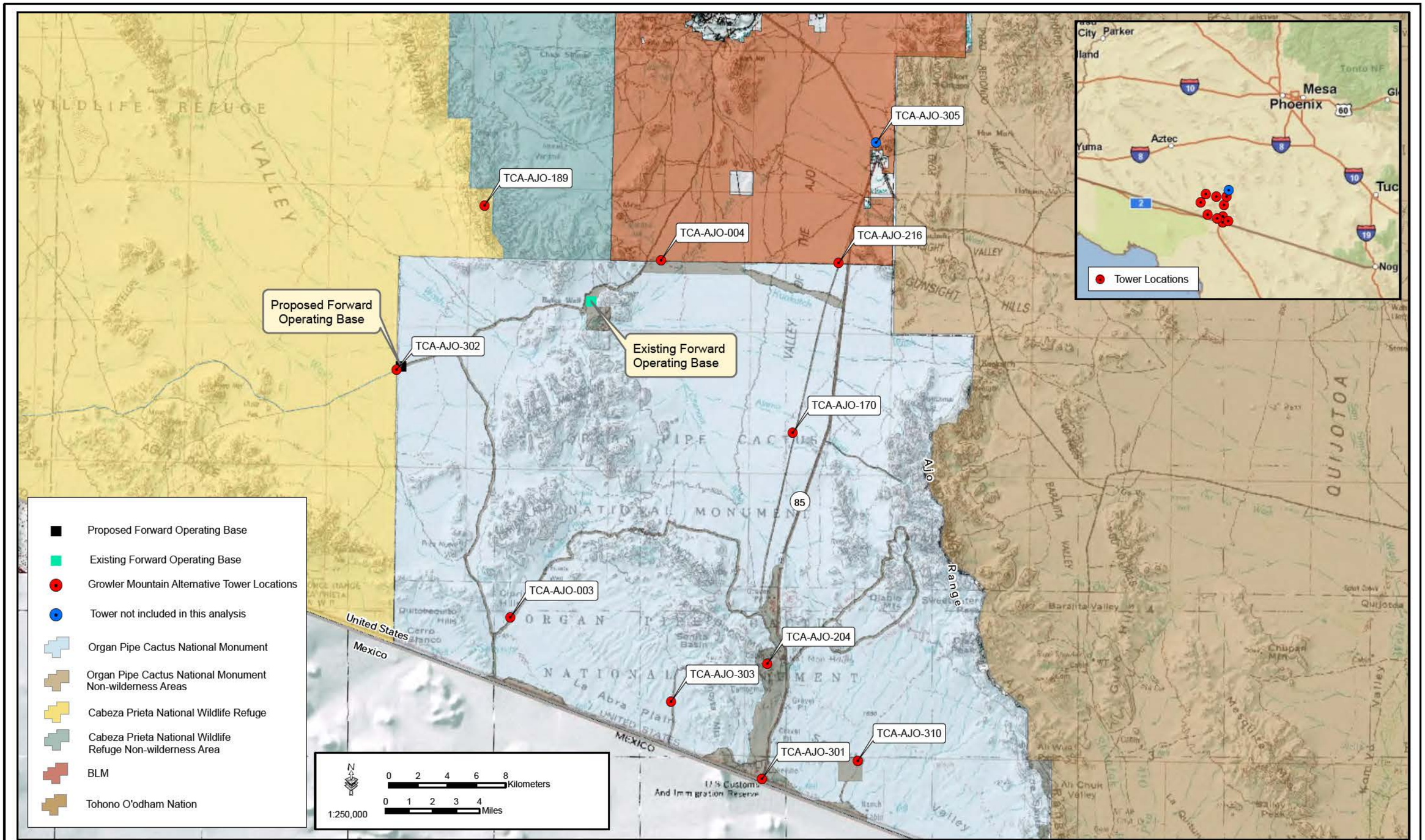

Figure 2-1: Growler Mountain Alternative Location Map

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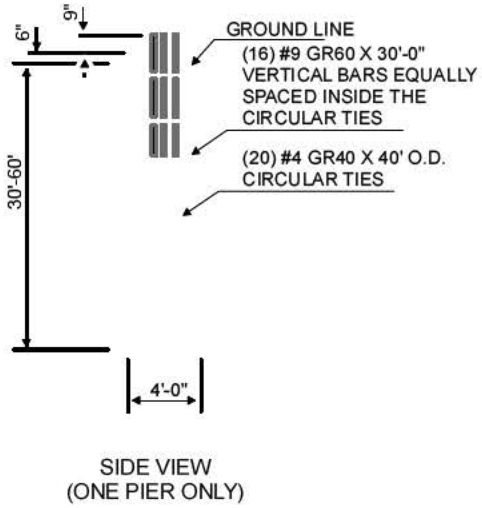


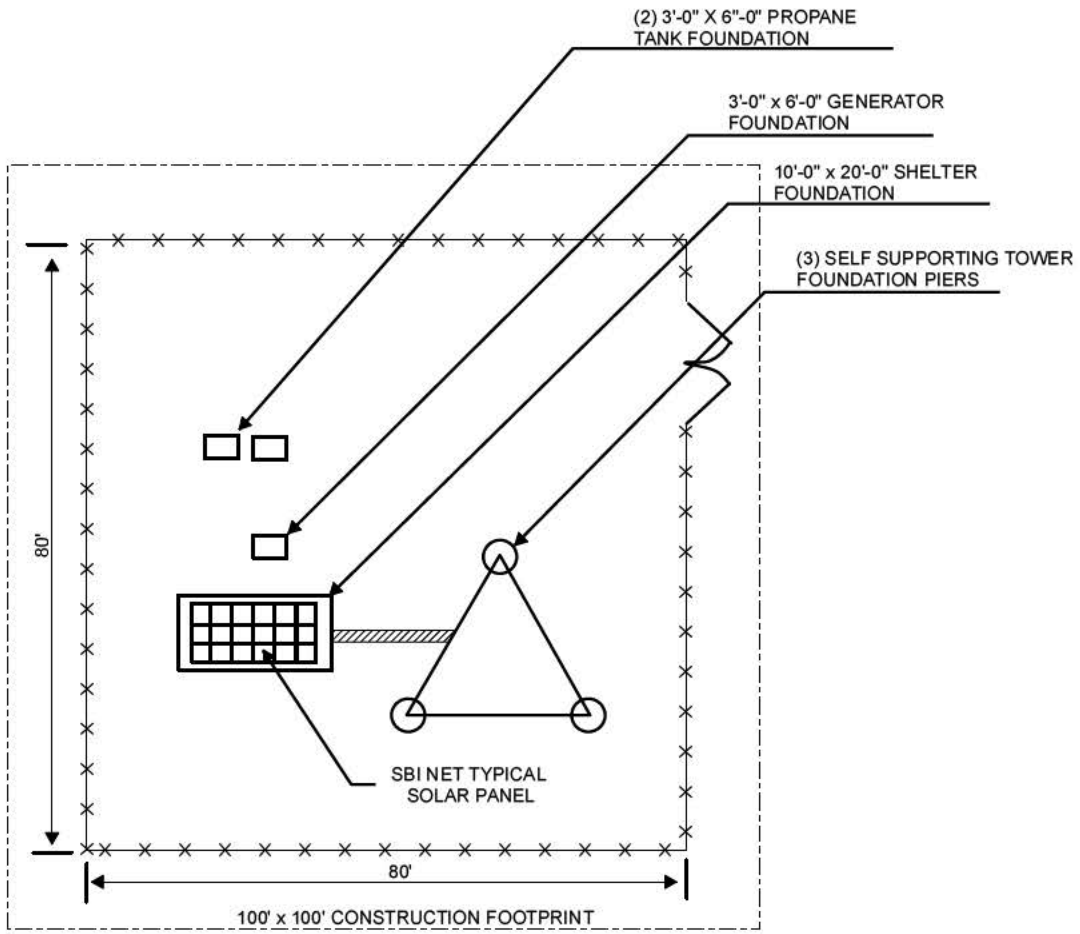
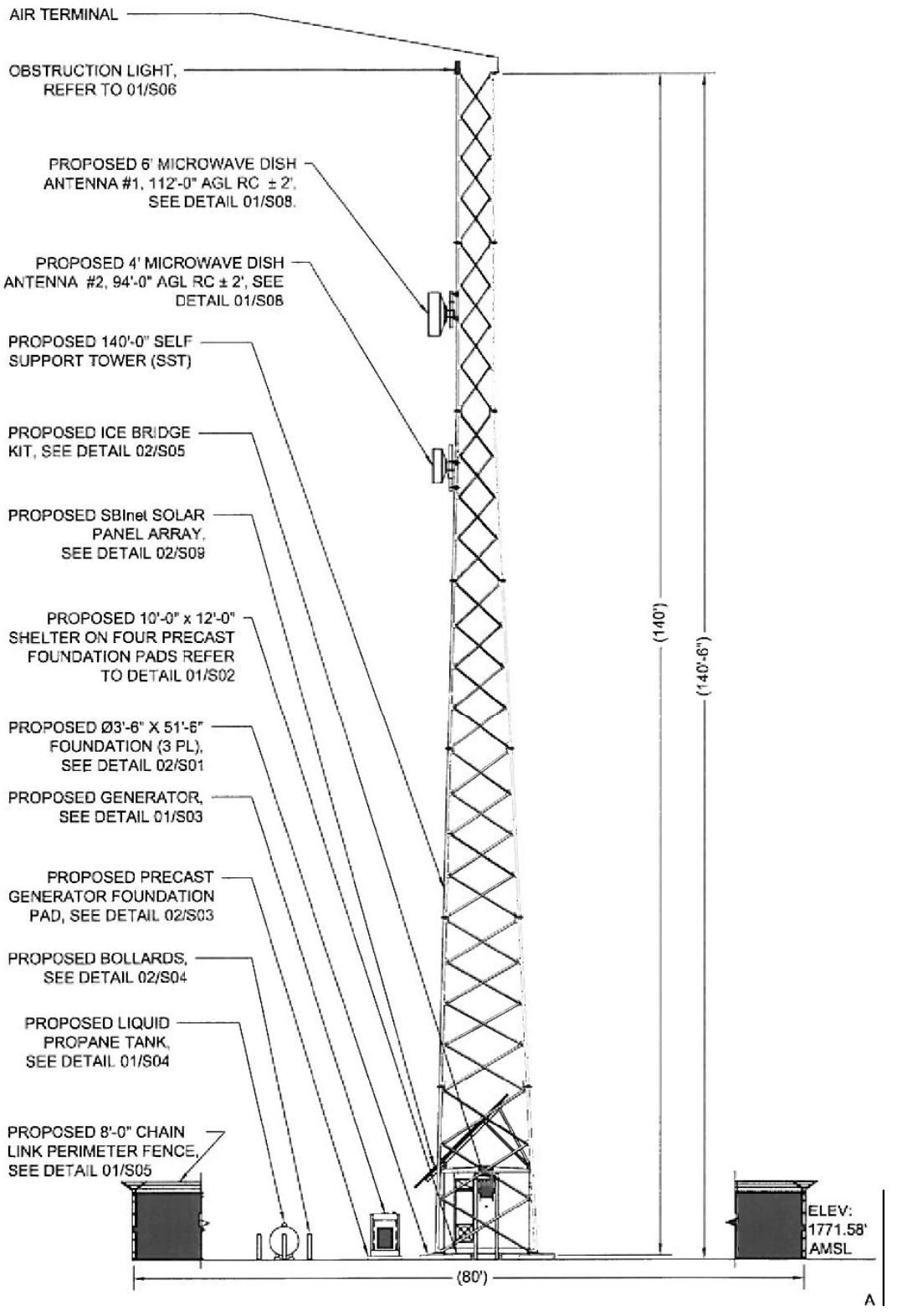


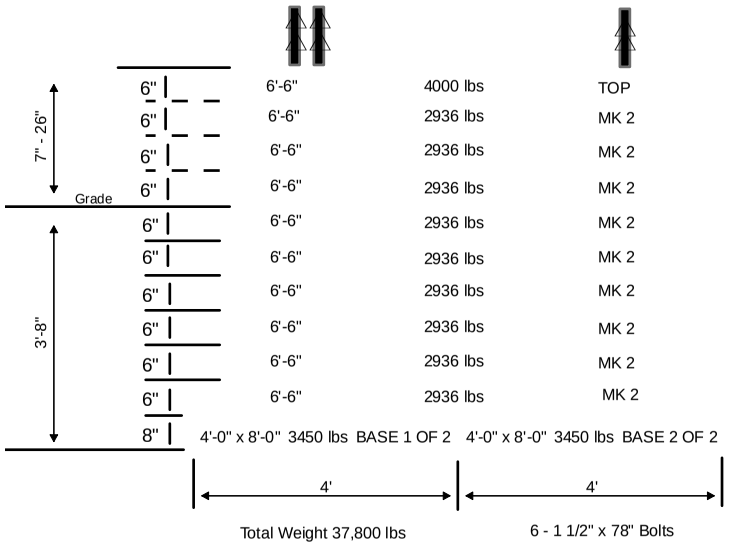
Figure 2-2: Self Standing Tower (SST) Schematic

BWT FOIA CBP 001741



Source: Boeing 2009

Figure 2-3: Typical Profile of SST Tower



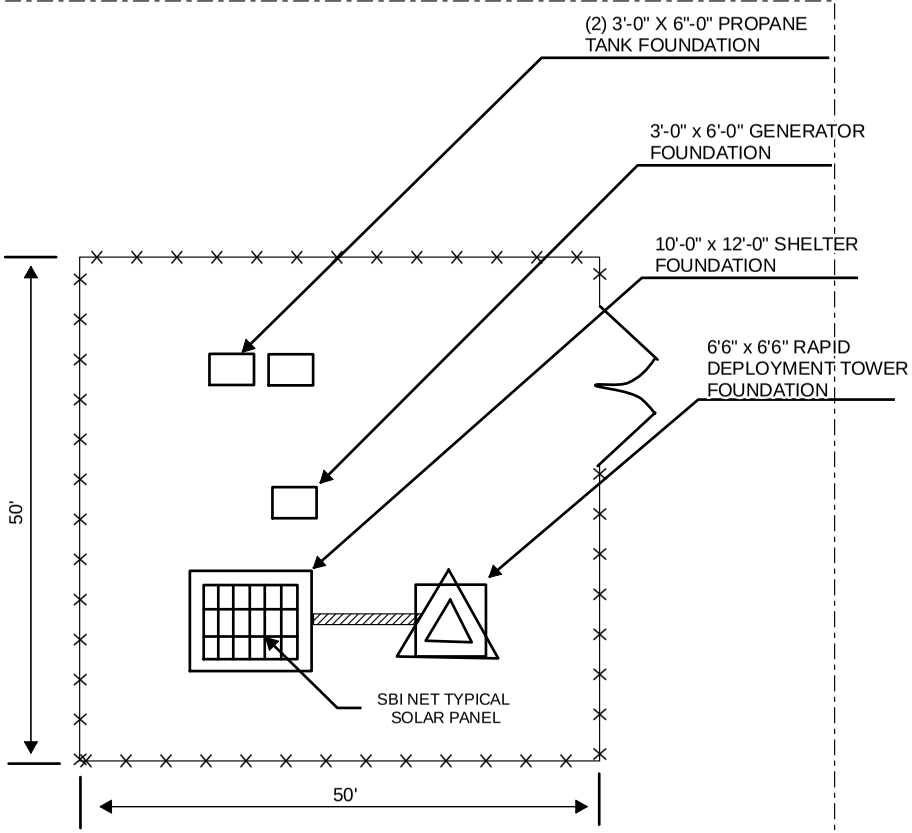
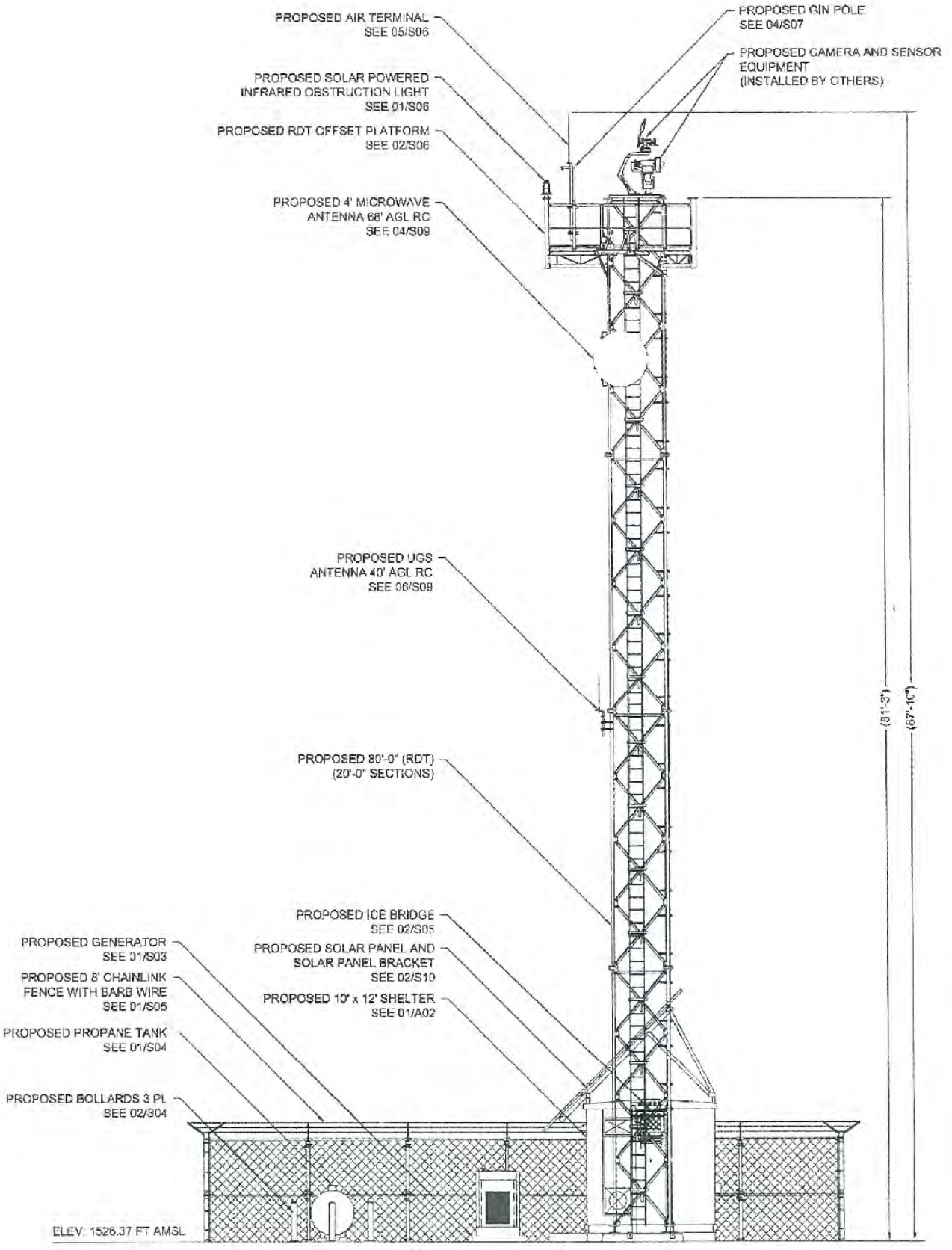


Figure 2-4: Rapidly Deployed Tower (RDT) Schematic

BW1 FOIA CBP 001743



Source: Boeing 2009

Figure 2-5: Typical Profile of RDT Tower

RATs are steel lattice style structures which have a rock anchor foundation system. The rock anchor foundation system consists of a steel lattice platform that serves as the interface between the tower structure and rock anchors. The foundation platform consists of structural grade steel square tubes, I-beams, and plates with an approximately 14- X 14-foot footprint (Figure 2-6). Approximately 6 inches of overburden soils and loose, disturbed or visibly fractured bedrock would be excavated to expose the rock sub-base. The rock sub-base would be leveled to prepare the site for foundation installation. The foundation platform would be installed above grade on approximately 6 inches of the material excavated for foundation preparation. A total of 12 1-inch rock anchors would be embedded approximately 20 feet into the rock sub-base in a circular pattern. Each anchor would be grouted in place to provide bonding adhesion to the rock. The foundation would be backfilled with approximately 6 inches of the previously excavated overburden material. A typical profile of a RAT tower is provided as Figure 2-7. This tower type is designed to be deployed in areas that lack vehicle access and require helicopter use. RAT towers would be used at proposed tower sites TCA-AJO-189 and 204 due to the lack of vehicle access. However, a 1.4 mile trail exists at proposed tower site TCA-AJO-204 and would be utilized for pedestrian access during construction and maintenance activities. RATs would typically be 28 to 40 feet in height. RDTs and RATs can be disassembled and relocated to other areas, as necessary. Deployment of either tower type to other sites would require additional or supplemental NEPA documentation, however.

Two main storage areas, as well as the individual staging areas at each proposed tower site would be utilized for tower and associated road work. Both main storage areas were addressed in the EA for the SBI*net* Tucson West Tower Project. The two main storage areas are located:

- at an existing 1-acre industrial warehouse facility in south Tucson near Interstate 10 (I-10), and would facilitate the construction of the proposed towers; and
- at an existing 1-acre warehouse facility in northeast Ajo near State Route 85 (SR 85).

Each tower would have the subsequent design, power requirements, and site and fence enclosure footprint described below, unless otherwise noted in the detailed proposed tower site discussions. Table 2-2 provides a summary of the pertinent information of each tower site and configuration.

Tower footprint

At a maximum, construction of RDT and SST tower sites would result in ground disturbance within a 100- x 100-foot area centered on the tower location. RAT towers would result in ground disturbance within a 35- x 35-foot area centered on the tower location. All staging of construction equipment and materials, if necessary would occur within this footprint during construction. The permanent tower site footprint would typically be 50- x 50-foot for RDTs, and 80- x 80-foot for SSTs, and 14- x 14-foot for RATs.

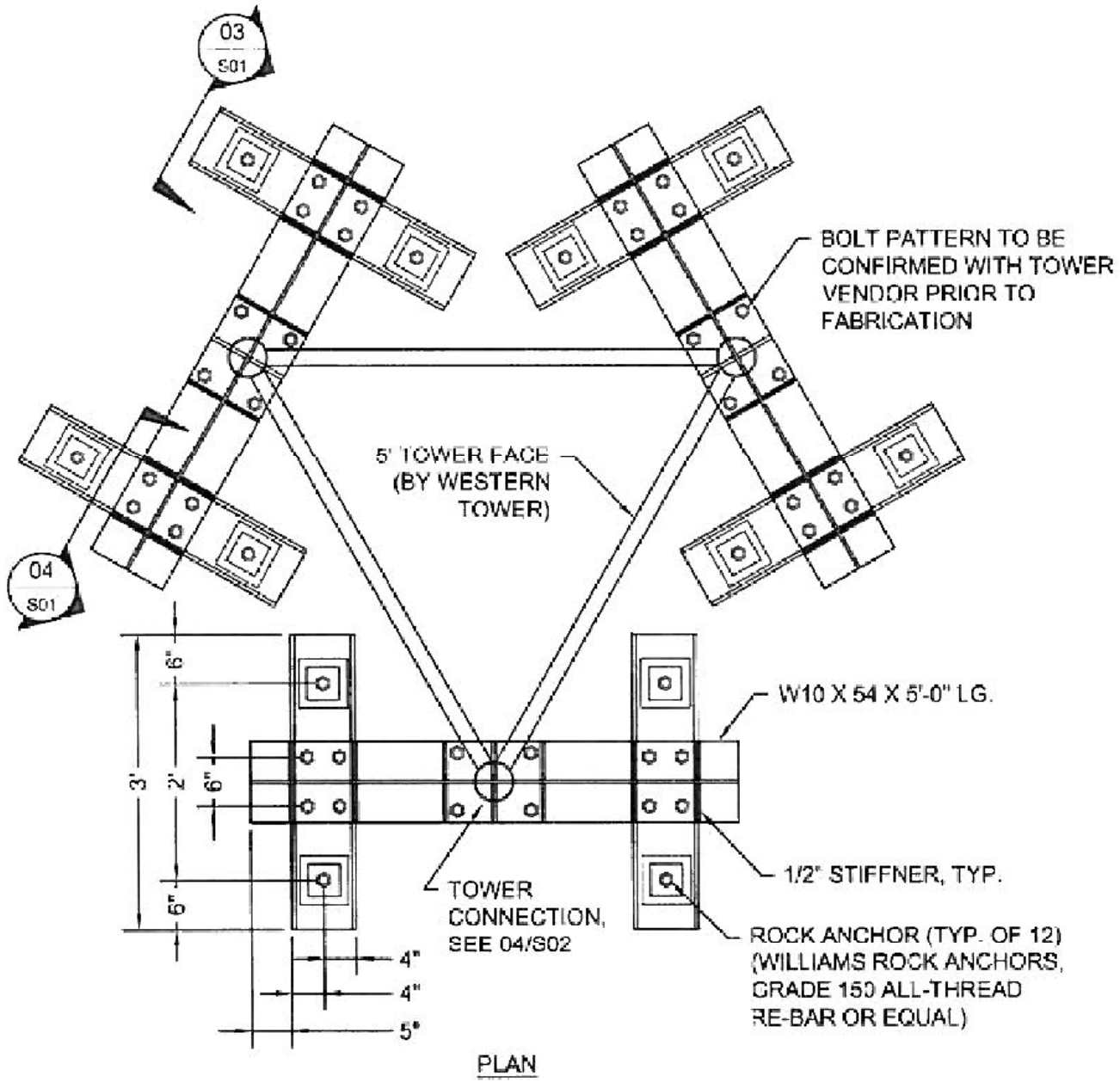
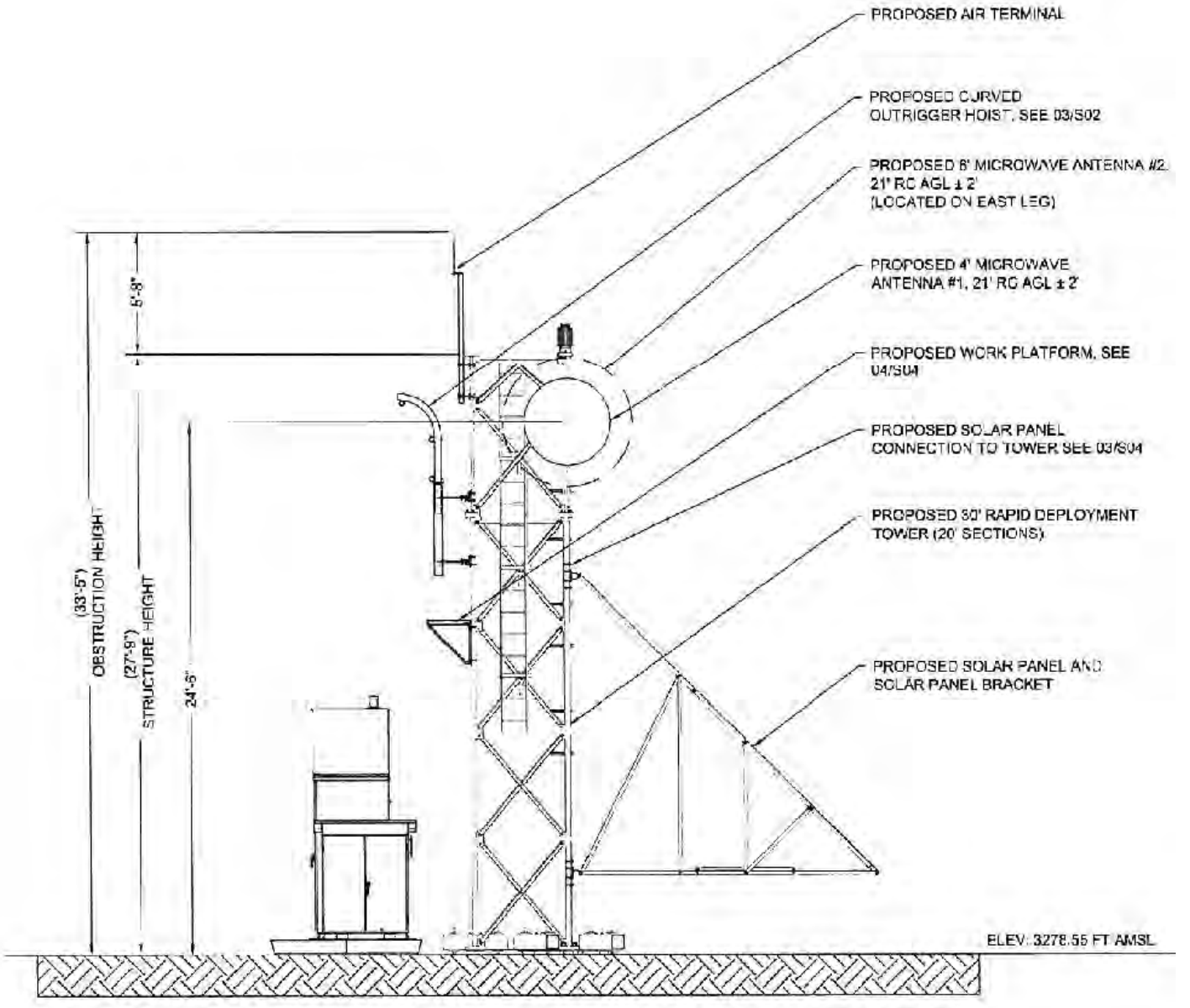


Figure 2-6: Remote Access Tower (RAT) Schematic

BW1 FOIA CBP 001746



Source: Boeing 2009

Figure 2-7: Typical Profile of RAT Tower

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Table 2-2. Proposed Action Tower Site Data and Configuration

Tower Name	TCA-AJO-003	TCA-AJO-004	TCA-AJO-170	TCA-AJO-189	TCA-AJO-204	TCA-AJO-216	TCA-AJO-301	TCA-AJO-302	TCA-AJO-303	TCA-AJO-310
Tower Type	**Type: RRVS**	**Type: RRVS-CRT**	**Type: RRVS-CRT**	**Type: CRT**	**Type: CRT**	**Type: RRVS-CRT**	**Type: CRT**	**Type: RRVS**	**Type: CRT**	**Type: RRVS**
Basic Site Conditions										
Construction staging/footprint area (temporary)	100' X 100' (0.17 acre)	100' X 100' (0.17 acre)	143.5' X 50' (0.10 acre)	35' X 35' (0.03 acre)	35' X 35' (0.03 acre)	100' X 100' (0.23 acre)	100' X 100' (0.08 acre)	100' X 100' (0.23 acre)	100' X 100' (0.08 acre)	100' X100' (0.23 acre)
Tower site footprint (permanent)	50' X 50' (0.06 acre)	50' X 50' (0.06 acre)	93.5' X 30' (0.06 acre)	14' x 14' (0.004 acre)	14' x 14' (0.004 acre)	50' X 50' (0.06 acre)	80' X 80' (0.15 acre)	50' X 50' (0.06 acre)	80' X 80' (0.15 acre)	50' X50' (0.06 acre)
Access road improvements and construction (length/width and surface treatment)	Access road construction (89' X16')	Access road construction (75' X16'), authorized road repair (3,197' X 12'); authorized road improvements (50' X 12') and install double gate	Authorized road improvement (50' X 12'), authorized corridor repair (23,358' X 12), and authorized corridor improvements (8,850' X 12'), installation of several 36'' culverts would be required	None needed	None needed	Access road construction (50' X 16'), and authorized road repair (350' X 12'), and authorized road improvements (50' x 12')	Access road construction (50' X 16')	Access road construction (99' x 16')	Access road construction (15' x 16') and road repair (9,061 x 12')	Access road construction (28' X 16'), new road construction (6,435' x 16), authorized road repair (8,090' X 12')and authorized road improvements (1,010' X 12'), install three culverts at small washes
Impact area associated with road construction, repair and improvement	Access road construction (0.03 acre)	Access road construction (0.03 acre), authorized road repair (0.88 acre), and authorized road improvement (0.01 acre)	Authorized Road Improvement (0.01 acre) and Authorized corridor repair and improvement (8.8 acres)	None needed	None needed	Access road construction (0.02 acre), and authorized road repair (0.10 acre), and authorized road improvements (0.01 acre)	Access road construction (0.02 acre)	Access road construction needed for (0.04 acre)	Access road construction (0.006 acre) and authorized road repair (2.5 acres)	Access road construction (0.01 acre), new road construction (2.4 acres), authorized road repair (2.2 acres), and authorized road improvements (0.28 acre)
Drainage structure requirements	None needed	None needed	None needed	None needed	None needed	None needed	None needed	None needed	None needed	None needed
Dimension, height, and type of security fence for this site	50' X 50' X 8' chainlink	50' X 50' X 8' chainlink w/barb wire	93.5'X30'X8' chainlink	NA	14' X 14' X 12' Chainlink	50' X 50' X 8' chainlink	80' X 80' X 8' chainlink	50' X 50' X 8' chainlink w/barb wire	80' X 80' X 8' chainlink	50' X 50' X 8' chainlink w/barb wire
Current land use at site	NPS	BLM	NPS	USFWS	NPS	BLM	GSA (CBP leased (POE))	NPS	NPS	ASTL
Tower Description										
Tower construction type	RDT	RDT	RDT	RAT	RAT	RDT	SST	RDT	SST	RDT
Tower height	Up to 120'	Up to 120'	Up to 120'	30'	40'	Up to 120'	180'	Up to 120'	180'	Up to 120''
Guy wires requirements	None needed	None needed	None needed	None needed	None needed	None needed	None needed	None needed	None needed	None needed
Recommended foundation for site	Stacked slabs	Stacked slabs	Stacked slabs	None needed	Stacked slabs at grade	Stacked slabs	3 concrete piers	Stacked slabs	3 concrete piers	Stacked slabs
Power Description										
Distance to commercial power or type of primary power	Generator-Solar	Generator-Solar	Grid Generator-Solar	Solar	Grid Solar	Grid Generator-Solar	Grid Generator-Solar	Generator-solar	Generator-Solar	Generator-Solar
Commercial power right-of-way	None needed	None needed	None needed	NA	NA	None needed	Existing	None needed	None needed	None needed

Table 2-2, continued

Tower Name	TCA-AJO-003	TCA-AJO-004	TCA-AJO-170	TCA-AJO-189	TCA-AJO-204	TCA-AJO-216	TCA-AJO-301	TCA-AJO-302	TCA-AJO-303	TCA-AJO-310
Generator fuel type	Propane	Propane	Propane	NA	NA	Propane	Propane	Propane	Propane	Propane
Fuel tank capacity for generator, if required	1,000	1,000	1,000	NA	NA	1,000	1,000	1,000	1,000	1,000
Amount of energy consumption from each tower site? (Anticipated percentage of generator use, percentage power from existing utility, alternate energy sources).	3,650 Kilowatt (kW)-hours/month	3,650 kW-hours/month	3,650 kW-hours/month	400 W-hours/month	400 W-hours/month	3,650 kW-hours/month	3,650 kW-hours/month	3,650 kW-hours/month	3,650 kW-hours/month	3,650 kW-hours/month

ASTL - Arizona State Trust Lands
NPS – National Park Service
BLM – Bureau of Land Management
GSA – Government Services Administration

The tower footprint would adhere to dimensions mentioned whenever possible at each proposed tower site, unless otherwise noted in the detailed proposed tower site discussion in Table 2-2. Proposed tower site TCA-AJO-170 would have a permanent tower site footprint of 93.5- x 30-foot per OPCNM requirements.

Tower Perimeter Fence Enclosure

The fence surrounding each tower site would be 80- x 80-foot x 8-foot high or 50- x 50-foot x 8-foot high chainlink with six strands of barbed wire, in a v-shape, at the top of the perimeter security fence enclosure surrounding the tower and its associated equipment shelter. However, proposed tower site TCA-AJO-204 would have a 35- x 35-foot x 12-foot high perimeter fence.

Perimeter fence footprint would be confined to dimensions previously stated for each tower site, unless otherwise noted in the detailed proposed tower site discussion (see Table 2-2). Per OPCNM requirements, the perimeter fence footprint at TCA-AJO-170 would be 93.5- x 30-foot. Perimeter fence would not be constructed at TCA-AJO-189 per DOI recommendations. Additionally, barbed wire would not be installed on the perimeter fences at proposed tower sites TCA-AJO-003, 170, 204, 216, 303, and 301 per DOI's recommendations.

Tower Equipment Shelter

A 10- x 12-foot equipment shelter would be within the perimeter fencing of each proposed tower site. The shelter would be installed on a precast concrete pad. The shelters would be air conditioned with an 18,000 British Thermal Unit system that would only operate when temperatures exceed 120 degrees Fahrenheit (expected less than 100 days per year). The equipment shelters would also be equipped with an air blower (130 watts) that forces filtered ambient air through the shelter for electronics cooling during normal tower operation.

Tower Power Sources

All towers would operate from a battery system and the batteries would be recharged by either commercial grid power (where available) with a propane fueled generator backup, a hybrid propane fueled generator-solar system, or solar powered. The type of power source used to maintain the battery system depends on the availability of commercial grid power and vehicular access to the proposed tower site. A 1,000 gallon propane fuel tank would be located at sites utilizing propane fueled generators. Generator-solar hybrid systems are expected to operate twice per day for up 2 to 4 hours for each start. Backup generators for towers connected to grid system should be limited to 1 hour twice a month for system conditioning, plus off-grid operational schedules if grid power is interrupted. Generators would be housed within an enclosure equipped with noise baffles and would have a spill containment basin with a volume five times that of the total engine fluids.

Commercial Grid Power

Commercial grid power would be utilized at proposed tower sites 170, 204, 216, and 301. All power lines would be installed either overhead or in buried cables from the

main trunk line to the tower site shelter[1]. The length of the overhead power lines from the existing main trunk line to the tower compounds would be no greater than approximately 65 feet. Where commercial power is utilized, the installation of overhead or buried lines would be placed within surveyed road construction buffer areas, all of which would be verified to identify potential impacts to biological and cultural resources along access roads.

Typical designs for the sensor and communications towers consist of the following components:

Sensor Towers

- Multiple cameras
- Radar
- Data receiving antennas

Communication Towers

- Parabolic dishes
- Microwave relays; and/or
- Data receiving antennas

The exact number and type of equipment would depend on the number and types of cameras used, the area to be monitored, and other design variables. Cameras, antennas, and parabolic antennas would be installed at heights that would ensure satisfactory line-of-sight and provide clear pathways for transmission of information to relay towers and the Ajo Station. Towers generally require line-of-sight (LOS) to ensure unobstructed microwave transmission signals from tower to tower. Currently, it is anticipated that the transmitters and sensors associated with the SBI*net* Ajo-1 Tower Project Supplement would operate below 30 gigaHertz (GHz).

Camera systems on SBI*net* towers would incorporate IZLID 200D and 200P Class IIIB infrared zoom laser illuminators. The use of this laser technology supports Office of Border Patrol's (OBP) strategic goal of incorporating "Smart Border" technology into its operations, to support apprehension and deterrence of smugglers of humans, drugs, and other contraband into the U.S. Laser illuminators would be used in USBP operations to enhance the use of night-time surveillance cameras on SBI*net* towers. Utilizing laser illuminator technology, agents can respond more quickly to night-time border incursions and assess specific CBV activity through enhanced situational awareness that the lasers provide.

The lasers would be used in accordance with a February 22, 2006 user variance and user restrictions letter (Food and Drug Administration [FDA] Docket No. 00V-1410)

[1] Although four of the proposed tower sites, TCA-AJO-170, 204, 216, and 301, would be powered by commercial grid power there may be instances when commercial power may not be available immediately upon tower deployment. In that case, the power source would be supplied by a 35 kW generator hybrid system until the commercial power infrastructure is in place.

issued by the FDA's Department of Health and Human Services, and a June 4, 2008 CBP/OBP Information and Technology Branch's "Authorization for Class IIIB Lasers", which sets forth laser illuminator use parameters, restrictions, and conditions. Use of laser illuminators by CBP is currently undergoing further safety review and approval procedures with the FDA and would not be deployed until FDA approval is completed.

All proposed towers would have infrared lighting installed for aviation safety and lighting would be compatible with night vision goggle usage. All proposed tower sites, with the exception of TCA-AJO-189 and 204, would be lighted for security purposes. Lighting would consist of a "porch light" on the tower shelter and would be controlled by a motion detector. The light would be shielded to avoid illumination outside the footprint of the tower site and low sodium bulbs would be used. None of the towers currently planned would be constructed at heights greater than 180 feet; therefore, Federal Aviation Administration (FAA) lighting requirements do not apply to the proposed project. USFWS (2000) *Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers* would be implemented to reduce night-time atmospheric lighting and the potential adverse effects of night-time lighting to migratory bird and nocturnal flying species.

The following discussion is a summary description of each of the proposed 10 towers. Maps for each of the proposed tower sites are provided in Appendix C.

Tower ID:	**TCA-AJO-003**
Type of Tower:	Radar and Remote Video System (RRVS)
Tower Foundation:	RDT
Tower Height:	Up to 120 feet
Land Use:	NPS (i.e., OPCNM)
Location Description:	The proposed tower site for TCA-AJO-003 is located within the OPCNM in southwestern Pima County, approximately 3 miles north of the U.S.-Mexico border, and 13 miles northwest of the Lukeville POE (see Figure 2-1). The proposed tower compound is approximately 0.2 mile east of Aguajita Wash.
Tower Access:	Access to the proposed tower site is via South Puerto Blanco Drive. Approximately 89 feet of access road construction is needed to facilitate tower installation and maintenance.
Type of Primary Power:	Generator-Solar hybrid
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

Tower ID:	**TCA-AJO-004**
Type of Tower:	RRVS-CRT (communications relay tower; combined radar and communications tower)
Tower Foundation:	RDT
Tower Height:	Up to 120 feet
Land Use:	BLM
Location Description:	The proposed tower site for TCA-AJO-004 is located on BLM land immediately north of the OPCNM border. The site is approximately 20 miles north of the U.S.-Mexico border and 23 miles northwest of the Lukeville POE (see Figure 2-1) at the western edge of the Valley of the Ajo, east of Scarface Mountain and west of the Cuerda de Lena Wash.
Tower Access:	Access to the proposed site is via Darby Well Road south from Ajo and then east on 59.4 Cross Over Road on the OPCNM. Approximately 3,197 feet of authorized road repair, approximately 50 feet of authorized road improvements, and approximately 75 feet of access road construction is needed to facilitate tower installation and maintenance. Additionally, a double gate would be installed to limit access.
Type of Primary Power:	Generator-Solar hybrid
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

Tower ID:	**TCA-AJO-170**
Type of Tower:	RRVS-CRT
Tower Foundation:	RDT
Tower Height:	Up to 120 feet
Land Use:	NPS (i.e., OPCNM)
Location Description:	The proposed tower site for TCA-AJO-170 is located within the OPCNM approximately 15 miles north of the U.S.-Mexico border and the Lukeville POE (see Figure 2-1).
Tower Access:	Access to the site would be via an unpaved, unmaintained road that branches off SR 85 about 15 miles north of Lukeville. Approximately 23,358 feet of authorized corridor repair, approximately 8,850 feet of authorized corridor improvements, and 50 feet of authorized road improvements are needed for tower installation and maintenance.
Type of Primary Power:	Grid and Generator-Solar hybrid backup
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

Tower ID:	**TCA-AJO-189**
Type of Tower:	CRT
Tower Foundation:	RAT
Tower Height:	30 feet
Land Use:	CPNWR (Cabeza Prieta Wilderness)
Location Description:	The proposed tower site for TCA-AJO-189, is located in the CPNWR, approximately 17 miles west of SR 85 (see Figure 2-1).
Tower Access:	The proposed tower site requires helicopter access as the steepness and ruggedness of the terrain precludes access by vehicles.
Type of Primary Power:	Solar
Lighting:	Infrared obstruction lighting.

Tower ID:	**TCA-AJO-204**
Type of Tower:	CRT
Tower Foundation:	RAT
Tower Height:	Approximately 40 feet
Land Use:	NPS (i.e., OPCNM)
Location Description:	The proposed tower site for TCA-AJO-204, is located in the OPCNM, approximately 5 miles north of the Lukeville POE (see Figure 2-1).
Tower Access:	The proposed tower, TCA-AJO-204 is currently planned to be installed via helicopter airlift. Construction, biological monitoring, and maintenance personnel will access the proposed tower site via a foot trail.
Type of Primary Power:	Grid and Solar panels
Lighting:	Infrared obstruction lighting.

Tower ID:	**TCA-AJO-216**
Type of Tower:	RRVS-CRT
Tower Foundation:	RDT
Tower Height:	Up to 120 feet
Land Use:	BLM
Location Description:	The proposed tower site for TCA-AJO-216 is located approximately 14 miles south of Ajo, Arizona, and can be reached from SR 85 and is adjacent to OPCNM (see Figure 2-1).
Tower Access:	Access to the proposed site is via an existing unimproved boundary road adjacent to the OPCNM. Approximately 350 feet of authorized road improvements, approximately 50 feet of road improvements, approximately 50 feet of access road construction, and approximately 350 feet of authorized road repair are needed to facilitate tower installation and maintenance.
Type of Primary Power:	Grid and Generator-Solar hybrid
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

Tower ID:	**TCA-AJO-301**
Type of Tower:	CRT
Tower Foundation:	SST
Tower Height:	Approximately 180 feet
Land Use:	CBP leased land at the Lukeville POE
Location Description:	The proposed tower site for TCA-AJO-301 is located at the Lukeville POE at the southern border of the OPCNM (see Figure 2-1). The proposed tower compound is within a disturbed open area surrounded by ornamental hedges.
Tower Access:	TCA-AJO-301 is approached from the town of Why via SR 85 to the Lukeville POE and is accessed via a paved road that winds through the existing facility buildings. Approximately 50 feet of access road construction is needed to facilitate tower installation and maintenance.
Type of Primary Power:	Grid and Generator-Solar hybrid
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

Tower ID:	**TCA-AJO-302**
Type of Tower:	RRVS
Tower Foundation:	RDT
Tower Height:	Up to 120 feet
Land Use:	NPS (i.e., OPCNM)
Location Description:	The proposed tower site for TCA-AJO-302 is located at the western border of the OPCNM, adjacent to the CPNWR.
Tower Access:	Approach to TCA-AJO-302 would be via Bates Well Road (El Camino del Diablo), an unpaved OCPNM-maintained road that is reached from SR 85. Approximately 99 feet of access road construction is needed for tower installation and maintenance.
Type of Primary Power:	Generator-Solar hybrid
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

Tower ID:	**TCA-AJO-303**
Type of Tower:	CRT
Tower Foundation:	SST
Tower Height:	Approximately 180 feet
Land Use:	NPS (i.e., OPCNM)
Location Description:	The proposed tower site for TCA-AJO-303 is located within OPCNM approximately 2 miles north of the U.S.-Mexico border and 5 miles northwest of the Lukeville POE (see Figure 2-1).
Tower Access:	The site may be approached from the Lukeville POE via the South Puerto Blanco Road, and is accessed via a maintained NPS road approximately 4.1 miles west of the Lukeville POE. Approximately 9,061 feet of authorized road repairs and approximately 15 feet of access road construction within the tower compound may be necessary for tower installation and maintenance.
Type of Primary Power:	Generator-Solar hybrid
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

Tower ID:	**TCA-AJO-310**
Type of Tower:	RRVS
Tower Foundation:	RDT
Tower Height:	Approximately 80 feet
Land Use:	NPS (i.e., OPCNM) and ASTL
Location Description:	The proposed tower site for TCA-AJO-310 is located within OPCNM and ASTL 2.4 miles north of the U.S.-Mexico border and 3.8 miles east of SR 85 (see Figure 2-1).
Tower Access:	The site may be approached from the Lukeville POE via the existing border road, and is accessed by an existing jeep trail. Approximately 28 feet of access road construction, approximately 6,435 feet of new road construction, approximately 8,090 feet of authorized road repair, and approximately 1,010 feet of authorized road improvements are needed for tower installation and maintenance.
Type of Primary Power:	Generator-Solar hybrid
Lighting:	Security lighting with motion detector and infrared obstruction lighting.

2.3.2 Construction of Communication and Sensor Towers

RDTs and SSTs

The permanent tower site footprints of 50- x 50-foot or 80- x 80-foot would be mechanically cleared of vegetation and graded for the construction of RDT and SST sites, respectively. Precast concrete pads would be installed for the equipment shelter foundation, propane gas tank foundation, and generator foundation. A 100- x 100-foot temporary construction buffer site, including the permanent tower footprint, would be established around the permanent site footprint and all materials and construction equipment would be staged in this area during construction activities (Figure 2-8). All construction vehicle and equipment parking would be done within the 100- x 100-foot temporary construction buffer. Additional construction vehicles would be parked along authorized roads near the proposed tower sites. Every effort would be made to reduce personnel and vehicle traveling to the sites. Car pools would be staged from Ajo and Why, if necessary. The buffer may be cleared, but would not be graded. If it is cleared, following construction activities, the construction buffer would be revegetated at the discretion and under the direction of the land manager with a mixture of native plant seeds or nursery planting (or both) derived from acceptable sources as determined by the corresponding land manager per the Erosion and Sediment Control Plan provided in the construction plans for each tower site.

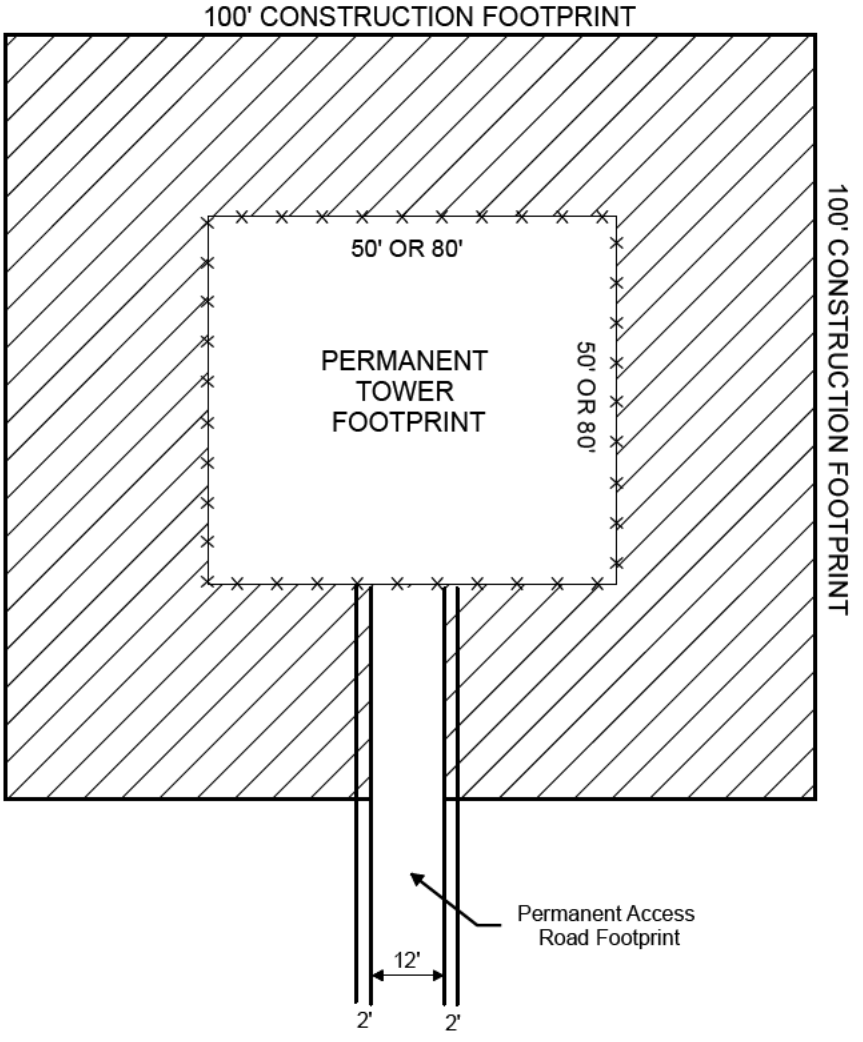

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Figure 2-8: Tower Construction Footprint

The following is a list of heavy equipment and vehicles expected to be used during each phase of RDT and SST tower construction:

Civil Phase (Installation of tower, shelter, generator, etc.)
- Front-end loader or equivalent (1)
- Drill Rig (1)
- Excavator (1)
- Water truck (1)
- Crane (1)
- Bulldozer (1, as needed)
- Dump trucks (up to 3, as needed)

Flatbed delivery truck (up to 3 and trailers): The type of truck required varies with site conditions, material needs (i.e., shelter, tower, LP tanks, solar panels, microwave dishes, etc.)

Fence and Parking Area Construction Phase
- Small Excavator (1)
- Post pole digger (1)
- Crew trucks (approximately 6)

Tower Site Construction Check-out Phase
- Crew trucks (approximately 8)

Sensor Installation Phase
- Crew trucks (approximately 6)

Integrated Site Functional Check-out Phase
- Crew trucks (approximately 3)

Radar Characterization and System Checkout Phase
- Crew trucks (approximately 4)

System Acceptance Test Phase
- Crew trucks (approximately 4)

Site Security (All Phases)
- Crew trucks (approximately 1)

RATs

Clearing, grading, and leveling would be required to install RAT sites. The RAT sites would have a permanent site footprint of 14- x 14-foot and a 35- x 35-foot temporary construction buffer around the permanent site footprint. Vegetation in the permanent tower footprint and temporary construction buffer would be removed if required for construction purposes. The temporary construction buffer would be revegetated.

Deployment of proposed tower sites TCA-AJO-189 and 204 would require helicopter use. A Kaman K-Max helicopter with a lift capacity of 6,000 pounds would be used to transport construction materials, equipment, and supplies and a Bell Jet Ranger helicopter (1,000 pound payload) would be used to transport construction and biological monitoring personnel. Helicopter lift locations would be at the Ajo airport for proposed tower site TCA-AJO-189 and the Tiger Pit on OPCNM for proposed tower site TCA-AJO-204. A 5-week build cycle is anticipated for each proposed RAT tower site. CBP estimates that construction of proposed tower sites TCA-AJO-204 and 189 would require up to 22 total lifts for equipment and materials per tower and approximately 63 total lifts for personnel during build cycle at proposed tower site TCA-AJO-189. Thus, a total of approximately 85 lifts would be required to construct proposed tower site TCA-AJO-189 and approximately 22 lifts would be required to construct proposed tower site TCA-AJO-204. A helicopter lift sequence for proposed tower site TCA-AJO-189 is provided in Table 2-3.

The following is a list of equipment and power tools expected to be used during the construction of RAT towers:

- Small excavator or Bobcat type vehicle
- Air compressor
- Jack hammer
- Portable generator
- Small rock drill rig
- Electric drill
- Electric grinder
- Electric saw
- Jumping jack

The total time for all phases of construction, including testing, for each proposed tower site is expected to be approximately 26 to 80 days depending on the tower type and would occur during daylight hours. Generally, RDTs would require up to 40 days, SSTs would require up to 80 days (this includes a 28 day concrete set), and RATS would require up to 26 days to be constructed. Construction activities are anticipated to begin in January 2010. It is anticipated that up to five vehicle trips per day would occur during tower construction. Currently, it is anticipated that sensor payload installation on the proposed towers would occur in Sonoran pronghorn (*Antilocapra americana sonoriensis*) habitat during the Sonoran pronghorn closure season (March 15 to July 31). The installation of the sensor payload would require 2 days per tower site and include up to 12 people, and delivery truck and personnel vehicles.

Following the completion of the sensor payload installation, testing and system acceptance testing would be conducted as part of construction activities to check the operability of the sensor and communication system. Sensor and communication acceptance testing would require 2 days each per tower site and would include 6 to 12 people. Site functional check out would require 2 days per tower site and would include

Table 2-3. Helicopter Lift Sequence for Proposed Tower Site TCA-AJO-189

Construction Phases	Activities	Duration in Days	Minimum Number of Lifts					
			Construction/Equipment/Material					Personnel Lifts *
			Description	Purpose	Weight	Duration on site	Lift	
Civil Layout	A&B work, Flag/tag	1	Toilet, Survey Equipment, Install SWPPP measures	Lay out and set up the site for construction.	1000	20 days	1	3
	Establish site with basics (toilet, some tools)							
	SWPPP measures							
Civil 1	Lift required tools to site	3	Mini Excavator	Earthwork and assembly	6000	20 days	3	9
	Clear ground		Air Compressor (Atlas Copco 18 CFM), Rock Saw, Rock Drill, Chipping Hammers, Core Drill, Misc Tools	Prepare site, assembly	3000	12 days		
	Drill anchor points		Jobox, Generator, Fuel, Gin Pole, Grounding Equipment	Assembly	3000	20 days		
Tower Installation	Equipment foundation blocks	2	Base Foundation Wafer #1 w/ Anchor Bolts	Assembly	6000	Permanent	4	6
	Locate and anchor equipment		Base Foundation Wafer #2 w/ Anchor Bolts	Assembly	6000	Permanent		
	Erect Tower		30' RDT Assembly, Climbing Ladder w/ Safety Climb, Transmission Line Brackets, Antenna Mount, Air Terminal Kit Mounting Hardware	Assembly	3000	Permanent		
			Set Tower	Assembly	2000	Permanent		

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Table 2-3, continued

Construction Phases	Activities	Duration in Days	Minimum Number of Lifts					
			Construction/Equipment/Material					Personnel Lifts *
			Description	Purpose	Weight	Duration on site	Lift	
Grounding System Installation	Dig trench	3	No Equipment Lifts Needed	Assembly	N/A	N/a	0	9
	lay grounding ring							
	Make welds/preliminary connections							
	Grounding Inspections							
	Backfill trench							
	ETPs for grounding							
Power System Installation	Install and test batteries	5	Battery Cabinet #1 (assembled), Installation Materials	Assembly	5000	Permanent	9	15
	Install solar panels		Battery Cabinet #2 (assembled), Installation Materials	Assembly	5000	Permanent		
	Install controls		8 Solar Panel Frames, 12 Solar Panel Frames	Assembly	2500	Permanent		
	Run cables		Water Tank (with Water)	Assembly	5000	Permanent		
	Connect to grounding		Carmanah Light, Air Terminal Kit (hardware already installed on tower), 8 Solar Panels, 12 Solar Panels, Electronics Rack	Assembly	1500	Permanent		
	ETPs for power		Set Battery Cabinet #1	Assembly	5000	Permanent		
			Set Battery Cabinet #2	Assembly	5000	Permanent		
			Set Equipment Foundation #1	Assembly	6000	Permanent		
			Set Equipment Foundation #2	Assembly	6000	Permanent		

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Table 2-3, continued

Construction Phases	Activities	Duration in Days	Minimum Number of Lifts					
			Construction/Equipment/Material					Personnel Lifts *
			Description	Purpose	Weight	Duration on site	Lift	
Communications System Installation	Hang dishes Connect waveguides Terminate connections Preliminary alignments ETP testing procedures	3	2 Microwave Dishes (6 inch), 2 Radios, 2 Cables	Assembly	1000	Permanent	1	9
Civil 2	Clean site	1	Remove Mini Excavator	Move earth	6000	20 days	4	3
			Air Compressor (Atlas Copco 18 CFM), Rock Saw, Rock Drill, Chipping Hammers, Core Drill, Misc Tools	Remove Tools	3000	12 days		
	Remove equipment, parts, packaging		Jobox, Generator, Fuel, Gin Pole, Package Material, Remaining Site Tools	Remove Tools	3000	20 days		
			Remove SWPPP Measures, Remove Toilet	Remove equipment	1000	20 days		
Restoration, Test, and Acceptance	Power up all components Align dishes ETPs Boeing walkthrough Punch list Remove SWPPP measures Revegetate, return site to natural state per contract	3	No Equipment Lifts Needed	Acceptance of site	N/A	N/A	0	9
	TOTAL	21					22	63
TOTAL HELO LIFTS FOR CONSTRUCTION 85								

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12 people. System acceptance testing would require personnel walking multiple routes near different towers for a 2- to 3-hour period. Testing personnel would walk individually and as a group. System acceptance testing would occur during a 28-day period for all sites. Testing personnel would use vehicles on authorized roads to travel to walking routes identified by CBP; however, the identified routes would be traveled on foot. It is anticipated that testing and system acceptance testing would occur during the Sonoran pronghorn closure season. CBP will attempt, to the extent practicable, to accomplish testing prior to March 15, especially at proposed tower sites TCA-AJO-003 and 302.

2.3.3 Operation and Maintenance of Communication and Sensor Towers

The hybrid propane generator-solar systems are expected to operate a total of 4 to 8 hours per day to bulk charge system batteries. Run times would be shorter on sunny days, when the solar array would provide more of the system operating power. Generator run times for systems connected to the commercial power grid would be limited to 1 hour twice per month for maintenance purposes, system conditioning, and off-grid operational schedules if grid power is interrupted, backup generators would temporarily be operated, as needed, until grid power is again available.

Tower site maintenance would include refueling of propane generators, as well as changing oil, oil filter, and spark plugs. This necessitates vehicle travel to each of the proposed tower sites for propane delivery, maintenance, and operations of the proposed towers. The number of maintenance trips and refueling trips varies depending on tower type (i.e., sensor) and power type (i.e., commercial grid power). Sensor towers require more maintenance and fuel than communication towers as do towers powered by generator/solar systems (Table 2-4). Maintenance personnel would typically use a 0.5 or 0.75 ton four-wheel drive pickup truck with single rear tires to travel to each tower site accessible by road (Boeing 2009). A minimum of four qualified maintenance personnel would attend each maintenance visit. It is anticipated that one vehicle trip to and from each of the proposed tower sites would be required per maintenance visit. Tower sites connected to commercial grid power would require maintenance six or 13 times a year depending on tower function (Table 2-4). Tanker trucks with dual rear tires and/or rear dual axles with a gross vehicle weight (GVW) of 30,000 pounds would be used to deliver fuel to each applicable tower. A total of approximately 191 vehicle trips per year would occur for tower maintenance and refueling (Table 2-4).

Table 2-4. Summary of Annual Vehicle Trips Required for Tower Maintenance and Refueling for the Proposed Action

Tower	Type	Function	Power Source	Maintenance Trips	Refueling Trips	Total
TCA-AJO-003	RDT	Sensor	Generator/Solar	24	12	36
TCA-AJO-004	RDT	Sensor	Generator/Solar	24	12	36
TCA-AJO-170	RDT	Sensor	Grid and Generator/Solar	13	1	14
TCA-AJO-216	RDT	Sensor	Grid and Generator/Solar	13	1	14
TCA-AJO-301	SST	Comm	Grid and Generator/Solar	6	1	7
TCA-AJO-302	RDT	Sensor	Generator/Solar	24	12	36
TCA-AJO-303	SST	Comm	Generator/Solar	6	6	12
TCA-AJO-310	RDT	Sensor	Generator/Solar	24	12	36
TOTAL				134	57	191

Boeing 2009
Comm = Communications

RAT sites would require maintenance up to four times per year. Maintenance at proposed tower site TCA-AJO-189 would require four helicopter trips per year. It is anticipated that maintenance personnel would access proposed tower site TCA-AJO-204 on foot via a foot trail. However, maintenance personnel may not be able to carry some equipment necessary for routine maintenance and an occasional helicopter lift may be required for maintenance. Additionally, helicopter lifts would be required at proposed tower site TCA-AJO-204 for battery replacements; however, at this time the frequency of battery replacement is unknown and would depend on tower power requirements and weather conditions. Any helicopter lifts required for maintenance at proposed tower site TCA-AJO-204 would be coordinated with the OPCNM superintendent. Maintenance of all tower sites would be minimized to the extent practicable and conducted in accordance with the maintenance plan for the Ajo-1 Tower Project (Boeing 2009). Currently, CBP's Office of Information Technology maintains a repeater tower on Growler Mountain. To the extent practicable CBP would conduct maintenance at proposed tower site TCA-AJO-189 and the existing repeater site at the same time to reduce helicopter flights in Cabeza Prieta Wilderness. Helicopter flights for maintenance activities would originate from Tucson. Maintenance flights would be coordinated through the USBP Tucson Sector's Public Lands Liaison Agent.

2.3.4 Road and Corridor Construction, Repair, Improvement, and Maintenance

Repair and improvements of authorized roads and an authorized corridor would be required to move construction equipment, materials, and personnel to and from the proposed tower sites during construction (see Table 2-2). Authorized roads are existing roads used for public access. The authorized corridor is a power line ROW and is not open to the public. Maps depicting authorized road improvements, authorized road repairs, authorized corridor repair, authorized corridor improvements, access roads, and new road segments at each proposed tower site are provided in Appendix C. Access road construction would be required to provide access from authorized roads to the proposed towers sites. All authorized roads and the authorized corridor would be maintained to allow access for routine tower maintenance activities.

SBI*net* has developed the following road construction and maintenance plan for the authorized road and corridor segments associated with the SBI*net* Ajo-1 Tower Project.

- SBI*net* will fund OPCNM to repair and/or improve the authorized road to proposed tower site TCA-AJO-310 and authorized corridor to proposed tower site TCA-AJO-170. All other authorized roads associated with the SBI*net* Ajo-1 Tower Project would be bladed to allow for construction equipment access only when deemed appropriate and necessary by the land manager.
- CBP (Facility Management and Engineering) will maintain roads, as determined by OBP, as part of the comprehensive maintenance plan discussed under road and corridor maintenance beginning in the summer of 2010. The purpose of the study is to identify those roads susceptible to degradation and provide methods to upgrade these roads to prevent potential degradation of natural resources.
- CBP (Facility Maintenance and Engineering) will conduct an engineering study of roads associated with the SBI*net* Ajo-1 Tower Project. It is anticipated the engineering study would be completed in the spring of 2010.
- Tucson Sector (Project Development Team) and OPCNM will collaborate on what roads are needed to support TI on OPCNM and OBP will prioritize to CBP (Facility Maintenance and Engineering) which roads to upgrade based on the engineering study. CBP will provide OPCNM with a detailed plan for road upgrades for 2010 and beyond.

Road and Corridor Repairs

A total of four authorized roads would require repairs along a total of 3.9 linear miles of road segments. These authorized roads are associated with proposed tower sites TCA-AJO-004, 216, 303 and 310 (see Table 2-2 and Appendix C). Additionally, 4.4 linear miles along the authorized corridor to proposed tower TCA-AJO-170 would be repaired. Repairs include minor grading, leveling, and installation of nuisance drainage structures (i.e., graded low water crossings). An archaeologist would be present during ground disturbing activities in previously undisturbed areas to monitor construction activities. All existing authorized roads are currently accessible by four-wheel drive vehicles; thus, repair is only needed to allow passage of heavy construction equipment. All repaired road segments would be graded to a maximum driving surface width of 12 feet within the existing alignment of the road and would include a 2-foot temporary construction easement on each side of the road. Following construction activities, the 2-foot temporary construction easement would be revegetated at the discretion and under the direction of the land manager with a mixture of native plant seeds or nursery planting (or both). Seeds and plants would be obtained from acceptable sources as determined by the corresponding land manager per the Erosion and Sediment Control Plan provided in the construction plans for each tower site. NPS and CBP contractors would assess the need for road surfacing (including aggregate) and drainage structures for each proposed tower site and associated roads to prevent unacceptable impacts to roads, drainages, and adjacent areas. Drainage structures may include, but are not limited to, ditches, culverts, and low water crossings. Road surfacing and drainage structures would be implemented as needed. Repairs to authorized roads would permanently

impact 5.7 acres of existing roads and temporarily disturb 1.9 acres adjacent to authorized roads (see Table 2-2). Additionally, repairs to the authorized corridor would permanently impact 6.4 acres and temporarily disturb 2.1 acres.

Road and Corridor Improvements

Four existing authorized roads to proposed tower sites TCA-AJO-004, 170, 216, and 310 would require approximately 0.22 linear mile of improvements (see Table 2-2 and Appendix C). Approximately 1.7 linear miles of the authorized corridor to proposed tower TCA-AJO-170 would require improvements. The road sections to be improved are located along 59.4 Road, an unnamed BLM road, and Cement Tank Road. Road improvements include reconstruction, widening, and straightening of authorized roads. All improved roads would have a maximum driving surface of 12 feet and would include a 2-foot temporary construction easement on each side of road. Improvements to authorized roads would permanently impact 0.32 acre of existing roads and temporarily impact 0.11 acre adjacent to existing roads (see Table 2-2). Additionally, improvements to the authorized corridor would permanently impact 2.4 acres and temporarily disturb 0.81 acre.

CBP would fund OPCNM to perform the authorized corridor improvements for proposed tower site TCA-AJO-170. Improvements would include trimming vegetation back from the driving surface throughout the corridor, preparing and installing arched culverts in three specific drainages and contouring slopes on two drainages to the minimum needed to facilitate larger construction vehicle access. OPCNM would monitor the authorized corridor and add A/B aggregate as necessary to prevent road degradation (i.e., blowouts).

Road Construction

A total of seven access roads totaling 0.07 mile in length would be constructed to provide access to tower sites from authorized roads. The access roads are associated with proposed tower sites TCA-AJO-003, 004, 216, 301, 302, 303, and 310 and would be constructed to provide a 12-foot wide driving surface with 2-foot shoulders on each side (see Table 2-2 and Appendix C). The total width of new access roads would be 16 feet. Additionally, one new road totaling 1.2 miles would be constructed within potential wilderness from the international border north to tie into the existing Concrete Tank Road and provide access to proposed tower site TCA-Ajo-310 (see Table 2-2). Construction equipment would stay within the 16-foot access road and tower site footprints. Any deviation from the 16-foot road footprint would be coordinated with and approved by the land manager prior to disturbance. The construction area would be flagged in coordination with the land managers. Access roads would be constructed by mechanically removing vegetation and grading native soils. Land managers and CBP contractors would assess the need for road surfacing (including aggregate) and drainage structures for each proposed tower site and associated roads to prevent unacceptable impacts to roads, drainages, and adjacent areas. Drainage structures may include but are not limited to ditches, culverts, and low water crossings. Road surfacing and drainage structures would be implemented as needed. Construction of access roads would result in 0.14 acre of permanent impacts and new road construction

associated with proposed tower site TCA-AJO-310 would permanently impact 2.3 acres. Following construction activities, any temporary impact areas would be revegetated at the discretion and under the direction of the land manager with a mixture of native plant seeds or nursery plantings (or both), as describe previously. An archaeologist would be present during ground disturbing activities in undisturbed areas to monitor construction activities.

OPCNM would be responsible for constructing the new road associated with proposed tower site TCA-AJO-310. CBP would provide funding to OPCNM for the new road construction. Road construction activities would include removing vegetation from the proposed road footprint, scarifying the proposed road surface, blending A/B aggregate, grading, and compacting soils. The road base would be constructed in layers and the layers would be compacted to an approximately 95 percent compaction rate. A soil binder would be applied to the finished road surface. The uphill shoulder of the road would be delineated with sediment waddles.

Road and Corridor Maintenance

CBP is implementing a comprehensive maintenance and repair program for all roads and the authorized corridor on OPCNM associated with CBP TI and SBI*net* projects required to ensure full-time access to the towers and other TI. Specific maintenance requirements and schedules for each road and the authorized corridor will be developed between the USBP Sector and the land manager. Maintenance may be performed by contractors or by the land manager as deemed appropriate between the USBP Sector and land manager. It is anticipated that maintenance activities of authorized roads and the authorized corridor may occur up to six times per year, as necessary. In addition to the authorized road and corridor segments constructed, repaired, and improved as part of the Proposed Action, CBP would maintain additional lengths of roads (38.2 linear miles total) to provide access to the tower sites for maintenance and refueling purposes (Figure 2-9). It is anticipated that maintenance of authorized roads and the authorized corridor could include grading within the existing road or corridor alignment to maintain the condition of the road or corridor surface for tower maintenance access. At the land manager's discretion, additional aggregate or a soil stabilizer, such as Pennzsuppress™, may be used to improve the driving surface of maintained authorized roads or corridor. Maintenance actions would include necessary erosion control associated with the roads and authorized corridor. Road maintenance activities would be conducted outside the Sonoran pronghorn closure season to the extent practicable. Specific cases (e.g., road impassable) where road or corridor maintenance is required during the Sonoran pronghorn closure season to allow access to a tower site for tower maintenance would be coordinated with and require approval from the land manager and USFWS-AESO. Additionally, biological monitors would be required during authorized road and corridor maintenance activities during the Sonoran pronghorn closure season. If a significant upgrade in road or authorized corridor condition is required, additional environmental documentation would be required.

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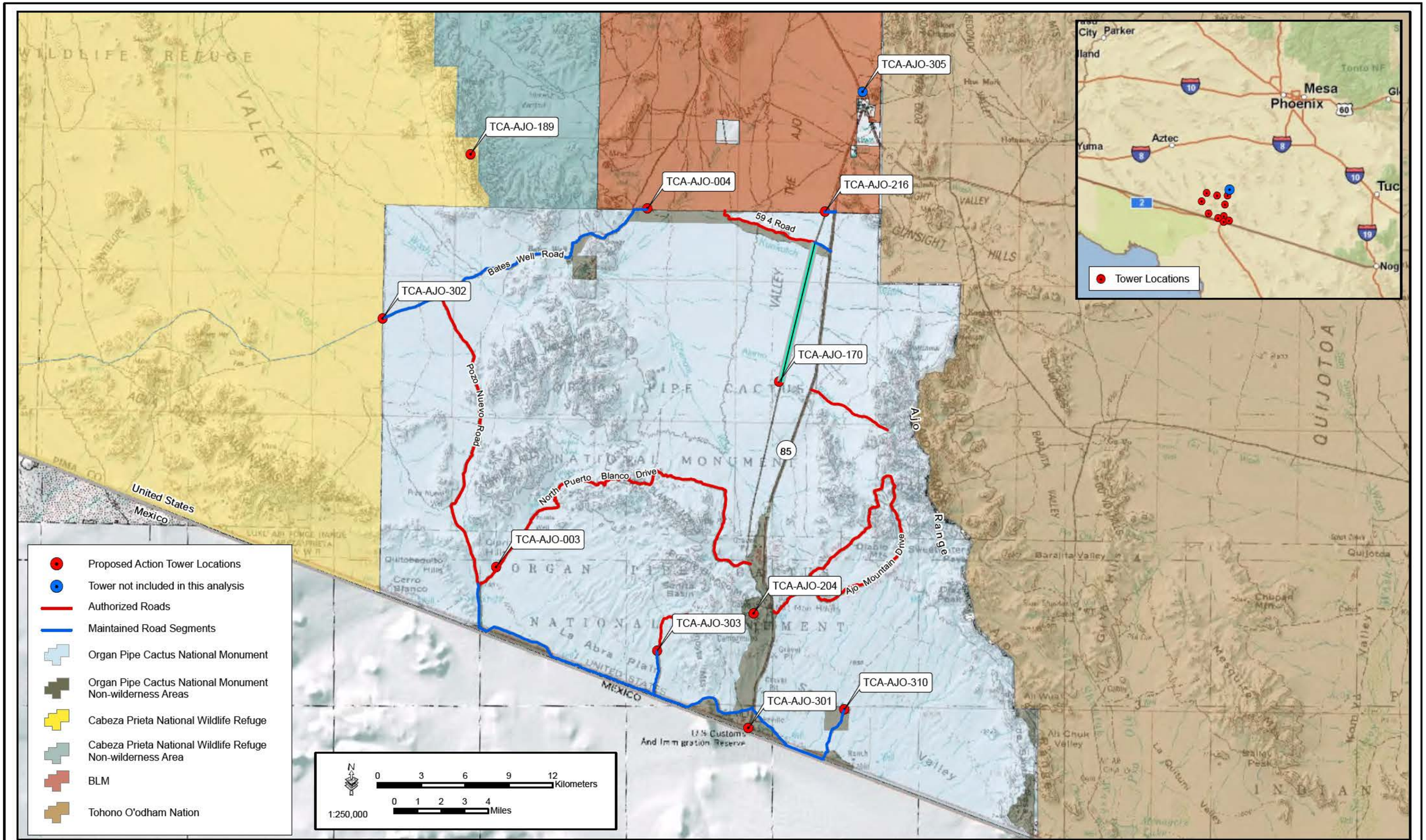

Figure 2-9: Road Maintenance Associated with the Proposed SBI*net* Ajo-1 Tower Project

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2.3.5 Forward Operating Base

The USBP Ajo Station currently maintains and operates a FOB on OPCNM at the Bates Wells historical site (see Figure 1-2). FOBs allow the USBP to deploy agents closer to the U.S.-Mexico border for the purpose of detecting and responding to CBV activities more efficiently and effectively. This forward deployment decreases travel and response time to CBV activities. The USBP proposes to relocate the FOB at Bates Well to a proposed tower site location adjacent to TCA-AJO-302 and disassemble the existing FOB infrastructure at Bates Well historic site. Current equipment at the Bates Well FOB includes, three 8- x 24-foot connex boxes; three portable generators; one diesel fuel trailer; 1,000-gallon water truck; 500-gallon water buffalo on trailer; and one portable light generator. Equipment and facilities (i.e., connex boxes and generators) would be removed from the Bates Well site and the parking area and portable horse corral area would be cleaned up. It is anticipated that all equipment generators and water tanks could be moved within 2 to 3 days after the initiation of disassembly; however, the connex boxes could require up to 1 week to move. The generators and water tanks could be moved with a four-wheel drive pickup but the connex boxes would require a rollback truck. The proposed relocation would eliminate the existing FOB from a narrow travel corridor used by Sonoran pronghorn to access the Valley of the Ajo. Although relocation of the camp may result in impacts to Sonoran pronghorn near the proposed site, it would eliminate potential impacts of the Bates Well FOB on Sonoran pronghorn using this very important and narrow travel corridor. The FOB would be moved outside the Sonoran pronghorn fawning season (March 15 to July 31). It is anticipated the FOB would be moved within 1 year of acceptance of the proposed towers.

The proposed FOB would have a footprint of approximately 1 acre and similar equipment as the current FOB, with the exception of a septic system. A deep-discharge septic system would be installed for waste water and sewage disposal at the proposed FOB site. A portable chemical toilet would be used for processing human waste until the septic system could be installed. The septic system would be of sufficient design and capacity for up to 10 people. The leach field trenches would be excavated to a depth of 16 feet and backfilled with 2-inch diameter gravel to a depth of approximately 6 feet. Perforated pipe would be installed over the gravel and covered with a geotextile fabric and backfilled with excavated soil. The septic system would be constructed to the International Building Code and Arizona Department of Environmental Quality's (ADEQ) standards for septic systems. Further, an archaeological monitor would be present during ground disturbing activities in previously undisturbed areas. The proposed access road associated with proposed tower site TCA-AJO-302 would also serve as access from El Camino del Diablo to the proposed FOB. There would be no new road construction associated with the proposed FOB. El Camino del Diablo would be maintained up to six times a year to ensure access to proposed tower site TCA-AJO-302 and the FOB. Road maintenance was discussed previously in Section 2.3.4.

A minimum of one vehicle per agent would be parked within the footprint of the proposed FOB. Vehicle trips would vary depending on operational needs. The primary geographic focus would start in the area surrounding the camp. However, agents would

respond as directed to work other areas of the Ajo Station's AOR as operations dictate. Additionally, horse patrols would be conducted from the proposed FOB when operations dictate. Horses would be housed at the proposed FOB and would either be ridden or trailered to patrol areas. Manure from the horse corral would be collected and disposed of off-site in accordance with the BMPs provided in Section 5.0.

The operation of the proposed FOB may occur 365 days per year, and as long as illegal cross border activities persist, which require its operation. When USBP determines the FOB is no longer needed, it would be dismantled and removed within 1 year of USBP's determination. The site would be restored to previously existing conditions in coordination with the land manager and the USFWS-AESO. Further, it is anticipated USBP may establish a 2-acre FOB similar to the Papago Farm FOB in the future. Establishment of the larger FOB is dependent on securing funding, coordination with land managers, and development of additional environmental documentation, as appropriate.

2.3.6 USBP Operations

Tolerance to Depth of Intrusion

USBP's operational intent is to compress the primary zone of enforcement as close to the international border as practical. Several factors determine the viability of compressing an enforcement zone, such as access to routes of egress, available infrastructure capable of supporting smuggling activity, viability of checkpoint operations which provide enforcement-in-depth, and accessibility to the border areas. In order to attain border control with the optimal enforcement zone relatively close to the border, significant resources must be applied and effectiveness sustained over time to mitigate illegal activity.

Tolerance to depth of intrusion relates to the time and distance that agents have to effectively interdict illegal traffic. In many urban areas, agents have just seconds to make an interdiction, because it requires only seconds for CBVs to escape into a house, business, or means of transportation. In this environment, the tolerance to depth of intrusion is minimal, because agents do not have the luxury of time or distance in which to effect the arrest. As the operational environment becomes more rural and remote, violators may take days to reach an area where they can load into a vehicle and abscond. In these areas, depending on available resources, tolerance to depth of intrusion may be many miles, or days in the terms of CBVs walking through the hazardous desert terrain. Utilizing technology, agents track incursions and plan their interdictions to effectively interdict all of the traffic flow through a given area. In these remote areas, the ability to move laterally within the area of operation is critical to success. Agents must be able to respond and interdict consistently to create the necessary deterrence through certainty of arrest.

The deployment of technology such as SBI*net* towers facilitates the effective interdiction of traffic through detection and tracking of multiple targets within a given viewshed. SBI*net* towers allow USBP agents to control the point of interdiction to locations that are operationally preferred. As enhanced operations are maintained over time, illegal traffic

flow is mitigated within a target area and the tolerance to depth of intrusion is concurrently reduced. This reduction in tolerance to depth of intrusion is based upon increased capacity to apprehend and is less than the tolerance to depth of intrusion determined in the absence of needed technology. Based on current traffic patterns, available resources, and trends observed in Yuma Sector and the Altar Valley a decrease in traffic could be realized within 1 year of the towers becoming operational. With regard to the SBI*net* current technology, "operationally preferred" refers to points of interdiction that contribute to safety and efficiency. These locations would ideally be on or close to existing roads so that agents do not have to walk long distances to and from the point of interdiction, and transportation can be facilitated quickly and efficiently as close to the point of interdiction as possible. Due to the technological capabilities afforded by the project, agents will be able to manage the point of interdiction, providing operational efficiencies and the ability to make decisions with regard to environmental impacts. This also reduces the need for basic patrol and extended tracking operations where interdictions often occur in remote areas.

Ultimately, as an area comes under effective control, the tolerance to depth of intrusion is contained within the optimal enforcement zone, as close as practical to the international border. As USBP does not control the various independent factors influencing illegal cross-border activity, this distance will vary from place to place within the target area depending on various factors. Given the dynamic nature of law enforcement operations and the fact that USBP will always be responsive to the ever changing threat, it is not feasible to provide exact parameters. The intent is to compress enforcement activities as close to the international border as is operationally appropriate within a given area.

The objective of this enforcement strategy is to maximize interdiction capabilities so that traffic levels are reduced to a level where border control can ultimately be achieved on or as close to the actual border as practical. It should be recognized that in areas where enforcement is not focused on the immediate border for operational reasons, the effect would still be to reduce traffic. Effective enforcement, even a distance off of the border, removes the financial incentive for smuggling organizations to use the area. This provides increased safety and environmental protection in the entire area once the reason for criminal activity to exist in the enforcement area has been removed.

Due to the remote nature of much of the SBI*net* Ajo-1 Tower Project's project area, what is critical is that regardless of where an incursion occurs, there is a corresponding law enforcement response. This deterrence through certainty of arrest applies to the geographic area as a whole, and is a well established part of the strategy. This is the primary reason for USBP checkpoints, which address routes of egress. Even if a CBV is successful in passing through the primary enforcement zone, he must still contend with checkpoints. This regional deterrence provided by defense in depth is a significant factor in attaining overall mitigation of illegal traffic.

Tolerance to depth of intrusion is directly related to activity levels and the point at which the existing law enforcement resources are able to resolve known intrusions. As

resources are adjusted and applied to existing activity levels, effectiveness improves over time.

Focused Operations

When USBP identifies an area of focus under the NBPS, decisions regarding the deployment of resources into that area are made in accordance with the sector's existing operational plan. Depending on the operational dynamics of the targeted area, various combinations of manpower, technology, infrastructure, and enforcement programs are designated for application. Within the operational footprint, a baseline level of activity is established; resources are then deployed in an effort to significantly reduce this baseline activity level, notably by disrupting the operations of smuggling organizations.

Resources, including technologies, are deployed based on intelligence and operational data. Technological resources provide an enhanced level of detail regarding real-time activity in an area which enables USBP agents to evaluate and take the appropriate action to respond to and interdict an increased number of the violations already occurring in the area. This increased enforcement effectiveness is due to the enhanced ability to see what is taking place on a large scale, as well as where activity is occurring, thus allowing focused, planned response by agents. As a result, an increased number of the violations in the area are interdicted and the profitability of criminal operations in the area is reduced. Over a relatively short period of time, USBP's ability to bring identified illegal activity to a satisfactory law enforcement resolution reduces the financial incentives for criminal organizations to operate within the area affected by the technology. Ultimately, the reduction of cross border violations or elimination of illegal activity in identified areas will result in a corresponding reduction of the USBP's footprint in the area, as enforcement actions can be scaled back in the absence of violations. As previously mentioned, based on current traffic patterns, available resources, and trends observed in Yuma Sector and the Altar Valley, a decrease in traffic could be realized within 1 year of the towers becoming operational. This operational evolution will likely be marked by an initial increase in arrests and seizures as operational effectiveness is markedly increased. An adjustment in operational output appropriate to the level of violations identified would result in further enforcement actions which would then dissipate over time. The level of border control achieved is maintained with an appropriately adjusted lower level of operational output.

Forms of technology, such as SBI*net* towers and sensors, Mobile Surveillance Systems (MSS), and Remote Video Surveillance Systems (RVSS) are utilized as force multipliers to provide sustained deterrence in a targeted area. These technological assets serve to provide enhanced situational awareness, and also act as deterrents to would-be criminals. Over time, the footprint of illegal traffic is mitigated as well as the operational footprint of the USBP. Two solid examples (Yuma Sector and the Altar Valley in the Tucson Sector) of the evolution of this operational strategy are discussed below.

1. Yuma Sector: When USBP applied this operational strategy to Yuma Sector in 2007, Yuma Sector was one of the busiest crossing places in the country. Within 1 year of applying this strategy, Yuma Sector saw a decrease in activity from 33,405 arrests to 7,077. Since 2005 (when the traffic was highest) there has been a 95 percent decrease in cross border violations (99,491 arrests in 2005 year to date vs. 5,287 in 2009 fiscal year [FY] to date).

Yuma Sector's strategy involved the balanced deployment of personnel, technology, and infrastructure specific to the operational environment (i.e., urban area versus rural or remote, topography, time allotted for detection and apprehension). Technology included RVSS, mobile scope trucks, sky boxes, remote sensors, and MSS. USBP's presence was significantly concentrated as opposed to being scattered over a larger area.

Following implementation, illegal entries declined drastically and were effectively confined to the immediate border. USBP presence within rural and remote areas did not decrease significantly initially, but rather was focused on patrolling the immediate border. USBP presence was significantly concentrated as opposed to being scattered over a larger area. This permitted agents to forward deploy, conducting patrol activities in close proximity to the international border. The establishment of all-weather patrol roads coupled with the decreased entries reduced the necessity of off-road travel and decreased agent response time. The compression of the enforcement zone brought interdictions closer to the international border.

The decrease in illegal activity in the Yuma Sector is a result of USBP activities and not economic conditions as the successes in Yuma Sector clearly preceded the economic downturn. Most of the traffic that had been entering in Yuma Sector's AOR moved elsewhere to areas along the international border that lacked the proper combination of manpower, infrastructure and technology. The overall strategy of incrementally gaining effective control of the international border, maintaining that control, and expanding it into other areas of the international border recognizes and addresses this trend.

Cross-border traffic overall has been decreasing over the past several years, but at much more modest percentages from single digits to 16 percent last year. The results in Yuma Sector are clearly due to the application of the combination of resources required to create the needed deterrence.

2. The Altar Valley within the Tucson Station's AOR: Traffic decreased from 41,729 arrests in 2007 to 33,099 in 2008. Since 2006 (when traffic was at its peak) there has been a 70 percent decrease in cross border violations (54,031 arrests in 2006 year to date vs. 16,494 in 2009 year to date).

This decrease in illegal activity is generally not due to the economy. Tucson Sector realized a 16 percent reduction of illegal activity as a whole compared to 70 percent in the target area. Anecdotal information from newspaper articles document that the town of Sasabe, Sonora was becoming a "ghost town" prior to the current economic

downturn. This was due to the fact that smugglers and other CBVs were no longer frequenting local establishments, and the significant reduction in smuggling activity had a commensurate impact on associated revenues locally.

Within the Altar Valley, SBI*net*'s Project 28 introduced nine sensor towers and deployed three MSS into the targeted area. Primary border fencing and patrol roads along the international border were constructed as well within the corridor, and enhanced agent resources were assigned to the corridor. In conjunction with enhanced manpower, technology and infrastructure, focused prosecutions, and other consequence programs were geographically targeted in the area to provide additional deterrence to prospective CBVs. The combination of these resources applied over time created the sustained deterrence needed to mitigate the activity in this area.

As a result, Tucson Station has significantly compressed its zone of enforcement closer to the border, and agents are conducting far fewer patrols across much of the Altar Valley. Currently, the SBI*net* TUS-1 project is being installed to replace P28, which will provide the sustaining situational awareness for this area. The enforcement footprint has been significantly reduced, and this will continue as control of the border is increased.

Within the Altar Valley, there was a marked decrease in USBP presence and a reduction in patrols in many areas north of the immediate border area. Tucson Sector compressed its enforcement zone significantly closer to the border, as did Yuma Sector. Both of these examples model the NBPS in that, as effective control is achieved, the zone of enforcement trends closer to the international border over time. This reduces the footprint of illegal crossings within the target area, and thereby reduces the overall operational footprint and tolerance to depth of intrusion.

In both cases, although the actual number of patrols may not have changed drastically, the concentration of those patrols is in a much more focused and concentrated area near the international border. In the Altar Valley for example, instead of agents patrolling a 45-mile deep zone from Sasabe to Three Points, the concentration of patrols is now within a much smaller zone which may range from 0 to 10 miles from the international border depending on access and activity levels. Over time, as effective control continues to improve, patrols even within these compressed zones decrease as technology and infrastructure are utilized to maintain gains.

In the context of SBI*net*, the technology allows that agents do not have to conduct as many basic patrols across vast areas for sign-cutting purposes and other types of manual detection. Based on the established capabilities of the technology being utilized, agents will be able to respond to verified detections as needed and interdict them based upon information provided by the technology. This facilitates a planned response with the technology driven detections providing a suite of options for interdiction unique to each particular detection. This suite of options includes actions in response to the identified level of threat as well as considerations as to ideal potential locations for the interdiction.

Patrol Activities

Current detection methodology within the Ajo Station's AOR includes traditional sign cutting which requires both patrolling and dragging of roads, particularly east-west roads. To ensure timely detection and effective response, patrolling and dragging must take place on a regular basis within each shift. Remote sensors are strategically placed to aid detection and interdiction of illegal activity.

Currently, identification, classification, response, and resolution actions require that agents respond to evidence of illegal entry gained through the previously mentioned tools and techniques as well as through direct observation. Agents, in most cases, follow sign as opposed to the viewed subjects. They follow, flank and interdict using agents on foot. Following sign means that there is an inherent time delay between the responding agents and the suspects. At times, agents respond on horseback, on all terrain vehicles and motorcycles, and with rotary wing aircraft. Generally, fixed-wing aircraft are not used in the Ajo Station's AOR; however, light, medium, and heavy rotary wing aircraft are available and used based on the activity in the area. These traditional methods would continue to be utilized after the SBI*net* towers are operational and would serve as a force multiplier. When necessary, agents may respond in motor vehicles under the provisions of the *Cooperative National Security and Counterterrorism Efforts on Federal Lands along the United States' Borders Memorandum of Agreement* (MOU) between DHS, DOI, and U.S. Department of Agriculture (USDA) (DHS 2006). The MOU states (page 6, IV.B.4), "Nothing in this MOU is intended to prevent CBP-BP agents from exercising existing exigent/emergency authorities to access lands, including authority to conduct motorized off-road pursuit of suspected CBVs at any time, including in areas designated or recommended as wilderness..." (DHS 2006). The choice of the mode of transportation is based on a variety of factors, including terrain, time of day, availability of low impact modes, and timeliness of the sign, but the deciding factors are always effective and timely interdiction with primary consideration of officer safety. The application of technology allows use of these force multipliers employing direct guidance of USBP agents to CBVs rather than basic patrol techniques.

Deployment of the towers and other intrusion detection devices all support the COP. Implementation of the COP will support the USBP National objectives through improved efficiency and effectiveness of operations to reach the goal of effective control of our Nation's border. The USBP's National objectives include:

- Establish substantial probability of apprehending terrorists who attempt to enter illegally between the ports of entry;
- Deter the illegal entries through increased enforcement and apprehensions;
- Detect, apprehend and deter smugglers of terrorist weapons, humans, drugs and other contraband;
- Leverage "smart border" technology to multiply the effectiveness of enforcement personnel; and
- Reduce crime in border communities and consequently improve quality of life, and economic vitality of targeted areas.

Once SBI*net* towers are installed and operational, agents would respond specifically to detected cross border violations occurring in the project area. The towers would provide constant situational awareness and detection and tracking capabilities that would allow agents to optimize interdiction points. Cameras would be utilized to classify the threat identified by the radar track. This allows deployment of the appropriate response to a given threat, raising operational efficiency and effectiveness. Agents would respond to verified threats and work them in a manner tactically advantageous to the agent.

These tactics are expected to reduce the need for agents to patrol within the radar track to look for signs of illegal activity. This would free up resources and increase efficiency as location of illegal activity is accomplished by use of technology. The Tucson Sector operational strategy identifies areas of focus within its 262 miles of border. These areas are defined primarily by station AORs. The technology and infrastructure resources are tools utilized in conjunction with other resources to achieve effective control of the border. The focus areas are not defined by the towers or their capabilities, but rather by areas of border that would be targeted as a whole. In areas without technology other tactics would be utilized. Effective control is achieved for an entire border area. This means that activity levels would be reduced throughout the focus area.

As operational effectiveness increases over time, illegal traffic would decrease resulting in a reduced need for agents to respond to a given area. Ultimately, the towers would continue to provide deterrence through continual monitoring, and resources can be re-deployed to other operational priorities. The criminal and consequent CBP operational footprint in a targeted area would be significantly reduced over time, thus lessening the impact to habitat and wildlife within the target area. Other areas which receive increased illegal traffic would be addressed using future deployments of technology and resources.

Traffic Shifts

Historically, as operations within a target area become more effective, CBVs seek alternate routes and avenues of escape. Given the capabilities of the SBI*net* AJO-1 tower sites, USBP operators would use other technology to act as a force multiplier to the SBI*net* towers. The utilization of this technology would give agents on the ground the situational awareness needed to respond appropriately to traffic throughout the targeted area.

Interdiction Activities

Historically, USBP agents have performed their enforcement duties through a series of steps. Agents have had to detect illegal activity using their senses. Once detected, the agents have applied their officer experience to identify the type of traffic (verify that the sign such as footprints is made by illegal traffic) then classify its threat. These steps have been subject to use of available resources and are often lacking in sufficient detail for full understanding of the nature and threat posed by the maker of the sign encountered due to variances of weather, time, etc. Agents, upon making judgments based upon experience and ability, then respond as appropriate (for example, agents

will not follow sign believed to be legitimate traffic, but will follow sign believed to be illegal traffic). The final step is resolution of the traffic. Agents would interdict violators assuming success in following the sign encountered and in catching up with the maker of the sign. Provided the encounter is made prior to the subject(s) absconding from the area, agents would then interdict as appropriate, or may discover that what appeared to be illegal traffic was in fact legitimate in nature.

The advent of SBI*net* technology provides a labor-savings as well as a reduction of impact on the environment. The previously described labor intensive steps (detect, identify, classify, respond and resolve) change markedly under SBI*net* technology. Detection, identification and classification are performed by a person monitoring signals from the technology. This person is located in a control room and thus does not affect the environment in the same manner as an agent using basic human senses combined with agent experience and skill. Three of the steps required to achieve the requisite satisfactory law enforcement conclusion are performed remotely. The agent is thus freed up from some of the most labor-intensive stages of the process and allowed to focus upon responding to an identified and classified threat. The agent will then encounter the identified threat using the appropriate resources, verify the information received and appropriately bring the traffic to a satisfactory law enforcement conclusion. This scenario allows the agent to optimize factors of the encounter, thus benefiting officer safety and/or gaining efficiency in selection of locations for removal of violators or contraband from the field. Sensitive environments would be taken into account in the decision making process. The identification of sensitive environments and resources are provided as part of agent training. The removal of three of the five required steps to a remote location has the benefit of greatly reducing the necessity for agents to follow sign of the passage of those to be interdicted. This benefits both the efficiency of the agent and the environment in which the agent works. The number of occasions as well as the extent to which the agent would be required by the circumstances to drive a vehicle off of authorized roads is expected to be greatly reduced. In accordance with the 2006 MOU, USBP will provide reports of all off-road vehicle incursions to land management agencies (DHS 2006). Additional reporting criteria were also developed as part of formal Section 7 consultation pursuant to the ESA and are included as part of USFWS's Biological Opinion.

Forward Operating Base

The planned move of the FOB from its current location at Bates Well would allow this site to be used by the land managers to tell its story as a part of both past and present ranching history as intended in the OPCNM General Management Plan. The movement of the camp to near proposed tower site TUC-AJO-302 would also facilitate the migration of Sonoran pronghorn into the Valley of the Ajo. Pronghorn have rarely been documented in this area since the establishment of the FOB at Bates Well; however, prior to this, pronghorn extensively used the Valley of the Ajo, particularly during the summer months. USBP has reduced the number of agents and patrols in this area over the past 2 years. The move would concurrently place agents in a more strategically beneficial position to respond to illegal cross border traffic further from existing USBP stations. The benefit is multi-faceted in that it directly benefits Sonoran pronghorn, and

minimizes daily vehicular traffic in the Ajo Station's AOR and Sonoran pronghorn range by locating the FOB closer to areas to be patrolled daily by USBP agents detailed to the FOB.

Drag, Checkpoint and Observation Posts

Currently a lack of technology for real time location of CBVs exists. This lack of technology requires a large deployment of personnel to address illegal activity in the Ajo Station's AOR. With implementation of the SBI*net* Tower Project, real time identification and classification of violators is anticipated. This would allow focused interdiction, thus reducing the size of personnel deployments required to locate violators. Traditional detection methodology of sign cutting and dragging of roads would continue in support of the NBPS, as necessary. The 2006 MOU (page 4, IV.B.2) provides for the dragging of existing public and administrative roads that are unpaved for the purpose of cutting sign (DHS 2006). As the certainty of apprehension is elevated within the Ajo Station's AOR, the use of dragging operations is expected to be reduced in frequency compared to current levels. To document the success of the SBI*net* Ajo-1 Tower Project through the potential reduction in dragging operations, additional reporting criteria were also developed as part of formal Section 7 consultation pursuant to the ESA and are included as part of USFWS's Biological Opinion.

Checkpoint operations are a critical component of the USBP's defense-in-depth strategy to gaining effective control of the international border and as such, they augment other enforcement activities. Existing USBP checkpoints will be maintained and there is no expectation that they would be directly affected by this project. Ajo Station maintains one checkpoint on SR 85 at Milepost 18. An alternate checkpoint site used in the past is located at Milepost 57. Checkpoints under the COP would benefit by the presence of the project in that attempts to walk around the checkpoints would be identified and the appropriate law enforcement actions would be taken.

Use of high point observation posts will continue as needed, in order to enhance the overall effectiveness of operations throughout the Ajo Station's AOR. High point observation posts entail USBP agents walking or driving on established roads to an area of higher elevation to achieve an advantage in observing illegal traffic.

Illegal Traffic Patterns

There are multiple factors that impact the flow of illegal cross border traffic into the U.S., most of which are independent of the USBP. The demand for illegal labor and illegal drugs is a primary draw for this illicit traffic, neither of which the USBP can control. Another dynamic impacting where this traffic occurs is the cartel operations within Mexico. This varies in intensity along the international border based upon many factors. All of these factors make it extremely difficult to put a timeline on operational impact. The key to reducing traffic in an area is establishing and maintaining deterrence through certainty of apprehension. Ultimately, the cartels and smuggling organizations operating along the border determine when their operating costs are too high to continue operations in a particular location (due to loss of product and manpower based upon seizures and arrests). In order to measure effectiveness, a timeframe of 1 year to

compare activity levels against a comparable data set is a bare minimum. This allows a full annual cycle of activity which peaks in March each year. Activity levels must be compared against comparable times from one year to the next.

USBP can provide DOI annual briefings on historical and current activity levels as pertinent to the project area. Updates can be provided at the request of DOI land managers through the appropriate USBP Station or Sector Headquarters. Further, to document the success of the SBI*net* Ajo-1 Tower Project, reporting criteria were developed as part of formal Section 7 consultation pursuant to the ESA and are included as part of USFWS's Biological Opinion.

Generally, USBP monitors activity levels through a variety of indicators, to include arrests, assaults, third party reporting, intelligence reporting, anecdotal information, and other internal metrics which when combined, paint a relatively accurate picture of illegal cross-border activity. When activity levels are reduced, the requirement for USBP activity is reduced, especially with the advent of SBI*net.* Technology itself continues to provide the situational awareness that previously required agent patrols and sign cutting operations.

Off-Road Vehicle Use

USBP will conduct field operations within the parameters of the MOU between DHS, DOI, and USDA for Federal lands along the U.S. border. The 2006 MOU states, "Nothing in this MOU is intended to prevent CBP-BP agents from exercising existing exigent/emergency authorities to access lands, including authority to conduct motorized off-road pursuit of suspected CBVs at any time, including in areas designated or recommended as wilderness..." (DHS 2006). Motorized off-road pursuit of suspected CBVs is conducted within the parameters of the MOU. The construction of this project is an attempt to minimize the need for all interdiction efforts through deterrence based upon improved enforcement. CBP recognizes that certain other operational needs, such as turning around drags and trailers, parking along roads, removal of seized vehicles, adverse road conditions, and expeditious emergency response may also result in impacts along authorized roads and unauthorized vehicle routes. Impacts generally consist of disturbances to vegetation and soils from vehicle tires. Through education and supervision, USBP in cooperation with the land managers will increase USBP agents' awareness to the impacts of these actions and standard methods of minimizing impacts. CBP will work with land managers to facilitate operational needs while making every reasonable effort to reduce impacts. USBP will ensure that current and incoming agents attend environmental and cultural awareness training to be provided by the land management agencies.

USBP will continue tracking and reporting all off-road incursions and work with local land managers in a cooperative effort to capture the necessary data related to this issue.

Patrol Best Management Practices

Some best management practices (BMP) currently employed by USBP in the project area are delineated in the 2006 MOU between DHS, DOI, and USDA (DHS 2006). These BMPs include efforts to be made by USBP to interdict CBVs close to the international border, road maintenance, use of lowest impact modes of travel appropriate for the circumstances, appropriate notifications and consultation, providing new agents environmental training, providing monthly statistics to the land management agencies, early consultation regarding new projects affecting land managers, and notification protocols for operational issues. Appropriate training, as addressed in the MOU, is provided by DOI and USDA and formatted to meet operational constraints.

Monitoring

USBP in coordination with land managing agencies has developed strategies to monitor operations associated with the SBI*net* Ajo-1 Tower Project. These were developed as part of the formal Section 7 consultation process pursuant to the ESA and are included as part of USFWS's Biological Opinion (AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6), dated December 9, 2009. Data collected as part of these strategies would be used to monitor the success of the SBI*net* Ajo-1 Tower Project. These data are considered law enforcement sensitive information and would not be made available to the public. Further, USBP would continue reporting procedures to land managers per the 2006 MOU (DHS 2006).

2.3.7 Conservation Measures

The following offsetting measures were developed through coordination with DOI agencies and land managers, as part of the ESA Section 7 consultation process, to offset potential impacts to Sonoran pronghorn and lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*) from the project. These measures were developed to reduce impacts associated with the proposed SBI*net* Ajo- Tower Project and are a part of the Proposed Action. Avoidance and minimization BMPs are described in Section 5.0.

Offsetting Measures for Sonoran Pronghorn

1) Unauthorized Vehicle Route (UVR) Assessment and Restoration

   a. UVR ASSESSMENT: SBInet will provide $200,000 to DOI by the initiation of the SBInet Ajo-1 Tower Project construction to assess and map the number and extent of unauthorized, repetitively used vehicle routes (UVR) in Sonoran pronghorn habitat or potential habitat on CPNWR, OPCNM, and BLM lands within the Ajo-1 project area. This assessment will locate, record, and map UVR occurrences throughout pronghorn habitat within the project area. The assessment will also quantify UVR dimensions and severity as well as determine restoration potential and needs. The assessment will be conducted by DOI in years one and two (from the initiation of project construction). Additionally, CBP and DOI will investigate the possibility of using existing remote sensing technology to supplement or replace a portion of SBI*net*'s funding for this assessment. Further, CBP and DOI will work

together to improve the reporting of off-road incursions that occur within Sonoran pronghorn habitat and wilderness.

b. UVR CLOSURE AND RESTORATION: SBInet will provide funding to DOI to close and restore UVRs documented as a result the UVR assessment. DOI will prioritize areas to close and restore based on importance of the areas to Sonoran pronghorn and on CBP information regarding anticipated continued use of UVRs (i.e., UVRs that will likely continue to be used by USBP due to emergency and exigent circumstances will receive a lower restoration priority as restoration in continuously used areas will not likely be successful). DOI will conduct the restoration work in between years 2 through 5 (from the initiation of project construction) or beyond, depending on the feasibility of restoration determined by the land management agencies. Total Funding: $1,750,000

c. UVR REASSESSMENT: CBP and DOI will cooperatively reassess the issue of UVRs within Sonoran pronghorn habitat and wilderness after 5 years (2014) and will resume discussions concerning evaluation of success of these efforts.

2) Vehicular use of the pole-line road (TCA-AJO-170) will continue to be only for exigent circumstances as per the 2006 MOU. Routine patrols will occur along SR 85. Additionally, a horse staging area will be established outside of wilderness in the 66 Hills/Alamo Canyon wash area of OPCNM. DOI will work with CBP to establish this horse staging area, the exact size and location of which, along with any associated infrastructure, will be mutually agreed upon in writing prior to its establishment. The intent of this horse staging area is to support CBP horse patrol operations in and around the Valley of the Ajo. Every effort will be made to limit the overall area of disturbance while maximizing safety and the adequacy of the site towards meeting its intended purpose.

3) Consistent with 2006 MOU, USBP will conduct patrol activities by horseback to the greatest extent practicable within the Sonoran pronghorn range, particularly from March 15 to July 31 (the Sonoran pronghorn closure season). DHS will follow all horse patrol BMPs coordinated with resource agencies (i.e., feed horses weed free pellets).

4) CBP will fund a portion of AGFD Sonoran pronghorn aerial monitoring efforts for 5 years. Funding will be provided for one full-time employee for 5 years, the purchase of collars and collaring costs for five Sonoran pronghorn, and 100 tracking flights (20 per year for 5 years). Total Funding: $346,000.

5) CBP will contract for cultural surveys at two proposed forage enhancement sites for Sonoran pronghorn on BLM lands. One site is located at UTM 0320443 x 3564606 and the second is located at Cameron Tank. The sites are approximately 12 acres each. Total Cost: $17,000.

6) CBP will provide funding for three full-time personnel (1 at $70,000 per year for 4 years [USFWS will fund the 5th and final year] and two at $60,000 per year for 5 years) to: 1) monitor the effects of human activities on Sonoran pronghorn; 2) conduct surveys for and monitoring of Sonoran pronghorn; and 3) implement other Sonoran pronghorn recovery activities. Employees will implement the aforementioned activities within the project area. CBP will also provide funding for Sonoran pronghorn recovery projects (i.e., collars and collaring costs for 25 pen raised Sonoran pronghorn ($137,000), three water tanks ($60,000), and one forage enhancement plot ($215,000). Total Funding: $1,292,000.

7) CBP will provide funding ($20,000) to move pronghorn back into the Valley of the Ajo if they do not move on their own within 3 years (by September 2012). Total Funding: $20,000.

8) CBP will provide funding to assist with the establishment of a second Arizona Sonoran pronghorn population in southern Arizona. Funding will be for purchase of pen materials and construction, transport of Sonoran pronghorn from CPNWR (from captive breeding pen) to the identified second population area, and other establishment projects needs as determined by the Sonoran Pronghorn Recovery Team. Total Funding: $470,000.

9) CBP will provide funding to AGFD to conduct weekly aerial surveys for Sonoran pronghorn throughout the fawning season of 2010. AGFD will conduct aerial surveys to assist CBP monitor Sonoran pronghorn at sites where project work will be conducted during the fawning season. Total Funding: $14,000 (plus USFWS or National Fish and Wildlife Foundation [NFWF]).

10) CBP will provide funding to OPCNM to develop and operate five temporary/emergency food and water plots for Sonoran pronghorn for 6 months. The purpose of these plots is to lure pronghorn away from tower sites and to buffer effects of disturbance on Sonoran pronghorn. If range conditions are determined by the Sonoran Pronghorn Recovery Team to be good, these measures would not be necessary. Cost Estimate: $1,000 per site ($5,000 total) and $18,000 for one GS-5 employee for 6 months. Total Funding: $23,000 (plus USFWS or NFWF overhead).

<u>Lesser Long-nosed Bat</u>

1) CBP will provide funding for monitoring Copper Mountain and Bluebird Mine lesser long-nosed bat maternity roosts. Total Funding: $35,000 (3,500 for each site for 5 years.

2) CBP will provide funding for a study to identify unknown roosts and to determine roost occupancy patterns of all roosts in the Action Area. Total Funding: $140,000 ($70,000 per year for 2 years).

3) CBP will develop and implement a monitoring plan and program to document and assess tower related mortality and injury of lesser long-nosed bats beginning once tower construction is completed (this will likely correspond to the 2010 lesser long-nosed bat season) and continuing 5 years after the towers are fully operational. Monitoring will be conducted at an appropriate sample of tower sites where monitoring does not conflict with Sonoran pronghorn conservation measures; these sites will be determined by USFWS and the land management agencies. The monitoring plan will be developed with and approved by USFWS and the land management agencies before construction is completed. If lesser long-nosed bat mortality or injury is documented at tower sites, CBP will: a) notify USFWS and the land management agencies in writing (via electronic mail) within 48 hours, b) work with USFWS and the land management agencies to develop site-specific measures to reduce bat mortality and injury, and c) continue monitoring beyond the 5 years until project-related mortality and injury is reduced as described below. CBP will, in coordination with FWS, use information gained from monitoring to develop tower retrofits to reduce lesser long-nose bat mortality and injury, if collisions are documented; and incorporate the bat mortality and injury monitoring associated with the proposed action into an annual report for a minimum of 5 years. If no take is documented, as stated above, monitoring will no longer be required 5 years after the towers are operational. If take occurs at or below authorized levels within year 1 through 3, DHS will implement measures to reduce mortality and injury the same year take is documented and will continue to monitor until the end of the original 5-year period. If take occurs during year 4 or 5, DHS will implement measures to reduce mortality the same year take is documented and will continue to monitor for 2 years after the take is documented and measures implemented. If at any point, take exceeds the amount anticipated in the USFW's Biological Opinion (AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6), DHS shall reinitiate formal consultation as stated in the Reinitiation Notice.

2.4 NO ACTION ALTERNATIVE

The No Action Alternative would not allow the proposed communications and sensor tower installation to occur, and can be characterized as the continuation of current practices and procedures. Under the No Action Alternative, the proposed SBI*net* Ajo-1 Tower Project would not be constructed and USBP's ability to detect and interdict CBVs would not be enhanced, thus, operational effectiveness would not be enhanced. In the absence of the proposed SBI*net* technology USBP agents would continue traditional sign cutting to detect CBVs and would follow sign as opposed to the viewed subjects to interdict the targeted CBVs. Thus, the enforcement footprint would not be reduced as it would be with the focused operations the proposed SBI*net* Ajo-1 Tower Project would provide. Further, the No Action Alternative would not provide the increased level of deterrence the proposed project would provide and illegal cross border activities and consequent law enforcement actions would continue. Under the No Action Alternative, impacts to natural resources would continue and likely increase in the absence of the proposed SBI*net* technology. The No Action Alternative serves as a basis of

comparison to the anticipated effects of the other action alternative and its inclusion in this EA is required by NEPA regulations (40 CFR 1502.14(d)).

2.5 ALTERNATIVES ELIMINATED FROM ANALYSIS

Several project elements that included other technology and infrastructure considerations such as unmanned aircraft systems and imaging satellites were considered as alternatives, but were eliminated from further review. Although these alternatives or a combination of these alternatives can be valuable tools which CBP may employ in other instances, they were eliminated because of logistical restrictions, environmental considerations and/or functional deficiencies that would fail to meet the purpose and need for this project. These alternatives and reasons for their exclusion from further analysis are discussed below.

2.5.1 Full Build Out Alternative

The Full Build Out Alternative included the construction, operation, and maintenance of 11 sensor and communication towers. These 11 towers do not include TCA-AJO-305, which was analyzed in a previous NEPA document. The Full Build Out Alternative also included the construction of new access roads and repair or improvement to existing approach road associated with construction and operation of the proposed towers. Maintenance of associated access roads and approach road were also included as part of the Full Build Out Alternative. Additionally, the Full Build Out Alternative included the relocation of the USBP forward operating base currently located at Bates Well on OPCNM to an existing disturbed area at the boundary of OPCNM and CPNWR near proposed tower site TCA-AJO-302.

This alternative was eliminated due to environmental considerations. Two proposed towers, TCA-AJO-209 and 308, were located within a narrow migration corridor for the Sonoran pronghorn and through consultation with USFWS and OPCNM it was determined that construction of these two proposed towers could potentially pose a barrier to Sonoran pronghorn migration and prevent them from accessing habitat (i.e., Valley of the Ajo) that had been historically used by pronghorn.

2.5.2 Fiber Optics Alternative

The Fiber Optics Alternative was the same as the Proposed Action except proposed tower sites TCA-AJO-004 and 302 and the proposed FOB would potentially be connected to commercial grid power and fiber optics would potentially be installed at proposed tower sites TCA-AJO-004, 302, and 216. The installation of fiber optics for communications at proposed tower site TCA-AJO-004 and 302 would have eliminated the need for a communication tower at proposed tower site TCA-AJO-189 and only nine towers would have been constructed under this alternative. Fiber optics and power lines would have been installed underground in a trench to proposed tower sites TCA-AJO 004, 302, and the proposed FOB. The main trench would have been located within the footprint of 59.4 Road and Bates Well Road to the extent practicable. The trench would have been approximately 54 inches bgs and 18 inches wide. A total of 205 pull boxes would have been installed up to 10 feet from the edge of 59.4 Road and

Bates Well Road at intervals of every 500 to 1,000 feet for commercial grid power and every 4 miles for fiber optics.

This alternative was eliminated due to technical and engineering considerations. Planning and engineering has not been completed for this project and could not be completed within the timeframe of the projected deployment date for the SBI*net* Ajo-1 Tower Project. If SBI*net* decides to install commercial grid power and fiber optics to those towers and FOB in the future, additional environmental documentation would be required. Further, if commercial grid power and fiber optics are installed SBI*net* would remove proposed tower site TCA-AJO-189.

2.5.3 Unmanned Aircraft Systems Alternative

As a stand-alone alternative, the use of unmanned aircraft systems in lieu of towers was not further evaluated for feasibility or potential impacts because these systems have failed to perform in the past and are not operable in all weather conditions. Additionally, air space over the CPNWR is restricted for military training. This alternative would fail to achieve the goals of SBI*net* and enhanced surveillance and protection of the U.S.-Mexico border.

2.5.4 Remote Sensing Satellites Alternative

Use of remote sensing satellites was not further evaluated for feasibility or potential impacts because the satellites do not provide a reliable system in all weather conditions and would fail to achieve the goals of SBI*net*, and enhanced surveillance and protection of the U.S.-Mexico. Cloud cover and other atmospheric conditions can limit the satellites' remote sensing view of the earth and would not provide full-time coverage or acceptable visual resolution of the border areas under consideration for this project.

2.5.5 Remote Sensors Alternative

Another alternative that was considered, but eliminated from further evaluation involved remote sensor fields only. The expanse of area required for remote sensor fields to effectively cover a similar area that a single tower surveillance system could, would have been too wide-spread. The number of remote sensor needed would generate an unnecessary large volume of used batteries and require an extensive amount of man-hours to relocated and maintain remote sensors.

2.5.6 Increased CBP Workforce Alternative

Another alternative considered during the preparation of this EA was to have no towers, but instead, to simply increase the number of CBP agents to patrol (via vehicles) the targeted area. The targeted area is considered a high intensity area for illegal entries. CBP agents would have to be dedicated to observing these areas 24-hours per day, 7 days a week, and due to local topography and vegetation, would not provide the same level of detection capabilities as the tower systems. Consequently, additional observation points would have to be established to provide the same coverage as the proposed tower systems, which would disturb additional areas along the border. Such efforts would require an enormous commitment of human resources and would require a significant increase in additional agents per each 8-hour shift to obtain a lesser degree

of effectiveness. Funding and staffing requirements could affect the number of agents available to perform monitoring efforts in the future; therefore this alternative would not provide a long-term or permanent solution to deterring illegal cross border activities. This alternative would not meet the purpose and does not provide the same level of enhanced detection as the tower systems.

2.5.7 Increased Aerial Reconnaissance/Operations Alternative

Under this alternative, increased aerial reconnaissance would be used for surveillance to support USBP station operations. CBP would use fixed-wing aircraft and helicopters to perform reconnaissance and detection operations and to support ground patrols.

This alternative was eliminated from further consideration because it does not satisfy the purpose and need of the project. The purpose and need calls for a more efficient and effective means of assessing all border activities. Aerial reconnaissance/operations cannot be used on a 24-hour per day basis and cannot operate under all weather conditions. Additionally, aerial reconnaissance/operations also have limited detection capabilities in areas such as deep ravines, at night-time, and in dense vegetation.

Aerial reconnaissance/operations are also limited over or near military installations, National parks and monuments, wilderness areas, and near commercial airports. The FAA and/or the Department of Defense impose flight restrictions on CBP operations missions over or near their facilities. Aerial reconnaissance/operations have restricted flight patterns near endangered species or other sensitive wildlife habitats, at night-time, and over sacred cultural sites.

Aerial reconnaissance/operations have proven to be an effective border enforcement strategy in certain remote regions of the border. For example, aerial operations have proven highly effective in areas where the open terrain, low growing vegetation, and sandy soils allow CBVs and signs of other illegal border traffic to be easily recognized from aircraft. Additionally, aerial reconnaissance/operations have become invaluable to USBP agents when performing search and rescue missions and during vehicle pursuits. Due to their effectiveness in certain situations and specific areas of the border, increasing aerial reconnaissance/operations may be an effective solution in other areas or to meet the purpose and need of other DHS activities. However, aerial reconnaissance as a stand alone alternative does not satisfy the current purpose and need as stated herein, and thus, for this assessment it was eliminated from further consideration.

2.6 SUMMARY

The two alternatives selected for further analysis are the No Action Alternative and Proposed Action. An alternative matrix (Table 2-5) shows how each of these alternatives satisfies the stated purpose and need. Table 2-6 presents a summary matrix of the impacts from the two alternatives analyzed and how they affect the environment and environmental resources in the proposed tower areas.

Table 2-5. Alternative Matrix of Purpose and Need to Alternatives

Purpose and Need	No Action Alternative	Proposed Action
Providing more efficient and effective means of assessing all border activities;	No	Yes
Providing rapid detection and accurate characterization of potential threats;	No	Yes
Providing coordinated deployment of resources in the apprehension of IAs, smugglers, and CBVs; and	No	Yes
Reducing crime in border communities and improving the quality of life and economic vitality of border regions through provision of the tools necessary for effective law enforcement	Partial*	Yes

* The No Action Alternative would still partially meet the purpose and need of reducing crime due to the continued use of USBP agents in the field

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Table 2-6. Summary Matrix

Affected Environment	No Action Alternative	Proposed Action
Land Use (Section 3.2)	Illegal traffic would continue to directly and indirectly impact and disturb existing land uses within the project area. Due to illegal alien (IA), smuggler, and other cross border violator (CBV) pedestrian and vehicle traffic, urbanized areas and natural desert areas experience increased crime and damage to native vegetation, respectively.	The Proposed Action would change the primary use on 18.8 acres from their current use as USFWS, designated wilderness, NPS, BLM, or Arizona State Lands land to CBP enforcement. The SBI*net* Ajo-1 Tower Project has been extensively coordinated with affected land management agencies and special use permits and right-of-way grants would be obtained by CBP prior to initiating construction of the proposed towers and associated access roads or repairs and improvements to authorized roads associated with the proposed towers. The Proposed Action would have a long-term, negligible adverse effect on land use in the project area.
Wilderness (Section 3.2)	Illegal traffic would continue to directly and indirectly impact and disturb designated wilderness within the project area. Currently, portions of Organ Pipe Cactus Wilderness are closed to the public due to safety and security concerns associated with IAs, smugglers, and other CBVs.	The proposed project would adversely affect the characteristics of designated wilderness. The audible qualities of designated wilderness would be affected by noise emissions generated during the construction of the towers and associated road construction, repair, and improvement as well as the operation of the towers (i.e., generators). The visual qualities of designated wilderness would be affected by tower structures themselves. The proposed project would adversely affect the sense of solitude and unconfined recreation characteristics of designated wilderness. Adverse impacts to designated wilderness would be localized, long-term and moderate. The proposed project would have an indirect beneficial impact on the remaining wilderness as a result of enhancing detection of CBVs, increasing interdiction efficiency, reducing illegal traffic and consequently reducing the law enforcement footprint required for interdiction activities. Additionally, areas within OPCNM that are currently closed due to CBV activity could be reopened upon completion of the Proposed Action and a reduction in CBV activity.
Geology and Soils (Section 3.3)	There would be no construction of access roads and towers, foundations or relocation of the FOB. Therefore, there would be no direct impacts to geologic or soil resources of the area. Soils would continue to be degraded by the creation and use of illegal roads and trails.	There would be no impacts to geologic resources of the area. A total of 18.8 acres of soils would be permanently impacted and approximately 6.5 acres of soils would be temporarily impacted due to the construction of 10 towers, associated access road constructions and approach road repair and improvements, and relocation of the FOB. No soils classified as prime farmlands occur in the project area. The Proposed Action would have a long-term, moderate adverse effect on soils as a result of accelerated erosion and a long-term beneficial effect as a result of reducing illegal traffic and the creation of illegal roads.
Hydrology and Groundwater (Section 3.4)	There would be no construction of access roads and tower foundations or relocation of the FOB. Therefore, the No Action Alternative would have no direct impacts from construction on hydrology or groundwater availability or quality. Groundwater deficits would continue as a result of water withdrawals for agricultural irrigation and municipal use. Illegal roads and trails, and authorized roads would continue to adversely impact surface drainage as well as provide a source of sediment.	A total of 11.46 acre-feet of water would be required for tower and access road construction and road improvements and repair. The proposed project is located in the Lower Gila and Western Mexican basins. Currently, the Lower Gila and Western Mexican (Sonoyta Valley) experiences an overdraft of groundwater resources. Water will be obtained from a commercial source in Ajo or Lukeville. The proposed project would have a short-term, minor adverse effect on groundwater and a moderate adverse impact on hydrology. The proposed project would have an indirect beneficial impact on hydrology and groundwater as a result of enhancing detection of CBVs, increasing interdiction efficiency, reducing illegal traffic and consequently reducing the law enforcement footprint required for interdiction activities.
Surface Waters and Waters of the U.S., (Section 3.5)	Under the No Action Alternative, WUS and wetlands would not be impacted, since no construction would occur; however, the littering and debris associated with CBV foot traffic would continue. Existing and new unauthorized roads and trails and authorized roads would serve as sources of sediment.	Short-term and long-term, minor to moderate impacts to downstream surface waters would occur during the construction period due to soil erosion, soil displacement, and erosion associated with tower construction, road construction, repair, and grading. However, long-term, minor impacts from sedimentation would be expected from the roads. No wetlands are located within the project area. A total of 69 Waters of the U.S. are located in the project corridor. All impacts to Waters of the U.S. meet the criteria for a Nationwide Permit 14. Impacts to Waters of the U.S. would be temporary and negligible.
Floodplains (Section 3.6)	The No Action Alternative would not result in direct impacts to floodplains or be inconsistent with EO 11988, as no new construction would occur.	Road construction, improvement, and maintenance could accelerate erosion and increase sedimentation in floodplains. Over the long-term grading associated with road maintenance could lower the elevation of road surfaces in comparison to the surrounding landscape, thus accelerating erosion and sedimentation. CBP will conduct an engineering study and prepare a subsequent road plan that would address wash crossing and potential upgrades that may be needed to reduce impacts to washes and their floodplains. The Proposed Action would have a long-term, minor adverse effect on floodplains in the project area.
Vegetation (Section 3.7)	No direct impacts would occur from the No Action Alternative. However, long-term indirect impacts to vegetation communities would continue as a result of illegal cross border activities that create trails, damage vegetation, promote the dispersal and establishment of invasive species, and result in conditions that favor catastrophic wildfires.	The Proposed Action would result in the permanent loss of 3 acres and the temporary degradation of approximately 6.5 acres of Sonoran desert vegetation communities at 10 proposed tower sites and associated roads. The majority of these impacts would occur within Arizona Upland Subdivision. The proposed project would have long-term, minor adverse effect on the total amount of similar Sonoran Desert vegetation communities on CPNWR and BLM lands and vegetation types on OPCNM.

Table 2-6, continued

Affected Environment	No Action Alternative	Proposed Action
Wildlife and Aquatic Resources (Section 3.8)	Under the No Action Alternative, no direct impacts to wildlife habitats would occur. However, illegal cross border activity would continue to disturb wildlife and degrade wildlife habitat.	Tower and access road construction and construction of the FOB would permanently impact 18.8 acres. Only 3 acres of previously undisturbed wildlife habitat would be impacted. The proposed towers could have an adverse impact on migratory birds as a result of bird strikes. However, the number and extent of bird strikes in relation to the size of migratory bird populations and the extent of the migratory flyway would be minor and would not affect sustainability of migratory bird populations in the region. Appropriate mitigation measures would be implemented to reduce migratory bird strikes. The Proposed Action would have a long-term, minor adverse effect on migratory birds. The proposed project would have an indirect beneficial impact on wildlife as a result of enhancing detection of CBVs, increasing interdiction efficiency, reducing illegal traffic and consequently reducing the law enforcement footprint required for interdiction activities.
Protected Species (Section 3.9)	Under the No Action Alternative, there would be no direct impacts to threatened or endangered species or their habitats. However, the indirect and long-term impacts of illegal cross border activity on habitats throughout the project region and surrounding areas would continue to disturb threatened or endangered species and their habitats. Additionally, the FOB at Bates Well would not be relocated and may limit the migration of Sonoran pronghorn into the Valley of the Ajo.	Construction of the proposed towers and access roads, and road repair and improvements associated with the proposed towers is likely to adversely affect the Sonoran pronghorn, lesser long-nosed bat, desert pupfish and Sonoyta mud turtle. Adverse effects on Sonoran pronghorn and lesser long-nosed bat would be long-term and moderate. However, beneficial impacts would also be expected under the Proposed Action. Long-term, beneficial effects would occur by lessening impacts of CBV activities on habitats throughout the project area and surrounding areas. Relocation of the FOB from Bates Well would have a permanent long-term beneficial impact to Sonoran pronghorn. Appropriate conservation measures, best management practices, and off-setting measure would be implemented to minimize potential effects.
Cultural Resources (Section 3.10)	Under the No Action Alternative, no direct impacts to cultural resources would occur. However, cultural resources sites would continue to be impacted by illegal cross border activities.	A total of 14 recorded archaeological sites are located within the project area. Potential impacts to 11 previously recorded sites would be avoided through a combination of project design and monitoring. Impacts to three newly recorded sites would not affect the portions of those sites that are significant to the eligibility of the sites.
Air Quality (Section 3.11)	No construction of towers and roads would occur so no direct impacts would occur. However, air quality in the region would continue to be affected from fugitive dust emissions associated with CBVs travelling off-road and consequent law enforcement actions.	Temporary and minor increases in air pollution would occur from the use of construction equipment and the disturbance of soils during construction of the proposed towers and associated roads. There would be no violations of air quality standards and no conflicts with the state implementation plans; therefore, impacts on air quality from the implementation of the Proposed Action would be minor.
Noise (Section 3.12)	Under the No Action Alternative, the noise receptors near the tower installations would not experience additional noise events.	Noise generated by heavy construction equipment and helicopters would be intermittent and last 1 to 4 weeks to excavate and prepare the foundation to install each tower, after which, noise levels would return to ambient levels. The noise impacts from construction activities would be short-term and minor to moderate. Noise generated by generators and air-conditioning associated with the operation of the proposed tower site would have a moderate, long-term impact to the noise environment. Noise levels from the tower generators would be attenuated to 35 A-weighted decibels at 492 feet. Approximately 175 acres of land would be contained within the 35 dBA contour.
Radio Frequency Environment (Section 3.13)	Under the No Action Alternative, no direct impacts on humans, wildlife or communications would occur.	The proposed towers would emit radio frequency energy and electromagnetic radiation; therefore, some minor potential for adverse effects could occur. However, any adverse effects to human safety and wildlife would be negligible due to the minimal exposure risk and the elevated locations in which the antennae would be positioned.
Utilities and Infrastructure (Section 3.14)	No construction of towers and roads would occur so no direct impacts on utilities and infrastructure would occur.	Negligible demands on power utilities would be required as a result of the Proposed Action.
Roadways and Traffic (Section 3.15)	No construction of towers and roads would occur so no direct impacts would occur.	Construction and staging for the access roads, foundations, and towers would create a minor short-term impact to roadways and traffic within the project region. The increase of vehicular traffic would occur to supply materials and work crews at each tower site for a short period of time.
Aesthetics (Section 3.16)	Under the No Action Alternative, the aesthetics of the project region would not be directly affected by installation of towers. However, trash, graffiti, and general vandalism resulting from CBV traffic would be expected to continue to detract from the visual quality of area.	The proposed towers and FOB on OPCNM would be located primarily within undeveloped areas, the majority of which is located adjacent to designated wilderness. The proposed towers and associated infrastructure would be an unnatural element in an undeveloped area visited for its natural setting and visual qualities and would be expected to detract from the visual qualities of the project area. The proposed project would have a long-term, moderate impact on aesthetic qualities within the project area. The Proposed Action would have long-term indirect benefits to the landscape through the reduction or elimination of newly created illegal roads and trails.
Hazardous Waste (Section 3.17)	The No Action Alternative would not contribute any hazardous waste or materials to the project area, as no construction of towers or access roads would take place.	The Proposed Action would not result in the exposures of the environment or public to any hazardous materials. The potential exists for minor releases of petroleum, oil, and lubricant (POL) during construction or operational activities. Best management practices would be put in place to minimize any potential contamination at the proposed sites during construction activities and operation.

Table 2-6, continued

Affected Environment	No Action Alternative	Proposed Action
Socioeconomics (Section 3.18)	Under the No Action Alternative, no direct impacts on socioeconomics would occur. However, the societal costs associated with IAs, smugglers, and other CBVs would continue and likely increase.	The Proposed Action would not cause any changes to local employment rates, poverty levels, or local incomes. Short-term beneficial impacts would be realized by retail stores, restaurants, hotels, and the purchase of fuel. Long-term beneficial, socioeconomic impacts could be realized from the purchasing of propane for generators.
Environmental Justice (Section 3.19)	Under the No Action Alternative, no impacts to minority and low income populations would occur.	Implementation of the Proposed Action would cause no direct impacts to minority and low income populations.
Sustainability and Greening (Section 3.20)	No construction of towers and roads would occur so no direct impacts would occur.	Under the Proposed Action, applicable Federal sustainability and greening practices would be implemented to the greatest extent practicable.

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SECTION 3.0
AFFECTED ENVIRONMENT AND CONSEQUENCES

3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 PRELIMINARY IMPACT ANALYSIS

This section of the EA describes the natural and human environment that exists within the project area of the SBI*net* Ajo-1 Tower Project, and the potential impacts of the Proposed Action as outlined in Section 2.0 of this document. Only those parameters with the potential to be affected by the Proposed Action are described, per CEQ regulation (40 CFR 1501.7 [3]). Impacts can vary in magnitude from a slight to a total change in the environment. The impact analysis presented in this EA is based upon existing regulatory standards, scientific, and environmental knowledge and best professional opinions.

Some topics are limited in scope due to the lack of direct effect from the proposed project on the resource, or because that particular resource is not located within the project corridor. Resources such as climate and wild and scenic rivers are not addressed for the following reasons:

- Climate
  The climate would not be impacted by the construction and operation of the Proposed Action.

- Wild and Scenic Rivers
  The Proposed Action would not affect any designated Wild and Scenic Rivers (16 U.S.C. 551, 1278[c], 1281[d]) because no rivers designated as such are located within or near the study corridor.

Impacts (consequence or effect) can be either beneficial or adverse, and can be either directly related to the action or indirectly caused by the action. Direct impacts are those effects that are caused by the action and occur at the same time and place (40 CFR 1508.8[a]). Indirect impacts are those effects that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR 1508.8[b]). As discussed in this section, the No Action and Proposed Action may create temporary (lasting the duration of construction), short-term (up to 3 years), long-term (greater than 3 years) impacts or effects.

Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis the intensity of impacts will be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- Negligible: A resource would not be affected or the effects would be at or below the level of detection and changes would not be of any measurable or perceptible consequences.

- Minor: Effects to a resource would be detectable, although the effects would be localized, small and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable.
- Moderate: Effects to a resource would be readily detectable, long-term, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable.
- Major: Effects to a resource would be obvious, long-term, and would have substantial consequences on a regional scale. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

The following discussions describe and, where possible, quantify the potential effects of each alternative on the resources within or near the project area. All impacts described below are considered to be adverse unless stated otherwise. Table 3-1 presents the permanent and temporary (construction) impacts for the construction of the proposed towers, new access roads, approach road repair or improvement, and road maintenance. Each area of construction impact was surveyed by Harris Environmental Group, Inc. (Harris) and the results of these surveys are provided in Appendix D.

Table 3-1. Temporary and Permanent Impacts Resulting from the Proposed Action

Tower Site/Action	Permanent Impact (acres)			Temporary Impact (acres)		
	Site	Roads	Corridor	Site	Roads	Corridor
TCA-AJO-003	0.06	0.03	0.0	0.17	0.0	0.0
TCA-AJO-004	0.06	0.92	0.0	0.17	0.30	0.0
TCA-AJO-170	0.06	0.02	8.8	0.12	0.005	3.2
TCA-AJO-189	0.002	0.0	0.0	0.03	0.0	0.0
TCA-AJO-204	0.002	0.0	0.0	0.03	0.0	0.0
TCA-AJO-216	0.06	0.13	0.0	0.17	0.04	0.0
TCA-AJO-301	0.15	0.02	0.0	0.08	0.0	0.0
TCA-AJO-302	0.06	0.04	0.0	0.17	0.0	0.0
TCA-AJO-303	0.06	2.5	0.0	0.17	0.83	0.0
TCA-AJO-310	0.06	4.8	0.0	0.17	0.84	0.0
FOB	1.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1.57	8.46	8.8	1.3	2.0	3.2

3.2 LAND USE

3.2.1 Affected Environment

Pima County is situated on the southwestern border of Arizona and encompasses 9,184 square miles (Arizona Department of Commerce [AZDC] 2008). The majority of the County is located along the U.S./Mexico border. Land use is dependent upon soil characteristics and water availability since the majority of Pima County is desert. Government, tourism, commercial, and Indian reservations are the county's principal land uses. BLM and U.S. Forest Service (USFS) account for 12.1 percent of land ownership; Indian reservations, 42.1 percent; the State of Arizona, 14.9 percent; private or corporate, 13.8 percent; and other public lands, 17.1 percent (AZDC 2008). Other public lands include those managed by USFWS and NPS.

Five of the proposed tower sites, TCA-AJO-003, 170, 204, 302, and 303 and the proposed FOB, are located on NPS (i.e., OPCNM) lands, which are all undeveloped lands used primarily for the protection of the Sonoran Desert Ecosystem, and recreational and educational purposes. Approximately 95 percent of OPCNM is designated wilderness, which is discussed in detail in Section 3.3 Proposed tower sites TCA-AJO-004, and 216 are located on BLM lands; however, access and approach roads to proposed tower site TCA-AJO-004 are located on BLM and OPCNM lands, respectively. Authorized land uses on BLM lands include roads, utility ROWs, pipeline ROWs, livestock grazing, recreation, water encatchments, highway ROWs, USBP facilities, and fences. Proposed tower site TCA-AJO-189 is located on CPNWR which is undeveloped lands established for the recovery of the desert bighorn sheep. Approximately 93 percent of CPNWR is designated wilderness and is discussed in detail in Section 3.3.

Proposed tower sites TCA-AJO-301 is located on CBP-leased lands at the Lukeville POE. Proposed tower site TCA-AJO-310 is located on ASTL property with approach roads on OPCNM lands.

Some proposed towers would require access roads to be constructed or would require road improvements or repairs to authorized roads associated with the proposed towers. Table 3-2 indicates which access roads would impact specific landowners or land managing agencies. The FOB would be located on OPCNM land.

Table 3-2. Proposed Tower and Access Road Land Ownership

Tower Name	Landowner of Access Road	Acres
TCA-AJO-003	NPS	0.26
TCA-AJO-004	BLM and OPCNM	1.45
TCA-AJO-170	NPS	12.21
TCA-AJO-189	USFWS*	0.03
TCA-AJO-204	NPS*	0.03
TCA-AJO-216	BLM	0.40
TCA-AJO-301	CBP-leased Land at Lukeville POE	0.25
TCA-AJO-302	NPS	0.27
TCA-AJO-303	NPS	3.56
TCA-AJO-310	NPS and Arizona State Trust Lands	5.87

* - No tower access road construction or repair needed as tower will be airlifted

Currently, land uses within the project area are directly and indirectly affected by CBV pedestrian and vehicle traffic, and consequent law enforcement activities. Urbanized areas and natural desert areas experience this increased crime and damage to native vegetation, respectively. The effect of illegal cross border activities within the project area, has a negative impact to residential, commercial, wilderness, wildlife, recreation, and authorized land uses. Currently, the majority of the western portion of OPCNM is closed to the visiting public for safety reasons as a result of heavy illegal cross border traffic and activities (NPS 2009a). Litter and human waste has degraded the visual and natural resources on OPCNM, CPNWR, and BLM lands. Davis (2005) reported that BLM estimated that each pedestrian CBV deposits an average of 8 pounds of trash. Photograph 3-1 provides an example of litter deposited by CBVs. Trash is generally distributed along major illegal routes but is highly concentrated in passes and frequently used areas where CBVs concentrate. Deposition of trash and human waste detracts from the wilderness aspect of Organ Pipe Cactus Wilderness and Cabeza Prieta Wilderness. Additionally, unauthorized vehicle routes and unauthorized trails, and man-caused fires (IA warming fires and signal fires) disturb or destroy native vegetation and wildlife habitat. In 2004-2005, OPCNM staff documented 364 miles of off-road vehicle routes and tracks created by CBVs and consequent law enforcement activity (OPCNM 2005). On CPNWR, 500 miles of unauthorized entrenched roads and 700 more miles of unauthorized trails and loosely cut roads exist (Di Silvestro 2007 and Guillot 2007). Further, illegal cross border activities destroy fences resulting in livestock trespassing, which results in additional damage to natural resources. Any fences damaged during required USBP interdiction activities are repaired by USBP agents following completion of the interdiction action (USBP 2009).

Photograph 3-1. Trash deposited by illegal aliens

3.2.2 Environmental Consequences

3.2.2.1 No Action Alternative

Under the No Action Alternative, illegal traffic and consequent law enforcement actions would continue to directly and indirectly impact and disturb existing land uses within the project area. Unauthorized roads and trails would continue to be made and used by CBVs attempting to avoid detection and apprehension by law enforcement personnel (e.g., USBP agent and NPS rangers) and law enforcement personnel during required interdiction activities. Furthermore, in the absence of the SBI*net* Ajo-1 Tower Project illegal traffic and the creation of new unauthorized roads and trails is likely to increase. Illegal cross border activities (e.g., unauthorized roads) would continue to destroy native vegetation, accelerate soil erosion, deposit trash and human waste, vandalize property (e.g., fences) and detract from the landscape recreational values of OPCNM, CPNWR, and BLM. In FY 2008 USBP Ajo Station apprehended 15,462 CBVs. Using BLM's estimate of 8 pounds of trash per CBV on average, a total of 123,696 pounds may have been deposited in FY 2008. Additionally, illegal cross border activities would continue to pose a threat to the safety of Federal employees and the visiting public on these Federal lands. Under the No Action Alternative, the superintendent of OPCNM would continue to be challenged to provide for the safety and security of staff and visitors to the monument. Further, no road repairs, improvements, or maintenance activities associated with the Proposed Action would occur. Authorized roads would continue to deteriorate and have potential adverse impacts on natural resources.

3.2.2.2 Proposed Action

Construction of the proposed towers, access roads, and FOB would require the utilization of 18.8 acres of NPS (i.e., OPCNM), USFWS (i.e., CPNWR), BLM, designated wilderness and ASTL property primarily for CBP enforcement. Construction of the towers and road construction, repairs, and improvements associated with the proposed towers would temporarily impact 6.5 acres of land managed by these same agencies. The SBI*net* Ajo-1 Tower Project has been extensively coordinated with affected land management agencies. CBP would obtain special use permits, and ROW grants and easement from the affected land management agencies prior to initiating construction of the proposed project. Additionally, a compatibility determination would be completed by USFWS for proposed tower site TCA-AJO-189. The proposed project would change land use on less than 0.01 percent of OPCNM, CPNWR, and BLM lands in the project area and would result in a long-term, negligible adverse effect on land use in the project area.

The SBI*net* Ajo-1 Tower Project would result in indirect beneficial effects to land use as a result of reducing CBV traffic and focusing law enforcement activities in the project area. Beneficial effects would be noticeable throughout the landscape and not localized near the proposed tower sites. The proposed project would enhance CBP's detection capabilities and increase the efficiency of interdictions actions. Enhancement of detection capabilities and interdiction efficiency would result in more focused operations by CBP agents and a reduced enforcement footprint within OPCNM and to some extent CPNWR. As the certainty of apprehension increases as a result of the proposed project illegal traffic and consequent law enforcement efforts would decrease, thus reducing

potential impacts to land use and natural resources. Additionally, as apprehension success increases through the use of the proposed towers, the towers would serve as a deterrent to illegal traffic. Operational success as a result of technology has been demonstrated by USBP in the Yuma Sector and Altar Valley in the Tucson Sector. As demonstrated by these operations illegal traffic reductions could be realized within 1 year of the technology being operational and accepted by USBP. Cross border violations were reduced by 70 and 95 percent in the Altar Valley and Yuma Sector, respectively. Although illegal traffic reductions can not be quantified, similar reductions in illegal traffic would be expected as a result of the SBI*net* Ajo-1 Tower Project. Further, the enforcement footprint was reduced from 45 miles north of the international border to 0 to 10 miles in the Altar Valley. Beneficial effects would include reduced vegetation damage from unauthorized roads and trails, reduced litter and human waste on public lands, increased public safety; decreased damage to authorized land uses (e.g., fences). Decreased illegal activity would eventually allow NPS to evaluate the potential to re-open the currently closed portions of OPCNM for public use under a more secure environment. Further, reduced illegal traffic and consequent law enforcement actions would allow OPCNM to conduct restoration activities in areas previously disturbed by illegal cross border activities and consequent law enforcement activities.

3.3 WILDERNESS

3.*3*.1 Affected Environment

The Wilderness Act of 1964 (P.L. 88-577 [Wilderness Act]) allowed for the establishment of a National Wilderness Preservation System and allows for the establishment of wilderness on Federally owned lands designated by Congress. Areas designated as wilderness are to be administered in such a manner as to leave the lands undisturbed for future use and enjoyment by the public as wilderness and to provide protection of these areas for the preservation of their wilderness character. As defined by the Wilderness Act, wilderness should provide for the opportunities to experience solitude, unconfined recreation, and naturalness. To maintain the wilderness characteristics of designated wilderness areas, certain activities are prohibited, including commercial enterprise and permanent roads and except as necessary to meet minimum requirements for the administration of the area for the purpose of the Wilderness Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, nor use of motor vehicles, motorized equipment or motorboats, no landing of aircraft, no other form of mechanical transport, and no structure or installation (16 U.S.C. 1131-1136).

Organ Pipe Cactus Wilderness

Organ Pipe Cactus Wilderness was created within OPCNM by the National Parks and Recreation Act of 1978 (P.L. 95-625). It encompasses 95 percent (312,660 acres designated wilderness and 1,240 acres potential wilderness) of OPCNM (Figure 3-1) and was created to celebrate the life and landscape of the Sonoran Desert (NPS 1997). Organ Pipe Cactus Wilderness pays tribute to the organ pipe cactus (*Stenocereus thurberi*), a rare, multi-spined cactus found in the U.S. Furthermore, Organ Pipe Cactus Wilderness is a shelter for endangered species (e.g., the Sonoran pronghorn and lesser

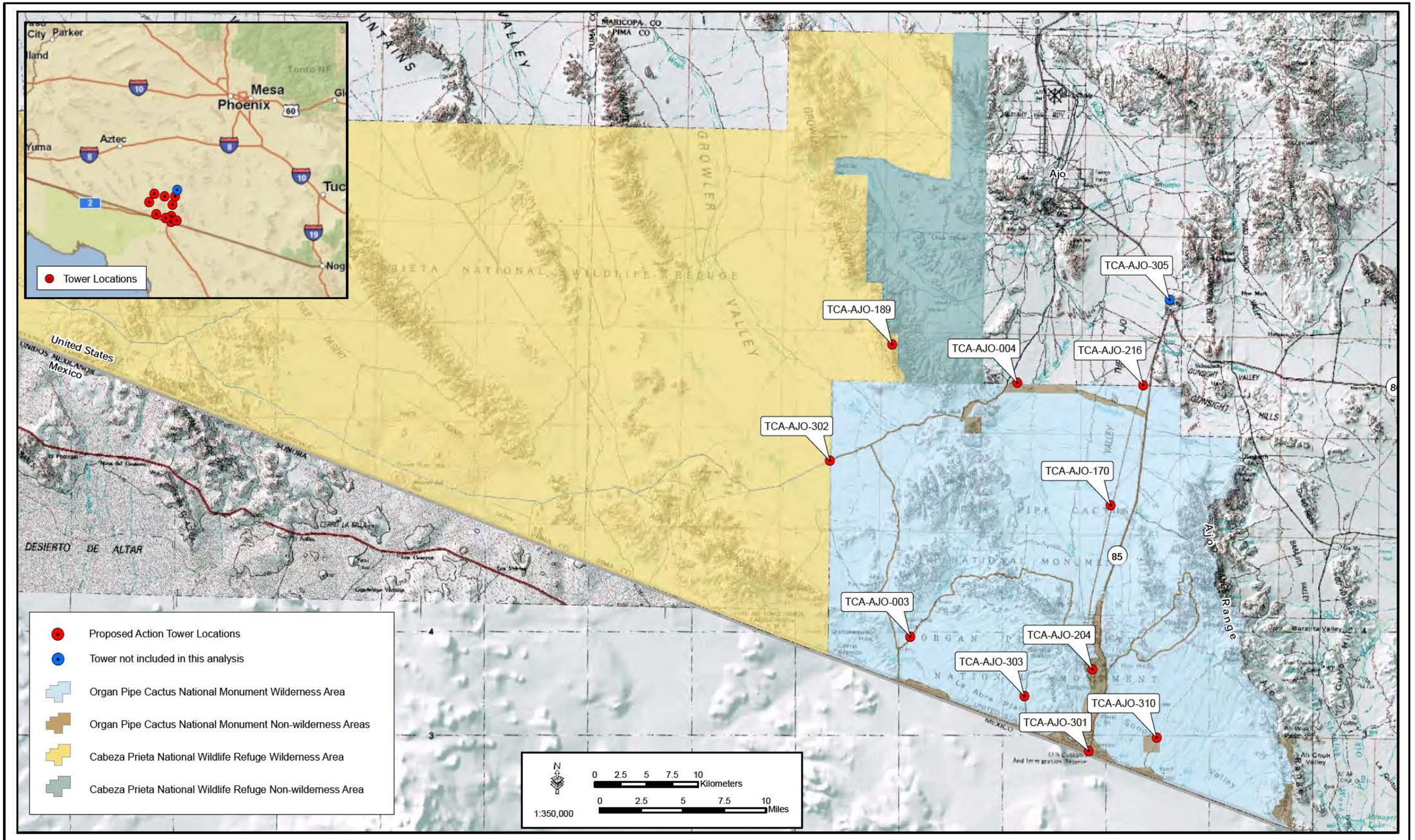

Figure 3-1: Organ Pipe Cactus National Monument and Cabeza Prieta National Wildlife Refuge Wilderness Areas

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long-nosed bat), provides a place for the Tohono O'odham people to collect native vegetation, serves as a natural research laboratory for understanding and managing the Sonoran Desert Ecosystem, and serves as a baseline indicator against which environmental changes can be identified. Management of Organ Pipe Cactus Wilderness is consistent with the provision in the Wilderness Act.

Cabeza Prieta National Wildlife Refuge and Cabeza Prieta Wilderness

The CPNWR is one of 510 refuges governed by the National Wildlife Refuge System Administration Act of 1966, as amended (Refuge Act; P.L. 106-580) and National Wildlife Refuge System Improvement Act (P.L. 105-57). The Refuge Act consolidated the authorities relating to the areas that are administered by the Secretary of the Interior. The act also provides for the conservation, protection, and propagation of native species of fish and wildlife, including migratory birds that are threatened with extinction and their habitats for the benefit of present and future generations of Americans.

Cabeza Prieta Wilderness was created within CPNWR by the 1990 Arizona Wilderness Act (House Report 2570 Title III) It encompasses 93 percent (803,418 acres) of CPNWR (see Figure 3-1) and was created to preserve the Sonoran Desert Ecosystem. CPNWR and designated Wilderness is a shelter for endangered species (e.g., the Sonoran pronghorn and lesser long-nosed bat), and seeks to protect, maintain and restore Sonoran Desert Ecosystems. Management of the Cabeza Wilderness is consistent with the regulations and prohibitions of the Wilderness Act. One proposed tower site, TCA-AJO-189, is located in Cabeza Prieta Wilderness. Construction and maintenance of the tower would be conducted via helicopter. However, the 1990 Arizona Wilderness Act allows for the maintenance of existing associate ground instrumentation by the military. Proposed tower site TCA-AJO-189 would be located in an area currently used for military ground instrumentation.

Minimum Requirement Analysis

As specified under Section 4(c) of the Wilderness Act, a Minimum Requirement Analysis (MRA) is a process which helps an agency to determine whether an action should be completed in designated wilderness. A MRA consists of a determination of whether a project or activity is necessary to meet the minimum requirements for the administration of the wilderness and identification of the tool(s) or method(s) which should be used to complete the project that results in the least impact to the physical resource or wilderness values. A MRA also helps to identify, analyze and select management actions that are the minimum necessary for wilderness without compromising safety. A MRA from CPNWR's manager would be required for the construction, operation, and maintenance of proposed tower TCA-AJO-189, including the use of helicopters in designated wilderness. Installation of proposed tower TCA-AJO-189 would establish a structure in designated wilderness and the proposed tower would be readily observable within designated wilderness.

Existing Conditions

As previously described in Section 3.2.1, many areas within Organ Pipe Cactus Wilderness and Cabeza Prieta Wilderness have been degraded as a result of illegal vehicle and pedestrian traffic, deposition of trash and human waste, and vandalism that detract from the wilderness qualities that lead to the designation of these as wilderness. Additionally, unauthorized roads have been and continue to be created in designated wilderness as a result of motorized vehicle operations by CBV and law enforcement personnel conducting required CBV interdiction actions. Further, a large portion of Organ Pipe Cactus Wilderness is currently not accessible to the visiting public due to security and safety concerns.

3.3.2 Environmental Consequences

3.3.2.1 No Action Alternative

Under the No Action Alternative, there would be no direct effect on designated wilderness as a result of tower construction or noise emissions generated during construction activities and operation of the proposed towers. However, IA and other CBV traffic and consequent law enforcement actions would continue to directly and indirectly impact and disturb designated wilderness. Unauthorized roads and trails, deposition of trash and human waste, and vandalism would continue to distract from the wilderness qualities of designated wilderness in the project area. As stated earlier, based on FY 2008 apprehension figures for Ajo Station, approximately 123,696 pounds of trash was potentially deposited by CBVs in FY 2008 alone. Unauthorized roads and trails would continue to be created and used by CBVs attempting to avoid detection and apprehension by law enforcement personnel (e.g., USBP agents and NPS rangers) and law enforcement personnel conducting required interdiction activities. Furthermore, in the absence of the SBI*net* Ajo-1 Tower Project, illegal traffic and the creation of new unauthorized roads and trails are likely to increase. The No Action Alternative would have a long-term, moderate adverse effect on designated wilderness.

3.3.2.2 Proposed Action

Of the proposed 10 towers and new FOB site, only one tower (TCA-AJO-198) is located in designated wilderness (i.e., Cabeza Prieta Wilderness), as will be discussed later. However, proposed tower site TCA-AJO-170 and its associated approach roads and the proposed approach road to proposed tower site TCA-AJO-310 are located within potential wilderness on the OPCNM. A special use permit would be obtained from the OPCNM superintendent for those towers located on OPCNM.

Six of the proposed towers (TCA-AJO-003, 004, 204, 216, 302, and 303) are located adjacent to Organ Pipe Cactus Wilderness and proposed tower TCA-AJO-302 is also located in proximity to Cabeza Prieta Wilderness. All of the proposed towers would be readily visible from adjacent wilderness. A viewshed analysis was performed from 17 observation points on OPCNM of the 10 proposed towers. The observation points used in this analysis were located along authorized roads, hiking trails, and higher elevation points (i.e., Kino Peak) where the public would visit for a wilderness experience (Figure 3-2). The towers potentially visible from these observation points are presented in Table 3-3. Additionally, a line-of-sight analysis was performed from each of the 17

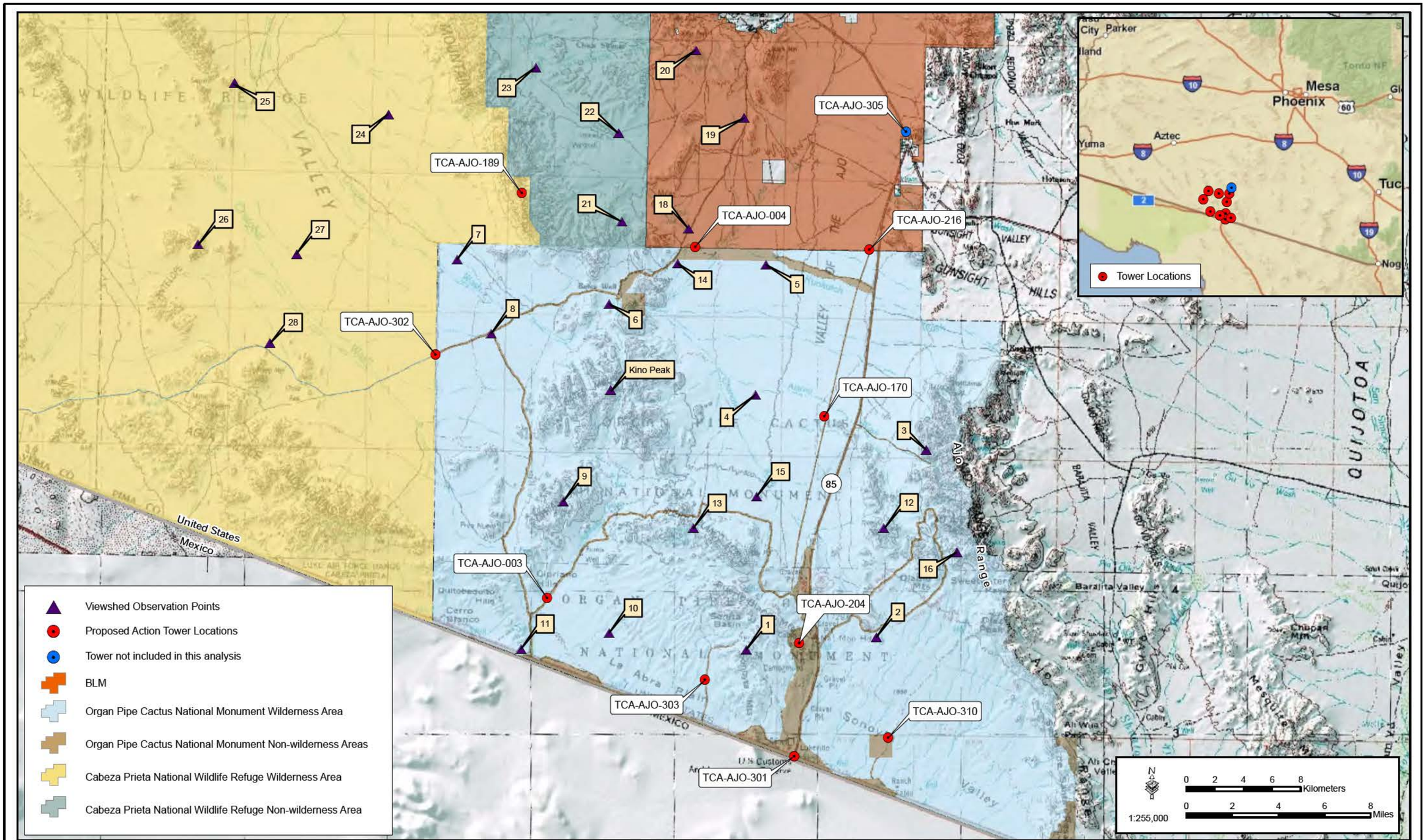

Figure 3-2: Viewshed Analysis Observation Points on the Organ Pipe Cactus National Monument

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observation points to verify the viewshed visibility. Both the viewshed and line-of-sight analyses were conducted using a three dimensional Geographic Information System (GIS). Both the height of the tower and observer were used in the viewshed analysis. A height of 6 feet was used for the observer. Maps depicting the viewshed of each proposed tower site are provided in Appendix E.

Table 3-3. Organ Pipe Cactus National Monument Viewshed Affected by the Proposed Ajo-1 Towers

Observation Point	Towers
1	TCA-AJO-204
2	TCA-AJO-204, 301 and 310
3	TCA-AJO-204
4	TCA-AJO-170, 004 and 216
5	TCA-AJO-004, 170, 216 and 189
6	None
7	TCA-AJO-189 and 302
8	TCA-AJO- 189 and 302
9	TCA-AJO-189
10	TCA-AJO-303
11	None
12 (Tillotson Peak)	TCA-AJO-170, 204, 216, 301 and 310
13	TCA-AJO-170, 004 and 216
14	TCA-AJO-170, 004 and 216
15	TCA-AJO-170, 004 and 216
16	None
17 (Kino Peak)	TCA-AJO-170, 302, 004, 216 and 303

At least one proposed tower would be readily visible from 14 of the 17 observation points analyzed and multiple towers would be visible from 10 of the observation points. Proposed towers TCA-AJO-004, 170, and 216, and 189 would be visible from the northern portion of the Valley of the Ajo. Proposed towers TCA-AJO-004, 170, 216, 302, and 303 would be visible from Kino Peak. Kino Peak is located in OPCNM's second largest wilderness unit. Additionally, the proposed towers are man-made structures that would detract from the natural values of designated wilderness. Thus, construction of the proposed towers would have a long-term, moderate adverse effect on the viewshed and natural values of designated wilderness.

As mentioned previously, one proposed tower, TCA-AJO-189, would be constructed within Cabeza Prieta Wilderness. An existing U.S. Air Force tower is located at the proposed tower site. Construction and maintenance of proposed tower TCA-AJO-189 would require helicopter lifts to transport construction equipment and material, and construction personnel and environmental monitors. Through coordination with CPNWR, helicopter lifts have been reduced to 85 lifts for tower construction. This is the minimum number of helicopter lifts required to transport construction materials and construction personnel. Additionally, four helicopter lifts would be required annually to

transport maintenance personnel to the proposed tower site. Construction and maintenance of proposed tower site TCA-AJO-189 is consistent with the administrative exception that allows activities that meet minimum requirements for the administration of designated wilderness and a MRA would be prepared by the CPNWR manager (16 U.S.C. 1131-1136). Further, the proposed RAT tower is a temporary structure and would not constitute a permanent structure in designated wilderness. RATs can be disassembled and relocated to other areas, as necessary. Deployment of RATs to other sites would require additional or supplemental NEPA documentation, however.

Proposed tower sites TCA-AJO-189 and TCA-AJO-302 would be readily visible from Cabeza Prieta Wilderness. CBP would obtain a MRA from USFWS authorizing the construction, operation, and maintenance of proposed tower site TCA-AJO-189 in Cabeza Prieta Wilderness. The construction of proposed tower TCA-AJO-189 and use of helicopters for construction and maintenance has been extensively coordinated with CPNWR. Construction of the proposed towers would have a long-term, moderate adverse effect on the viewshed and natural values within designated wilderness.

The presence of the proposed towers would adversely affect several of the characteristics of wilderness as defined in the Wilderness Act. Wilderness visitors may no longer have a sense of solitude where towers are present. This sense of solitude would be adversely affected as a result of the monitoring capabilities of the proposed towers, as individuals may feel they are being monitored by the proposed towers. Additionally, the proposed towers would detract from the naturalness of the landscape and could detract from the wilderness experience. Further, the monitoring capabilities of the proposed tower could detract from the unconfined recreation experience. Construction of the proposed towers would have a long-term, moderate adverse effect on designated wilderness.

Noise emissions associated with the construction (e.g., heavy equipment), operation (e.g., generator), and maintenance of the proposed towers could indirectly affect the quality of Organ Pipe Cactus Wilderness and Cabeza Prieta Wilderness which are valued for their solitude and quietness. Construction equipment could produce noise emissions up to 81 dBA during the construction of roads and tower sites, and authorized road and corridor repair and improvement activities. Helicopter lifts at proposed towers TCA-AJO-189 and 204 would produce noise emissions that would adversely affect the quality of designated wilderness. The Federal Highway Administration has established a construction noise abatement criteria of 57 dBA for lands were serenity and quiet are of extraordinary significance (23 CFR 722, Table 1). A total of 353 acres of designated wilderness would be temporarily affected by noise levels above 57 dBA during tower construction. Approximately 2,568 acres of designated wilderness would be temporarily affected during road construction activities. Road construction activities would last 5 to 22 days depending on the road segment. Additionally, approximately 2,124 acres of land would be affected by helicopter generated noise during construction activities. Noise emissions from construction activities would be intermittently produced during the construction of the proposed towers and associated road construction, repair and improvement. Noise emissions during construction activities would have a temporary,

moderate effect on the quality of designated wilderness. A detailed noise analysis is provided in Section 3.12.

Only four proposed towers sites, TCA-AJO-003, 004, 302, and 303, located adjacent to wilderness would have a hybrid generator/solar system as their primary power source. The proposed FOB, also located in a non-wilderness buffer, would also use generators as a power source. Generators at the proposed towers would be expected to operate 4 to 8 hours per day and the generator at the FOB would operate 24 hours per day.

Although OPCNM (Sturm 2009a) has reported that ambient noise on OPCNM is 20 dBA, CBP, OPCNM, and USFWS have agreed that a noise emission at or below 35 dBA should be the goal for long-term noise levels. This is the level at which there should be no effect to Sonoran pronghorn. Long-term noise emissions from the tower and FOB generators would be attenuated to 35 dBA (threshold for impacts to Sonoran pronghorn) within 492 feet of the tower. Therefore, wilderness qualities (e.g., serenity) would be degraded within this noise contour, which encompasses approximately 105 acres. Noise emissions from the operation of the proposed towers would be localized and would have a long-term, moderate impact on designated wilderness.

The SBI*net* Ajo-1 Tower Project would result in indirect beneficial effects to designated wilderness as a result of reducing CBV traffic and focusing law enforcement activities in the project area. Beneficial effects would be noticeable throughout designated wilderness and not localized near the proposed tower sites. The proposed project would enhance CBP's detection capabilities and increase the efficiency of interdiction actions. Although interdiction efforts are likely to increase when the proposed towers become functional as a result of the enhanced detection capabilities, these interdiction efforts would be more focused and off-road interdiction activities would not be expected to increase overall; in fact, they would be expected to decrease over time. Enhancement of detection capabilities and interdiction efficiency would result in more focused operations by CBP agents and consequently an increased deterrence effect, resulting in a reduced enforcement footprint within Organ Pipe Cactus Wilderness and to some extent Cabeza Prieta Wilderness. Operational success as a result of technology has been demonstrated by USBP in the Yuma Sector and Altar Valley in the Tucson Sector. Although the reduction in illegal traffic cannot be quantified, the operational success by USBP in Yuma Sector and Altar Valley in the Tucson Sector indicate reductions in illegal traffic could occur as soon as 1 year after the towers are operational and accepted by USBP. Cross border violations were reduced by 70 and 95 percent in the Altar Valley and Yuma Sector, respectively. As illegal traffic decreases, the enforcement footprint of USBP would generally move closer to the border and impacts to designated wilderness would be reduced. In the Altar Valley, USBP observed a 35 to 45 percent reduction in enforcement footprint north of the international border. Beneficial effects would include reduced vehicle traffic within designated wilderness, reduced degradation of the landscape, and reduced litter and human waste that degrade wilderness qualities throughout Organ Pipe Cactus Wilderness. The proposed project would also increase the overall safety to the public and OPCNM staff within Organ Pipe Wilderness. Increased public safety would allow

OPCNM to re-evaluate opening those portions of designated wilderness currently closed to public visitation, thus allowing greater access to wilderness. The Proposed Action would have a long-term, beneficial effect on Organ Pipe Cactus Wilderness as a result of increasing public safety, allowing the opportunity for increased wilderness access, and reducing adverse impacts from IA and other CBV traffic and consequent law enforcement actions on the landscape and natural resources that characterize designated wilderness.

3.4 GEOLOGY AND SOILS

3.4.1 Affected Environment

Geology

The project area is part of the Basin and Range Physiographic Province as delineated by the U.S. Geological Survey (USGS and California Geologic Survey 2000). This province stretches from southeastern Oregon southward through Nevada and terminates south of the project area in Sonora, Mexico. Most landforms within this province are the result of tectonic and alluvial processes, and the province is characterized by low mountains and deep valleys filled with alluvium (USGS and California Geologic Survey 2000).

Soils

There are 11 soils associated with the proposed tower locations and road improvements (NPS 2005). A description of each soil type is presented in Table 3-4 and soil maps depicting the proposed tower locations are provided in Appendix F. The majority of the soil associations range from excessively drained to well drained. Erosion hazards for each soil association estimate the potential for soil loss or erosion due to wind or water. These hazards are based on undisturbed soils. To prevent soil loss (especially those with high erosion hazards), BMPs would be implemented, as described in the Stormwater Pollution Prevention Plan (SWPPP) and in Section 5.0 of this document, during construction activities to avoid significant soil loss.

Soils in the project have and continue to be adversely affected by illegal off-road activities and consequent law enforcement actions. Illegal roads and trails created by CBVs destroy vegetation and disturb soils. Use of theses illegal trails and roads promotes erosion and sedimentation in downstream areas. In 2004 to 2005, OPCNM staff documented 364 miles of off-road vehicle routes and tracks created by CBVs and consequent law enforcement activities (OPCNM 2005). Additionally, new road and trails continue to be created as CBVs attempting to avoid detection and apprehension by law enforcement agents (i.e., USBP agents and OPCNM law enforcement officers).

Table 3-4. Characteristics of Soils Within the Project Corridor

Soils	Slope (percent)	Type	Permeability	Runoff	Erosion Hazard Wind / Water for Undisturbed Soils	Prime Farmlands
AnthoSoils, Very Gravelly Variant	1-3	Gravelly Loam	Moderately Rapid	Slow	Slight/Slight	No
Laveen Loam	0-3	Loam	Moderate	Slow	Slight/Slight	No
Gunsight Very Gravelly Loam	2-15	Gravelly Loam	Moderately Rapid	Medium	Slight/Moderate to Severe	No
Quilotosa-Vaiva-Rock Outcrop	15-55	Stony Coarse Sandy Loam	Moderate Rapid	Rapid	Slight/Slight	No
Lomitas Very Stony Loam	8-40	Very Stony Loam	Moderate	Medium to Rapid	Slight/Slight	No
Antho Fine Sandy Loam	0-3	Fine Sandy Loam	Moderately Rapid	Medium to Rapid	Slight/Slight	No
Gilman Very Fine Sandy Loam	0-3	Very Fine Sandy Loam	Moderate	Slow	Slight/Moderate	No
Growler-Antho Complex	0-2	Gravelly Loam	Moderate	Slow to Medium	Slight/Moderate	No
Torrifluvents	0-5	Sandy Loam	Rapid	Slow	Slight/Slight*	No
Rillito Gravelly Sandy Loam	1-15	Gravelly Sandy Loam	Moderate to Moderately Rapid	Slow to Medium	Slight/Slight	No
Cipriano Gravelly Loam	0-8	Gravelly Loam	Moderate	Slow to Medium	Slight/Moderate	No

NPS 2005, USDA, NRCS 2009, and Haney 1985
* Except for piping and bank cutting along entrenched streambeds

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An example of an illegal road created near TCA-AJO-310 this year is shown in Photograph 3-2. Further, authorized roads have become degraded in sections and are a source or accelerated soil erosion and downstream sedimentation.

Photograph 3-2. Illegal Road on OPCNM
Courtesy of OPCNM

Erosion rates on disturbed soils may be very high for many of these soils (Rutman 2009). On OPCNM, the soils that have had the highest accelerated erosion rates after disturbance are the Antho, Laveen, and Gilman soils that are sometimes combined with other soils types in complexes. As observed by OPCNM personnel, vehicle traffic readily compacts these soils, resulting in the vehicle routes or tracks becoming lower than the surrounding environment. A management issue is the erosion caused by roads in OPCNM. Some are now deeply entrenched or are redirecting water flows away from natural channels. Erosion problems are present nearly everywhere along roads in OPCNM (Rutman 1996). The USDA (2009) lists the Antho, Gunsight (2-15 percent slope), Gilman, and Growler soils as moderately suitable for natural surface roads. Laveen, Gunsight (0-2 percent slope), Rillito, and Cipriano soils are listed as well suited for natural surface roads. Lomitas soils are listed as poorly suited for natural surface roads.

Prime Farmland

Prime farmland is protected under the Farmland Protection Policy Act of 1980 and 1995 (FPPA). The FPPA's purpose is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. As required by Section 1541(b) of Act, 7 U.S.C. 4202(b), Federal agencies are: (a) to use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland; (b) to consider alternative actions, as appropriate, that could lessen adverse effects; and (c) to ensure that their programs, to the extent practicable, are compatible with state and local governments and private programs and policies to protect farmland.

USDA, NRCS did not report any of the 11 soil types as prime farmlands and none of the lands are currently in agricultural production. Furthermore, the soils in this region are not typically irrigated so these soils would fail to meet prime farmland criteria.

3.4.2 Environmental Consequences

3.4.2.1 No Action Alternative

Geology

Under the No Action Alternative, there would be no construction of access roads and towers, foundations, and associated buildings. Therefore, there would be no impacts on the geologic resources of the area.

Soils

Under the No Action Alternative, there would be no construction of access roads, towers, foundations, and associated buildings. Direct impacts to soils associated with the creation and use of unauthorized roads and trails by CBVs would continue, and likely increase, without the surveillance and detection technology proposed as part of the SBI*net* Ajo-1 Tower Project. Disturbed soils and entrenched roads and trails associated with CBV off-road activities and required CBV interdiction actions increase wind and soil erosion. Eroded soils resulting from illegal roads and trails result in a long-term erosion impact to soils. Additionally, degraded authorized roads are susceptible to erosion and soil loss due to unstable road surfaces.

3.4.2.2 Proposed Action

Geology

The Proposed Action primarily involves disturbances to topsoil layers, or somewhat deeper in the case of SST towers. During construction activities, any holes or excavations for either perimeter fence posts or towers, would impact an area no larger than approximately 38 square feet for the three piers on the larger SST, and would not substantially alter the geology in the project area. Each pier would be no deeper than approximately 30 to 60 feet bgs, and only three of the proposed towers are anticipated to be SSTs. Additionally, all proposed roads would be located in predominately alluvial material and would, therefore, not require substantial modifications to the area's topography (i.e., road cuts).

Soils

Construction of the proposed towers and access roads, repairs and improvements to associated approach roads, construction of the FOB would have a direct permanent impact on 18.8 acres and temporarily impact approximately 6.5 acres of soils. The disturbance to 18.8 acres of soils would be minor when examined on a regional scale. Furthermore, many of these impacts are associated with several linear roads distributed over a large geographic area and many different soil types. Thus, impacts associated with road activities would vary with soil type and would be more difficult to mitigate than a single site. Construction of the towers and new access roads would disturb previously undisturbed soils. Road repairs and improvements would occur on existing roads; therefore, these soils have been previously disturbed. Erosion would be expected during and immediately following tower and road construction activities. The potential for erosion would be greatest on Antho, Gilman, and Laveen soils. These soils have a high erosion potential once they are disturbed. Soil maps showing proposed tower sites and associated roads are located in Appendix F.

Approximately 3 acres of Antho, 1.5 acres of Gilman, and 1 acre of Laveen soils would be impacted as a result of the Proposed Action. These impacts are associated with proposed tower sites TCA-AJO-003, 004, 170, 216, 301, and 310. Proposed access and new roads located on these soils would be given careful consideration to ensure soil erosion is minimized. CBP has committed to conducting an engineering study of all roads associated with the SBI*net* Ajo-1 Tower Project. It is anticipated this study would be completed by the spring of 2010 and roads requiring upgrades would be prioritized in

coordination with OPCNM. CBP would provide OPCNM with a detailed plan for road upgrades for 2010 and beyond. Roads, especially those on Antho, Gilman and Laveen soils, would be upgraded to prevent erosion, incising of the road, and culverts would be installed where identified in the engineering study to prevent or minimize alteration of surface and drainage flows. The installation of culverts and other drainage structures (i.e., low water crossings), where required, and stabilization of the road would prevent future incising of the road from vehicle traffic and maintenance. BMPs (i.e., reseeding disturbed areas with native species) to reduce soil erosion would be employed during construction activities as outlined in Section 5.0. Additionally, a Stormwater Pollution Prevention Plan (SWPPP), including BMPs would be prepared prior to construction. Further, an erosion and sediment control plan, which stipulates measures to minimize erosion and sedimentation during construction, is included as part of the Tower and Road Design Plan for each proposed tower site.

It is anticipated that BMPs would not be sufficient to mitigate soil impacts associated with constructing the new road to proposed tower site TCA-AJO-310. Mitigation measures would have to be designed and included as part of the road upgrades outlined in CBP's engineering study. It is anticipated that erosion would be accelerated for a period of 1 to 2 years until the roads are upgraded per the engineering study. During the interim period between construction activities and completion of the road upgrades per the engineering study, moderate adverse effects on soils would be anticipated. However, erosion on Antho, Gilman and Laveen could progress long-term once it is initiated by construction activities. Overall, construction of the proposed towers and new access, repair and improvement of approach roads, and road maintenance could have a long-term, moderate adverse effect on soils.

The Proposed Action would have a permanent indirect benefit as a result of reducing CBV traffic within the project area. The Proposed Action would improve the detection of CBV traffic closer to the U.S.-Mexico border thus focusing and improving USBP agents' apprehension capabilities. The increased detection and apprehension capabilities resulting from the Proposed Action would reduce the amount of illegal off-road traffic and consequent law enforcement actions. Although the reduction in illegal traffic can not be quantified, experience from similar technology enhanced operations (i.e., Yuma Sector and Altar Valley in the Tucson Sector) indicate illegal traffic would be reduced within the operation footprint and this reduction could occur as soon as 1 year after the technology is operational and accepted by USBP. Both of the previous operations showed a reduction in the enforcement footprint. A 35 to 45 mile reduction in enforcement footprint north of the international border was observed in the Altar Valley. Additionally, the creation of new illegal roads and trails would be reduced and existing illegal roads and trails would be able to naturally rehabilitate. Further, as part of ESA Section 7 consultation, CBP has committed funding to the identification and restoration of unauthorized roads in Sonoran pronghorn habitat. BMPs outlined in Section 5.0 and stipulated as part of the SWPPP would be adhered to during construction activities. Additionally, an erosion and sediment control plan would be in place prior to construction for each proposed tower site.

Prime Farmlands
No soils classified as prime farmlands occur in the project area. Therefore, no impacts to prime farmlands would occur as part of the Growler Alternative.

3.5 HYDROLOGY AND GROUNDWATER

3.5.1 Affected Environment
The proposed tower sites are located in two Arizona Department of Water Resources (ADWR) groundwater basins: Lower Gila and Western Mexican.

The Lower Gila Basin is 7,309 square miles in area and the largest basin in the planning area. The basin is characterized by plains and valleys surrounded by low elevation mountain ranges. Vegetation types include Lower Colorado River and Arizona Upland subdivisions of Sonoran Desertscrub (ADWR 2008). The average annual rainfall ranges between 3.8 to 7.7 inches across the Lower Gila Basin where the greatest annual rainfall occurs near the town of Ajo (7.74 inches).

The Western Mexican Basin lies along the international boundary with Mexico and occupies approximately 610 square miles on the U.S. side of the border. The basin is characterized by desert valleys and low level mountain ranges. The average annual rainfall ranges from 4 inches per year in the western portion of the basin to 14 inches per year in the far eastern portion of the basin. Vegetation types include Lower Colorado River Valley and Arizona Uplands Sonoran Desertscrub (ADWR 2008).

On the U.S. side of the Western Mexican Basin, the land use is almost exclusively Federal lands with no irrigated croplands and, therefore, the recharge rate to the aquifer is greater than the rate of withdraw. On the Mexico side of the border, the basin area (called the Sonoyta Valley aquifer) is 5,000 square miles. Land use on the Mexican side of the basin is primarily agriculture. Agricultural irrigation draws a significant portion of its water needs from the Sonoyta Valley aquifer and overall, the balance of water stored in the Western Mexican Basin experiences an annual deficit and the amount of groundwater stored in the basin is steadily declining (Brown 1991). The annual groundwater recharge and annual municipal, industrial, and agricultural use in each of the two basins in the project region are presented in Table 3-5.

Table 3-5. Groundwater Basins Municipal, Industrial, and Agriculture Use and Recharge Rate

Groundwater Basin	Recharge Rate (acre-feet per year)	Municipal, Industrial & Agriculture Water Use (acre-feet per year)
Western Mexican	1,000	300
Sonoyta Valley	28,135	44,839
Lower Gila	9,000 – 88,000	287,900

Source: ADWR 2008 and Brown 1991

3.5.2 Environmental Consequences

3.5.2.1 No Action Alternative

The No Action Alternative would not require the use of water because there would be no construction; however, hydrology in the region has been and would continue to be affected under the No Action Alternative. Illegal vehicle and foot traffic and consequent law enforcement actions have created unauthorized vehicle routes and unauthorized trails. Under the No Action Alternative these unauthorized vehicle routes and unauthorized trails would continue to be used by CBVs and new unauthorized vehicle routes and unauthorized trails would likely be created by CBVs while attempting to avoid detection by law enforcement agents. These unauthorized vehicle routes and trails have the potential to alter the natural hydrology in the region as a result of altering runoff patterns, capturing or impounding sheet or drainage flows. Unauthorized vehicle routes and unauthorized trails can become incised over time and when surface water encounters these incised roads and trails, it may become captured or impounded in the incised footprint of these roads and trails. Changes in overland sheet and drainage flows may affect vegetative communities adjacent to unauthorized vehicle routes and unauthorized trails. Areas on the downstream side of the road become drier over time and vegetation communities can change as a result of this change in hydrology. Additionally, increased vehicle travel along authorized roads has increased as a result of CBV activities and required CBV interdiction actions. This increased volume of traffic has necessitated increased maintenance along authorized roads. The increase in road maintenance (e.g., grading) has caused some roads to become incised. These incised roads often act as channels and capture surface flows, thus permanently altering hydrology and potentially vegetation within areas adjacent to the road. This channelization of surface water within the incised roadbed results in accelerated erosion and soil loss. These adverse effects are most prominent on Antho, Gilman, and Laveen soils. The No Action Alternative would have no direct impact on groundwater availability or quality; however, it would have a permanent, moderate effect on hydrology in the project area.

3.5.2.2 Proposed Action

Under the Proposed Action, imported water would be required for watering new access road surfaces and fugitive dust suppression during construction and road repair and improvement activities. The water used to compact and construct new access roads typically averages 1.7 acre-foot per mile (554,000 gallons) of new road construction (Miranda 2006). Repairs and improvements to existing roads require approximately 1 acre-foot per mile (325,841 gallons). Table 3-6 segregates the road construction projects by groundwater basin and estimates the total water use for construction within each groundwater basin.

Table 3-6. Road Construction Water Use Segregated by Groundwater Basins

Groundwater Basin	New Road and Construction (miles)	Road Repairs/Improvements (miles)	Corridor Repairs/Improvements (miles)	Water Use (acre-feet)
Western Mexican	0.03	1.72		1.76
Lower Gila	1.2	2.4	6.10	9.70
Total	1.24	4.12	6.10	11.46

Source: Water use per mile was provided by Miranda 2006

While the water requirements of the Proposed Action are limited to the duration of the construction project and small compared to the overall water use in the basins, both the Lower Gila Basin and Western Mexican/Sonoyta Valley Basin experience an annual overdraft of groundwater resources and any increase in the demand would increase the deficit. Therefore, the impacts to groundwater resources would be short-term and minor.

Access and new road construction, repaired and improved authorized roads and corridors may impact the hydrology in areas adjacent to roads following construction. Potential effects associated with the roads and corridors could be the capture of surface or drainage flows and accelerated erosion. However, CBP has committed to conducting an engineering study of all roads associated with the SBI*net* Ajo-1 Tower Project. It is anticipated this study would be completed by the spring of 2010 and roads requiring upgrades would be prioritized in coordination with OPCNM. CBP would provide OPCNM with a detailed plan for road upgrades for 2010 and beyond. Roads, especially those on Antho, Gilman and Laveen soils, would be upgraded to prevent incising of the road and culverts and other drainage structures (i.e., low water crossings) would be installed where identified in the engineering study to prevent or minimize alteration of surface and drainage flows. Culverts and drainage structures would also maintain the current distribution of surface and drainage flows. Additionally, a SWPPP would be prepared prior to construction and would contain drainage controls at stream crossings to prevent soil erosion. With proper road and drainage upgrades as would be identified in the engineering study, authorized road construction, repair and maintenance, and repair and maintenance of the authorized corridor associated with proposed tower site TCA-AJO-170 would have a short-term, minor adverse impact on hydrology within the project area. However, in the interim period between road construction activities and implementation of road upgrades, road construction, repair and maintenance would have a moderate impact on hydrology.

The Proposed Action would have indirect beneficial impacts on hydrology and natural resource as a result of reducing illegal off-road vehicle and foot traffic. The proposed towers would enhance CBP's ability to detect CBVs and improve interdiction efficiency. This would allow USBP agents to plan and focus interdiction activities in non-sensitive resource areas (i.e., along roads) and ultimately reduce the enforcement footprint and move it closer to the international border. Additionally, the proposed towers would serve to improve enforcement efficiency, thus providing an increased deterrence to illegal traffic and reducing the volume of illegal traffic on OPCNM and to some extent on

CPNWR in the future. Based on past enhanced operations using technology (i.e., Yuma Sector and Altar Valley), a reduction in illegal cross border traffic could occur within 1 year. Although, it is impossible to quantify the potential reduction in illegal traffic based on past operations illegal cross border traffic is expected to be reduced as a result of the enhanced operations and the primary enforcement footprint would be moved closer to the border. In the Altar Valley illegal cross border traffic was reduced by 70 percent and the general enforcement footprint moved from 45 miles north of the international border to 0 to 10 miles. Further, unauthorized vehicle routes in Sonoran pronghorn habitat would be identified and restored as part off-setting measures for the Sonoran pronghorn as part of the Proposed Action. Road restoration efforts as part of the Proposed Action would improve surface and drainage flows in areas adjacent to restoration efforts.

3.6 SURFACE WATERS AND WATERS OF THE U.S.

3.6.1 Affected Environment

The proposed towers sites and associated roads and authorized corridor are located in two ADEQ watersheds: the San Simon and Lower Gila watershed. Only one perennial water source, Quitobaquito Springs, is located within the project area. The closest perennial rivers are the Colorado River mainstream and its reservoirs and the Gila River near Yuma where irrigation return flow provides perennial flow (ADEQ 2008).

Within the OPCNM, surface water drainage originates in the mountainous areas north and east of OPCNM and results in numerous intermittent, braided channels, connecting to larger arroyos or washes that drain into Mexico. These washes are well defined and hold runoff from brief but intense summer rainstorms, or other seasonal rainstorms that are typically less intense and longer in duration. Usually, runoff quickly infiltrates streambeds, and only rarely is it sufficient to cause flooding in the normally dry washes. Figure 3-3 presents the intermittent and ephemeral washes on OPCNM.

3.6.1.1 Surface Waters

Currently, the water quality in OPCNM is adversely affected by illegal off-road vehicle and foot traffic and consequent law enforcement interdiction efforts, unauthorized vehicle routes, and authorized roads. Unauthorized vehicle routes and authorized roads are potential sources of sediment. As previously stated, in 2004 through 2005 OPCNM staff documented 364 miles of off-road vehicle routes and tracks created by CBVs and consequent law enforcement actions on OPCNM (OPCNM 2005). These roads are used by IAs, smugglers, and other CBVs attempting to travel north to paved roadways and elude detection and apprehension by law enforcement personnel (e.g., USBP agents and OPCNM rangers). The illegal roads are often eroded and become incised over time. Once these roads are incised they capture sheet flow and often act as drainages carrying sediments to surface water drainages downstream. Additionally, some of the authorized roads on OPCNM are incised and deteriorated from increased traffic volumes and maintenance activities and serve as a source of sediment. The sediment resulting from these unauthorized vehicle routes and trails, and authorized roads can have a potential adverse effect on water quality downstream.

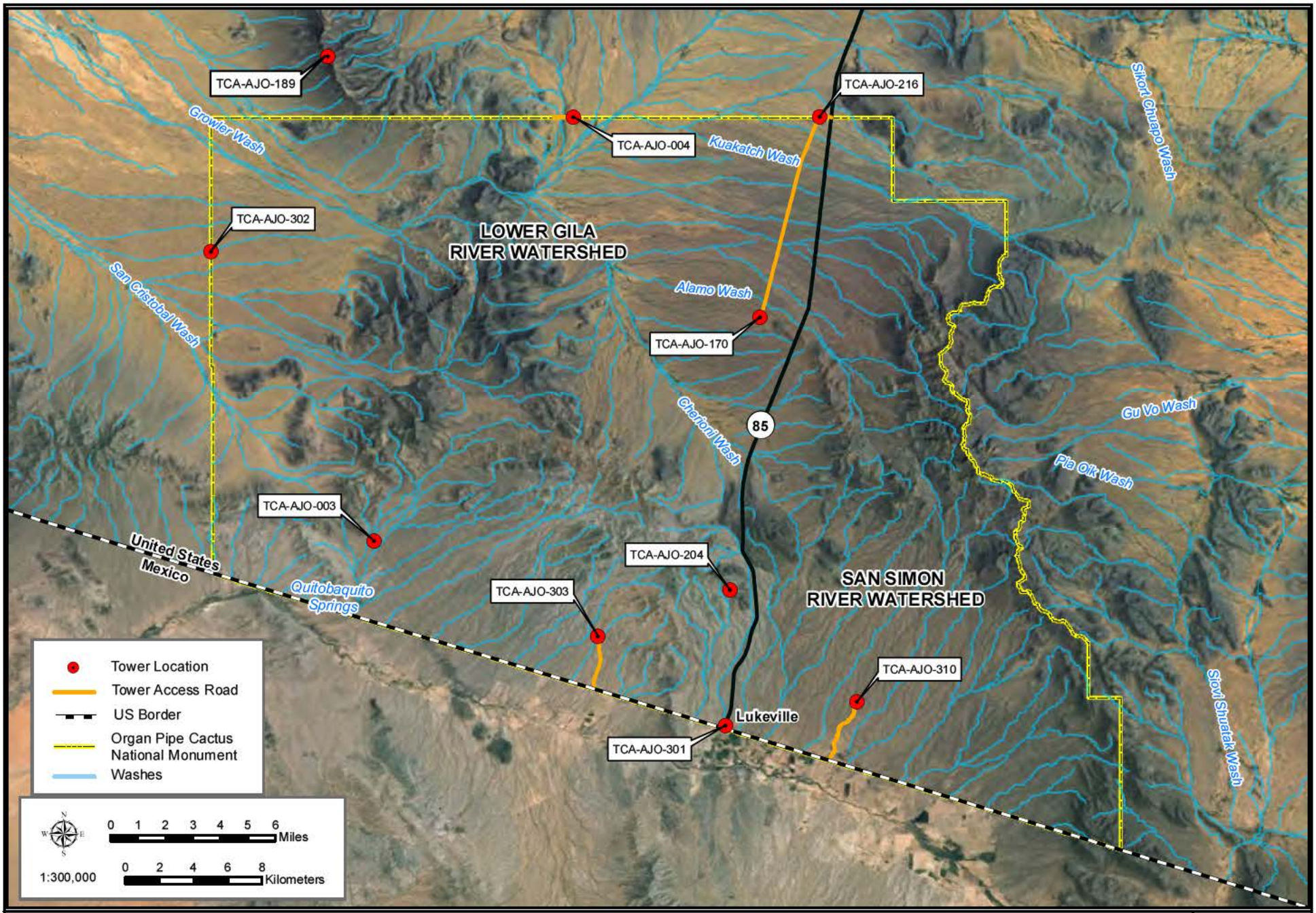

Figure 3-3: Perennial and Intermittent Streams within Organ Pipe Cactus National Monument

GSRC

December 2009

BW1 FOIA CBP 001823

3.6.1.2 Waters of the U.S. and Wetlands

Section 404 of the CWA of 1977 (P.L. 95-217) authorizes the Secretary of the Army, acting through the U.S. Army Corps of Engineers (USACE), to issue permits for the discharge of dredged or fill material into WUS, including wetlands. WUS (Section 328.3[2] of the CWA) are those waters used in interstate or foreign commerce, subject to ebb and flow of tide, and all interstate waters including interstate wetlands. WUS are further defined and may include waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, or impoundments of waters, tributaries of waters, and territorial seas. Jurisdictional boundaries for WUS are defined in the field as the ordinary high water marks which is that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Wetlands are those areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (USACE 1987). Although no wetlands exist within the project corridor, the unvegetated WUS would be subject to regulations under Section 404 of the CWA.

Activities that result in the dredging and/or filling of WUS are regulated under Section 404 of the CWA. The USACE has established Nationwide Permits (NWP) to efficiently authorize common activities, which do not significantly impact WUS, including wetlands. The NWPs were modified and reissued by the USACE in the *Federal Register* on March 12, 2007, with an effective date of March 19, 2007. All NWPs have an expiration date of March 19, 2012. The USACE authorizes permitting under a NWP, or requires an Individual Permit. All waterbodies flowing into the U.S. from Mexico or flowing from the U.S. into Mexico are within USACE jurisdiction due to their potential use in foreign commerce. Activities in WUS required for the construction, expansion, modification, or improvement of roads, such as those proposed in this EA, are identified as linear transportation crossings (e.g., highways, railways, trails, etc.) and are authorized under a NWP 14 if they meet the appropriate criteria established for this NWP. The threshold for an NWP 14 is a disturbance equal to or less than 0.5 acre of non-tidal waters or not greater than 1/3 acres in tidal waters.

In April 2009, Gulf South Research Corporation (GSRC) conducted a survey of potentially affected WUS in the project area. There were 69 WUS observed crossing either the access or authorized roads and corridor associated with the 10 proposed tower sites. All washes observed are classified as ephemeral streams and are considered jurisdictional under the CWA for the purpose of this EA. A list of WUS observed during the survey conducted by GSRC is presented in Appendix G.

No potential jurisdictional wetlands were observed at the proposed tower sites, within the footprint of authorized roads, proposed access roads, proposed new road

associated with proposed tower site TCA-AJO-310, or the authorized corridor associated with proposed tower site TCA-AJO-170.

3.6.2 Environmental Consequences

3.6.2.1 No Action Alternative

Under the No Action Alternative, WUS would not be directly impacted by the SBI*net* Ajo-1 Tower Project, since no construction would occur; however, indirect impacts to WUS would continue to occur. In the absence of the SBI*net* Ajo-1 Tower Project, unauthorized roads and trails would continue to be created and used by CBVs and subsequently by law enforcement personnel in their required interdiction efforts. Erosion and sedimentation associated with authorized roads would also continue because planned road maintenance and upgrades associated with access to proposed tower sites would not be conducted under the No Action Alternative. Sediment from authorized roads affects surface waters. Further, road restoration efforts would not be funded by CBP under the No Action Alternative. Exposed soils on unauthorized roads and trails are susceptible to water erosion, which has the potential to increase the transport of sediment into drainages and washes and degrades the water quality of these waterbodies. The No Action Alternative would have a long-term, moderate adverse effect on water quality as a result of accelerated erosion associated with unauthorized roads and trails.

3.6.2.2 Proposed Action

Tower Construction

Surface waters may experience temporary indirect impacts from tower construction site stormwater runoff during and shortly after rain events. Temporary effects may include a temporary increase in erosion and sedimentation during construction. These effects would be minimized through the use of BMPs included as part of the EA, SWPPP, and an erosion and sediment control site plan included as part of the construction plans for each proposed tower site and associated roads. A General Stormwater Permit would be obtained prior to construction and would require approval of a site-specific SWPPP and Notice of Intent. A site-specific Spill Prevention, Control and Countermeasure Plan (SPCCP) would be in place prior to the start of construction. BMPs outlined in this plan would reduce potential migration of soils, oil and grease, and construction debris into local watersheds. Once the construction project is complete, the tower project sites would be re-vegetated outside of each tower/fenced area with native vegetation, as outlined in the SWPPP, which would mitigate the potential of non-point source pollution to enter local surface waters. However, the success and timeframe of restoring (i.e., revegetating) temporarily disturbed sites would vary depending on soil type and climatic conditions. Additionally, reseeding would not provide complete vegetation coverage of disturb soils and the recovery of biological crusts would be required to stabilize soils. Research has shown that the visual recovery of biological crusts can be complete in 1 to 5 years, given average climatic conditions; however, recovering crust thickness can take up to 50 years. Limiting the size of the disturbed area also increased the rate of recovery, provided that there is a nearby source of inoculum (USGS 2006). Depending on climatic conditions temporarily disturbed areas adjacent to proposed tower sites would be expected to exhibit signs of recovery within 5 years. Additionally, measures

outlined in the erosion and sediment control plans for each proposed tower site would be implemented during and at the completion of construction. Thus, construction of the proposed tower sites would have a short-term, minor to moderate adverse effect on sedimentation and surface water quality in the region.

Road Construction

Access and new road construction, authorized road and corridor repairs, and authorized road and corridor improvements would disturb soils and increase the potential for soil erosion and sedimentation. Erosion and sedimentation would be expected during and following access and new road construction, authorized road and corridor repair, and authorized road and corridor improvement activities. Most roads would act as a source of sediment within the project area. If roads are not designed properly on Laveen, Gilman, Antho, and Gunsight soils, they can degrade and become sources of sediment. CBP has committed to conducting an engineering study of all roads associated with the SBI*net* Ajo-1 Tower Project. It is anticipated this study would be completed by the spring of 2010 and roads requiring upgrades would be prioritized in coordination with OPCNM. CBP would provide OPCNM with a detailed plan for road upgrades for 2010 and beyond. Roads, especially those on Antho, Gilman and Laveen soils, would be upgraded to prevent accelerated erosion and sediment production. The installation of culverts and other drainage structures (i.e., low water crossings), where required, and stabilization of the road would reduce accelerated erosion within the roadbed and thus reduce sediment.

Additionally, road maintenance to be conducted as part of CBP's road maintenance efforts is currently being coordinated with land managers. After road repairs and improvements, authorized roads and the authorized corridor would be maintained more frequently than they have been in the past. Over the long-term, grading could potentially cause the road surface elevation to become lower than the surrounding landscape. This effect would be most prevalent in Antho, Gilman, Laveen, and Gunsight soils. With upgrades and engineering solutions to be identified in the engineering study, proposed road and corridor activities would have a long-term, minor to moderate adverse effect on water quality as a result of sediment production. However, during the interim period between the completion of proposed road and corridor activities and implementation of road upgrades per the engineering plan, erosion and resulting sedimentation could be accelerated, especially on Antho, Gilman and Laveen soils. Thus, the proposed road and corridor activities would have short-term, moderate impact on water quality as a result of sediment production.

BMPs (i.e., reseeding disturbed areas with native species) to reduce soil erosion and sediment would be employed during construction activities as outlined in Section 5.0 and the SWPPP which would be prepared prior to construction. Further, an erosion and sediment control plan included as part of the Tower and Road Design Plan for each proposed tower site stipulates measures to minimize erosion and sedimentation during construction. As previously mentioned, the success and timeframe of restoring (i.e., revegetating) temporarily disturbed sites would vary depending on soil type and climatic conditions; however, signs of recovery could be noticed within 5 years. Post

construction sediment control measures would be presented in the SWPPP and installed in areas subject to erosion. Control measures would include revegetation of adjacent soils and disturbed stream banks. The control measures installed to control construction erosion would remain in place until post-construction erosion control measures are effective. Construction of the proposed towers and new access, repair and improvement of approach roads, and road maintenance would have a long-term, minor to moderate adverse effect on water quality within the project area. However, in the interim period between road construction activities and implementation of road upgrades, road construction, repair and maintenance could have a short-term moderate impact on water quality.

The implementation of the Proposed Action would require re-grading of existing road using *in situ* material. However, culverts may be installed in the future as part of the engineering study and subsequent road plan. A Department of the Army Permit from the USACE Los Angeles District Regulatory Division would be required to place fill or operate mechanized equipment in jurisdictional WUS. All road repairs (i.e., grading), improvements, and construction of new road impact less than 0.5 acre per crossing and are authorized under a NWP 14. However, one wash crossing on 59.4 Road would exceed the reporting requirements under NWP 14 and would require a preconstruction notification. As all proposed crossings in WUS are authorized under NWP 14, temporary, negligible effects to WUS are anticipated under the Proposed Action.

The proposed SBI*net* Ajo-1 Tower Project would have indirect beneficial impacts on water quality within the project area. The enhanced detection capabilities and increased interdiction efficiency would allow USBP agents to focus interdiction efforts, thus reducing off-road travel required for interdiction actions. Additionally, the proposed towers would act as a deterrent to CBVs through the certainty of detection and apprehension, reducing illegal traffic entering OPCNM and to some extent CPNWR and thus reducing the enforcement footprint. Decreases in illegal traffic and the consequent law enforcement footprint would decrease or minimize off-road travel, thus decreasing soil disturbance and consequent erosion and sedimentation. Based on the success of past operations incorporating technology (i.e., Yuma Sector and Altar Valley in the Tucson Sector) a decrease in illegal traffic could be realized within 1 year of the proposed towers being operational and approved by USBP. Additionally, the identification and restoration of unauthorized roads as part of the Proposed Action would have a beneficial effect on water quality in the region. The timeframe of recovery is dependent on soil types, vegetation communities and climatic conditions. Road restoration efforts would eliminate or minimize erosion and, thus, eliminate or minimize sedimentation resulting from unauthorized roads and trails.

3.7 FLOODPLAINS

3.7.1 Affected Environment

Pursuant to the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4001, et seq.), and the Flood Disaster Protection Act of 1973 (P.L. 93-234, 87 Stat. 975), EO 11988, Floodplain Management, requires that each Federal agency take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and

welfare, and preserve the beneficial values which floodplains serve. EO 11988 requires that agencies evaluate the potential effects of actions within a floodplain and to avoid floodplains unless the agency determines there is no practicable alternative. Where the only practicable alternative is to construct in a floodplain, a planning process is followed to ensure compliance with EO 11988. This process includes the following steps:

- Determine whether or not the action is in the regulatory floodplain;
- Conduct early public notification;;
- Identify and evaluate practicable alternatives, if any;
- Identify impacts of the action;
- Minimize the impacts;
- Reevaluate alternatives;
- Present the findings and a public explanation; and
- Implement the action.

This process is further outlined on the Federal Emergency Management Agency's (FEMA), Environmental Planning and Historic Preservation Program web site (FEMA 2006). As a planning tool, the NEPA process incorporates floodplain management through analysis and public coordination, ensuring that the floodplain management planning process is followed. Additionally, floodplains are managed at the local municipal level with the assistance and oversight of FEMA. Therefore, any action within these areas would require appropriate coordination and evaluation of the potential effects.

The delineation of the Pima County FEMA floodplain map does not extend south into OPCNM (FEMA 2006). One of the tower sites, TCA-AJO-004 is located on BLM lands immediately north of OPCNM. Flood zone data are available for lands to the north in Pima County immediately adjacent to the proposed TCA-AJO-004 tower site. The Pima County FEMA data indicate that approximately 3,667 feet of 59.4 Road (also known as Armenta Road and North Boundary Road), a OPCNM administrative road, is located in the 100-year floodplain. This road is proposed for repair and maintenance as part of the SBI*net* Ajo-1 project. Additionally, roads associated with the SBI*net* Ajo-1 Tower Project crosses 69 washes. Major washes include Kuakatch, Alamo, and Growler washes.

Within OPCNM, NPS's *Procedural Manual #77-2: Floodplain Management* provides agency-specific guidance for implementing EO 11988, Floodplain Management. The guideline iterates NPS's policy of preserving floodplain values, minimizing potentially hazardous conditions associated with flooding, and adhering to all Federal laws and regulations related to activities in flood-prone areas. According to the guidelines, an action class and applicable regulatory floodplain must be identified for a proposed action that is either subject to possible harm from flooding or has the potential for adverse floodplain impacts (OPCNM 2003).

3.7.2 Environmental Consequences

3.7.2.1 No Action Alternative

The No Action Alternative would not result in direct impacts to floodplains or be inconsistent with EO 11988, as no new construction would occur. CBV activities that create illegal roads and trails and driving in washes would continue to disrupt soil conditions, contributing to soil instability and adding to accelerated erosion of streambanks during flash flood events. Authorized roads would continue to cause erosion of wash banks at crossings, thus having an adverse effect on drainages and increasing the potential for flooding downstream. The No Action Alternative would continue to have long-term, minor to moderate adverse effects on floodplains.

3.7.2.2 Proposed Action

The construction of the proposed towers would have no impacts on the frequency and intensity of flood flows in the drainage systems. Constructing, improving and maintaining roads and an authorized corridor to the proposed tower sites; however, could increase the susceptibility of the watershed to accelerated erosion. Accelerated erosion would be most prevalent on Antho, Gilman, and Laveen soils. Road repair, improvement, and maintenance activities would involve grading within floodplains. After roads are repaired and improved, they would be maintained more frequently than they have been in the past. Over the long-term, grading associated with road maintenance could lower the elevation of road surfaces in comparison to the surrounding landscape. Roads on deep loamy soils would be more susceptible to becoming incised (i.e., lower road surface elevation). In some cases, a lower road elevation could capture runoff during thunderstorms and redirect the runoff to drainages, resulting in some loss of riparian habitat (OPCNM 2003). The construction, repair and improvement of roads could result in sedimentation of floodplains and the alteration of natural drainage patterns in floodplains. For example, construction of the new road associated with proposed tower site TCA-AJO-310 would be located on soils susceptible to erosion. Unmitigated erosion on this road could lead to sedimentation of floodplains and alteration of natural sheet flow patterns in the area. The engineering study and subsequent road plan to be conducted by CBP would address wash crossings and potential upgrades that may be needed to reduce impacts to washes and their floodplains. Upgrades could include culverts, low water crossings, or hardening of some wash crossings. The engineering study and subsequent road plan would give special consideration to roads on soils susceptible to erosion, such as the new road associated with TCA-AJO-310, to mitigate erosion and maintain sheet flow processes. BMPs proposed as part of this EA, the SWPPP, and sediment and erosion control plans would minimize impacts to floodplains from erosion and sedimentation. Overall, potential effects would be localized to the vicinity of the affected floodplain. However, erosion and sedimentation could be accelerated up to 2 years until the road upgrades per the engineering plan are implemented. The Proposed Action would have a short-term, moderate adverse effect on floodplains until the road upgrades are completed. Overall, the Proposed Action would have long-term, minor adverse effects on floodplains in the project area.

The proposed SBI*net* Ajo-1 Tower Project would also have indirect beneficial impacts on floodplains within the project area. The enhanced detection capabilities and increased interdiction efficiency would allow USBP agents to focus interdiction efforts, thus reducing off-road travel required for interdiction actions. Additionally, the proposed towers would act as a deterrent to CBVs through the certainty of detection and apprehension and reduce illegal cross border traffic entering OPCNM and to some extent CPNWR and thus reducing the enforcement footprint. Decreases in illegal traffic and consequently the primary law enforcement footprint would decrease or minimize off-road travel, thus decreasing soil disturbance and consequent erosion and sedimentation in floodplains. Based on the success of the operation in the Yuma Sector and Altar Valley, a reduction in illegal traffic could be realized in 1 year of the proposed towers being operational and accepted by USBP. Further, cross border violations were reduced by 70 and 95 percent in the Altar Valley and Yuma Sector.

3.8 VEGETATIVE HABITAT

3.8.1 Affected Environment

Biological surveys of proposed tower site locations and roads were conducted by Harris in October and November 2007, and January, April, July and November 2008. The area surveyed included a 1-acre area centered on the proposed tower sites and a 120-foot wide corridor along roads. A copy of Harris' Biological Evaluation Report is included as Appendix D. GSRC conducted surveys of the proposed project tower sites and road sections proposed for construction, repair, or improvement in March 2009. Additionally, GSRC conducted biological surveys along 59.4 Road in June 2009. Within each surveyed area, biologists achieved 100 percent coverage by walking systematic transects. As described by Brown (1994), the vegetative habitats observed within surveyed areas can be grouped into two biotic communities: Sonoran Desertscrub Arizona Upland Subdivision and Sonoran Desertscrub Lower Colorado River Subdivision.

The Sonoran Desertscrub – Arizona Upland Subdivision occurs on the upper bajadas of mountains between Ajo and the Baboquivari Mountains. This vegetation community extends northward from the international border to near Phoenix at its western extent and just north of the Baboquivari Mountains at its eastern extent. Areas of this vegetation community can also be found between the Baboquivari Mountains and Tucson and in a narrow band extending northwest from Tucson towards Needles, Arizona. The Arizona Upland Subdivision of Sonoran Desertscrub is characterized by a low and moderately dense cover of shrubs and large cacti with scattered small cacti, grasses, and herbs. Common species include saguaro (*Carnegiea gigantea*), organ pipe cactus (*Stenocereus thurben*), paloverde (*Parkinsonia* spp.), and several species of cholla (*Cylindropuntia* spp.), nipple (*Mammilaria* spp.), and beehive cacti (*Coryphantha* spp.). Among the wettest of the desert vegetative habitats, the Arizona Upland Subdivision supports a relatively high diversity of plants and animals.

Although cattle grazing and urban development near Ajo and Lukeville have impacted some areas, much of this vegetation community is found on the OPCNM and remains

relatively undisturbed and intact. However, few of the plant species in this vegetation community are fire tolerant and buffelgrass (*Pennisetum ciliare*) has invaded many areas, especially near major roads. Eight proposed tower sites are located in this vegetation community: TCA-AJO-003, TCA-AJO-170, TCA-AJO-204, TCA-AJO-301, TCA-AJO-303, TCA-AJO-308, and TCA-AJO-310. The following vegetation species were observed at these tower sites during the biological surveys: blue paloverde (*Cercidium floridum)*, catclaw acacia (*Acacia greggii*), several cholla species, creosote bush (*Larrea tridentata)*, foothill paloverde (*Parkisonia microphylla*), graythorn (*Ziziphus obtusifolia*), ironwood (*Olneya tesota*), ocotillo (*Fouquieria splendens*), saguaro, triangle-leaf bursage (*Ambrosia deltoidea*), wolfberry (*Lycium exsertum*), stag-horn cholla (*Cylindropuntia bigelovii*), organ pipe cactus, white ratany (*Krameria grayi*), Emory's barrel cactus (*Ferocactus emoryi*), and mixed forbs (Appendix D).

The Lower Colorado River Subdivision of Sonoran Desertscrub occurs on the lower bajadas and vast basin areas west of Ajo. Vast areas of this vegetation community occur on the BMGR and remain relatively undeveloped. This vegetation community is characterized by a low, sparse, and uniform cover of shrub with few cacti, grasses, or herbs. The dominant plants are typically creosote bush and various species of bursage (*Ambrosia* spp.). Mesquite (*Prosopsis velutina*) and other desert shrubs are often found along wash margins. Cacti are scattered and include barrel cactus (*Ferocactus* spp.), cholla and hedgehog cactus (*Echinocereus* spp.). This vegetation community is the driest of the vegetation communities in the project area. The species diversity of this vegetation community is typically very low and non-native species have less impact. Four proposed tower sites are located in this vegetation community: TCA-AJO-004, TCA-AJO-209, TCA-AJO-216, and TCA-AJO-302. Vegetation species observed at these towers sites include catclaw acacia, creosote, fishhook barrel cactus (*Ferocactus wislizenii*), velvet mesquite, white bursage (*Ambrosia dumosa*), and mixed grasses and forbs (Appendix D).

OPCNM provided GIS data of the vegetation types found on OPCNM. These files were used to categorize vegetation within the project area on OPCNM and quantify vegetation impacts on OPCNM resulting from the proposed project. Vegetation types and coverage on OPCNM are presented in Table 3-7.

Table 3-7. Vegetation Coverage Type Within the Project Area on OPCNM

Vegetation Type	Total (acres)
Acacia sp.-Canyon Ragweed	7,817.41
Triangle-Leaf Bursage-Yellow Palo Verde (middle bajada)	98,670.67
Alkali Saltbush-Narrow Leaf Shadscale-Creosotebush	8,898.74
Alkali Saltbush-Narrow Leaf Shadscale-Velvet mesquite	1,019.38
Creosotebush-White Bursage	34,160.01
Creosotebush-White Bursage / Creosotebush-Velvet Mesquite (floodplain)	3,875.3
Creosotebush-*Ambrosia* sp. (mixed scrub)	23,057.30
Creosotebush-Velvet Mesquite / Creosotebush-White Bursage	4,913.63
Parkinsonia microphylla-Encelia-Stenocereus-Jatropha	44,129.19

Illegal cross border activities have adversely impacted vegetation communities found in the project area. Unauthorized roads and trails created by CBVs and consequent required law enforcement activities have directly degraded vegetation within the project area as a result of trampling or changes in hydrology through the interruption of sheet flow from precipitation events. In 2004-2005, OPCNM staff documented 364 miles of off-road vehicle routes and tracks created by CBVs and consequent law enforcement activities (OPCNM 2005). If it is assumed 1 mile of road represents approximately 1 acre and 1 mile of illegal trails represent approximately 0.4 acre, unauthorized vehicle routes and trails have degraded approximately 146 acres of vegetation on OPCNM. This assumption is based on coordination with OPCNM staff. Changes in hydrology can change the vegetation species composition on the downstream side of a road. Additionally, wildland fires resulting from warming or signal fires set by IAs and other CBVs destroy vegetation in these fire intolerant vegetation communities. Further non-native invasive species such as bufflegrass have become established in the project area. These species compete with native vegetation and often replace native vegetation in suitable habitat. CBVs originating in Mexico and vehicles originating outside of OPCNM inadvertently transport non-native invasive species seeds from Mexico into the U.S. on their clothes and vehicles.

3.8.2 Environmental Consequences

3.8.2.1 No Action Alternative

No direct impacts would occur from implementation of the proposed project. However, long-term direct and indirect impacts to vegetation communities would continue and likely increase as a result of CBV activities that create unauthorized roads and trails, damage vegetation, and promote the dispersal and establishment of non-native invasive species. Using the previous assumption of 1 mile of road equals approximately 1 acre, the No Action Alternative could potentially result in hundreds of additional acres of impacts to vegetation. The presence of IAs and the damage they cause would result in long-term, moderate impacts to vegetation as a result of disturbance and habitat degradation.

3.8.2.2 Proposed Action

The Proposed Action would result in the permanent loss of approximately 3 acres and the temporary disturbance of approximately 6.5 acres of Sonoran Desert vegetation community at 10 tower sites and associated roads. The remaining 15.8 acres of permanent impacts would occur on previously disturbed areas (i.e., authorized roads), which do not support vegetation communities. The Sonoran Desert vegetation community is extremely common and vast areas of similar vegetation are protected to some degree by their inclusion on lands managed by CPNWR, BMGR, Buenos Aires National Wildlife Refuge (BANWR), OPCNM, USFS, and the Tohono O'odham Nation. Potential impacts to vegetation types found within the project area on OPCNM from the proposed project are quantified in Table 3-8.

Table 3-8. Vegetation Impacts on Organ Pipe Cactus National Monument Associated with the SBInet Ajo-1 Tower Project

Vegetation Type	Existing Vegetation (acres)	Permanent Impact (acres)	Change (percent)
Acacia sp. Canyon Ragweed	7,817.41	0	0
Triangle-leaf Bursage – Yellow Palo Verde (middle bajada)	98,670.67	0.27	< 0.01
Alka 1: Saltbush – Narrow Leaf Shadscale – Creosotebush	8,898.74	1.01	< 0.01
Creosotebush – Velvet Mesquite (floodplain)	3,875.3	0.156	< 0.01
Creosotebush – White Bursage	34,160.01	0.128	< 0.01
Creosotebush – Ambrosia mixed scrub	23,057.34	0	0
Yellow Palo Verde – Encelia – Stenocereus – Jatraph	44,129.19	.002	< 0.01

The direct permanent effect of degradation and removal of 3 acres of vegetation would have a long-term, negligible adverse effect on the total amount of similar Sonoran Desert vegetation communities on CPNWR and BLM lands, and vegetation types within OPCNM. Efforts to minimize the direct loss of vegetation communities are outlined in Section 5.0. The Proposed Action would not permanently degrade or remove more than 0.01 percent of any vegetation type or OPCNM.

Soil disturbance, road improvements, and the extension of human activity into previously undisturbed areas could result in indirect effects which could occur over a much larger area. Soil disturbance favors the establishment of non-native, invasive species where the disturbance occurs. Many of the existing roads which lead to tower sites are infrequently used due to poor road conditions. Repairs to current roads and the construction of new primitive roads have the potential to lead to recreational use near the tower sites. Direct use in association with construction road operation of towers and indirect use associated with recreational access could favor invasive species already established and result in the spread of invasive species to new areas. Combined, these direct and indirect effects could result in the expansion of non-native, invasive species. These species can compete with native vegetation and result in the displacement of individuals. Over time the replacement of native species with non-native species can result in changes to the environment (e.g., reduced resource availability, increased fuel for wildfire, loss of niche space, etc.) which can ultimately result in permanent changes in or complete loss of a vegetation community. Efforts to reduce the establishment and spread of non-native, invasive species are outlined in Section 5.0. Furthermore, the reduction of CBV activity would benefit these habitats through the reduction of similar impacts over a much greater area. Based on similar technology projects in Yuma Sector and the Altar Valley in the Tucson Sector a reduction in illegal traffic could be realized within 1 year of the proposed towers becoming operational and accepted by USBP. Additionally, the proposed towers would allow USBP agents to focus interdictions, thus improving interdiction efficiency and consequently increasing deterrence. The increased deterrence effect would

consequently result in a decrease of the enforcement footprint and further reduce the affected area. In the Altar Valley the enforcement footprint was reduced from 45 miles north of the international border to 0 to 10 miles north of the international border. Those areas above the primary enforcement zone would naturally rehabilitate over time in the absence of CBV vehicle and pedestrian off-road traffic and required law enforcement activities. The time for these disturbed areas to rehabilitate would depend on the vegetation community, soil type, and climatic conditions. The Proposed Action would have a long-term, minor indirect beneficial effect on vegetation within OPCNM and to some extent CPNWR and BLM lands.

3.9 WILDLIFE AND AQUATIC RESOURCES

3.9.1 Affected Environment

Biological surveys of proposed tower site locations and roads were conducted by Harris in October 2007, November 2007, January 2008, and April 2008 (Appendix D). Additionally, GSRC conducted surveys of the proposed project tower sites and road sections proposed for construction, repair, or improvement in March, April, and June 2009. Many of the animals found in Sonoran Desert habitats are found throughout the warmer and drier regions of the southwestern U.S. Due to a lack of available forage and extreme temperatures, all of the mammals of these habitats are small and most are nocturnal. The common mammals include several species of bats, coyote (*Canis latrans*), black-tailed jack-rabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), Merriam's kangaroo rat (*Dipodomys merriami*), white-throated woodrat (*Neotoma albigula*), and desert pocket mouse (*Chaetodipus penicillatus*). Other mammals, such as the desert kangaroo rat (*Dipodomys deserti*), Bailey's pocket mouse (*Chaetodipus baileyi*), and round-tailed ground squirrel (*Spermophilus tereticaudus*) are more limited in their distribution and, as such, are more characteristic of Sonoran Desert vegetative habitats. Mammals or mammal sign observed during surveys include jackrabbit, desert cottontail, white-throated woodrat (*Neotoma albigula)*, and rodent burrows (Appendix D).

Similar to the mammals, many birds are common throughout the desert regions, including road runner (*Geococcyx californianus*), mourning dove (*Zenaida macroura*), lesser nighthawk (*Chordeiles acutipennis*), cactus wren (*Campylorhynchus brunneicapillus*), black-tailed gnatcatcher (*Polioptila melanura*), phainopepla (*Phainopepla nitens*), and black-throated sparrow (*Amphispiza bilineata*). Some birds more characteristic of Sonoran Desertscrub include Gambel's quail (*Callipepla gambelii*), gilded flicker (*Colaptes auratus*), and Gila woodpecker (*Melanerpes uropygialis*). Although less abundant, raptors can be common in Semidesert Grasslands and scavangers can be observed throughout Sonoran Desert habitats. Birds observed during biological surveys include cactus wren, black-tailed gnatcatcher, Gila woodpecker, Gabel's quail, phainopepla, rock wren (*Salpinctes obsoletus*), Harris' hawk (*Parabuteo unicinctus*), peregrine falcon (*Falco peregrinus*), raven (*Corvus* spp.), and turkey vulture (*Cathartes aura*) (Appendix D).

Reptiles are the most diverse animal group in this vegetative habitat, and many reptiles are also widespread, including the desert tortoise (*Gopherus agassizii*), chuckwalla (*Sauromalus ater*), desert iguana (*Dipsosaurus dorsalis*), rosy boa (*Charina trivirgata*), and western shovelnose snake (*Chionactis occipitalis*). Reptiles which are common throughout the desert regions, but have Sonoran Desert subspecies include the banded gecko (*Coleonyx variegatus*), desert spiny lizard (*Sceloporus magister*), glossy snake (*Arizona elegans*), western ground snake (*Sonora semiannulata*), and western diamondback (*Crotalus atrox*). Reptiles observed during biological surveys include whiptail (*Aspidoscelis* spp.), western whiptail (*A. tigris*), zebra-tailed lizard (*Callisaurus draconoides*), side-blotched lizard (*Uta stansburiana*), and tree lizard (*Urosaurus* sp.) (Appendix D).

Illegal cross border activities and required law enforcement activities have degraded wildlife habitat in the project area through the creation and use of unauthorized roads and trails. CBVs traveling through the project area disturb wildlife and likely cause the avoidance of resources in highly traveled areas. Additionally, wildland fires caused by IA and CBVs have the potential to degrade wildlife habitat.

3.9.2 Environmental Consequences

3.9.2.1 No Action Alternative

Under the No Action Alternative, no direct impacts to wildlife habitats would occur. However, off-road CBV activity and required CBV interdiction actions would continue to degrade wildlife habitat as described in Section 3.7.2.1. This degradation of vegetation communities has resulted in wildlife habitat degradation through a loss of cover, forage, nesting, and other opportunities and potentially a loss of suitable habitat over large areas. Off-road vehicle and pedestrian traffic would continue to disturb wildlife species, cause individuals to avoid resources in area of high illegal traffic volume, and disturb or degrade additional acres of wildlife habitat.

3.9.2.2 Proposed Action

The permanent loss of up to 3 acres and temporary degradation of approximately 6.5 acres of Sonoran Desert vegetation communities would have a minimal impact on wildlife. Soil disturbance and operation of heavy equipment could result in the direct loss of less mobile individuals such as lizards, snakes, and ground dwelling species such as mice and rats. However, most wildlife would avoid any direct harm by escaping to surrounding habitat. The direct degradation and loss of habitat could also impact burrows and nests, as well as cover, forage, and other important wildlife resources. The loss of these resources would result in the displacement of individuals which would then be forced to compete with other wildlife for the remaining resources. Although this resulting competition for resources could result in a reduction of total population size, this reduction would be extremely minimal in relation to total population size and would not result in long-term effects to the sustainability of any wildlife species. Mitigation measures outlined in Section 5.0 would reduce disturbance and loss of wildlife habitats. The Proposed Action would have a short-term, minor adverse effect on wildlife resources.

There is a possibility that the proposed surveillance and communication towers could pose hazards to migratory birds; however, since none of the three tower types use guy wires, the potential for adverse impacts is greatly reduced. Furthermore, tower construction would adhere to the USFWS interim guidelines and FAA guidelines designed to reduce impacts to migratory birds such as installation of white or red strobe lights and limiting heights of towers (USFWS 2000). However, the electromagnetic field (EMF) associated with radars could disorient migratory species, thus increasing the potential for bird strikes (Nicholls and Racey 2007). Evaluation of the tower arrays shows that adjusted receiver signal strength of the EMF would be attenuated to less than 2 volts per meter (V/m) at distances greater than 180.5 feet from the array (CBP 2009). Similar to the effect of habitat degradation and loss on the sustainability of wildlife populations, the number and extent of bird strikes in relation to the size of migratory bird populations and the extent of the migratory flyway would be minor and would not affect sustainability of migratory bird populations in the region. Therefore, the Proposed Action would have a long-term, minor adverse effect on migratory birds. Measures to reduce bird and mortality include the elimination of barbed wire on the perimeter fences at proposed towers, TCA-AJO-003, 170, 204, 216, 303, and 310 and elimination of a perimeter fence at proposed tower TCA-AJO-189. Other mitigation measures to reduce migratory bird strikes are outlined in Section 5.0.

Noise associated with tower construction and maintenance and road construction, improvements, and maintenance would result in short-term impacts on wildlife. Elevated noise levels associated with short-term construction and maintenance activities would only occur during the duration of these activities. The effects of this disturbance would include temporary avoidance of work areas and competition for unaffected resources. Due to the limited extent and duration of these activities these impacts would be minor. Mitigation measures as outlined in Section 5.0 would reduce noise associated with operation of heavy equipment.

The permanent increase in noise levels associated with operation of the proposed tower sites (i.e., generators and air conditioners) would be sporadic, only occurring when this equipment is operating. Generators would be equipped with mufflers or baffle boxes to reduce their noise, and noise would be attenuated to 35 dBA at a distance of approximately 492 feet. It is anticipated that wildlife would become accustomed to these intermittent and minimal increases in noise, and that subsequent avoidance of tower sites and any adjacent habitats would be minor.

The permanent use of security lights at proposed towers sites would also disturb wildlife adjacent to a proposed tower. However, a security light on each tower shelter would be operated by a motion detector and would only turn on if the detector was triggered. Further, the security light would be mounted and properly shielded to ensure no light extends beyond the perimeter security fence. Sodium lights would be used to lessen the intensity of the light. Similar to impacts associated with the permanent increase in noise, it is anticipated that some wildlife would become accustomed to these intermittent and minimal increases in light. Subsequent avoidance of tower sites and any adjacent habitats would be minimal. Ultimately, the effects of increased noise and light could

displace some individual wildlife specimens and result in localized competition for resources. However, the extent of these impacts would not result in impediments of sustainability of wildlife populations in the region. Adverse effects from lighting on wildlife species would be permanent and minor.

The Proposed Action could result in indirect and long-term beneficial impacts to wildlife by reducing the adverse impacts of CBV activity and resulting law enforcement activities on wildlife habitats in the project area. Beneficial effects would be noticeable throughout OPCNM and to some extent on CPNWR and BLM lands. The proposed project would enhance CBP's detection capabilities and increase the efficiency of interdictions actions. Enhancement of detection capabilities and interdiction efficiency would increase deterrence of CBVs and thus reduce the enforcement footprint within Organ Pipe Cactus Wilderness and to some extent Cabeza Prieta Wilderness and BLM lands. Although interdiction efforts are likely to increase when the proposed towers become functional as a result of the enhanced detection capabilities, these interdiction efforts would be more focused and off-road interdiction activities would likely decrease over time. As the certainty of apprehension increases and consequent law enforcement efforts decrease, a reduction in potential impacts to wildlife and their habitats would be expected. Additionally, as apprehension success increases through the use of the proposed towers, the towers would serve as a deterrent to illegal traffic. Operational success (effective enforcement) with resulting deterrence as a result of technology has been demonstrated by USBP in the Yuma Sector and Altar Valley in the Tucson Sector. Beneficial effects would include reduced off-road vehicle and foot traffic, a decrease in habitat degradation, and reduced disturbances to wildlife species. A reduction in the degradation of wildlife habitats would result in an increase or improvement to wildlife resources such as forage, cover, and nesting opportunities. Additionally, road restoration efforts in Sonoran pronghorn habitat, to be funded by CBP as part of the Proposed Action, would enhance wildlife habitat.

3.10 PROTECTED SPECIES AND CRITICAL HABITATS

3.10.1 Affected Environment

The ESA was enacted to provide a program for the preservation of endangered and threatened species, and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement protective measures for designated species and to use their authorities to further the purposes of the ESA. The Secretary of the Interior and the Secretary of Commerce (marine species) are responsible for the identification of a threatened or endangered species and development of any potential recovery plan.

USFWS is the primary agency responsible for implementing the ESA, and is responsible for birds and other terrestrial and freshwater species. The USFWS responsibilities under the ESA include: (1) the identification of threatened and endangered species; (2) the identification of critical habitats for listed species; (3) implementation of research on, and recovery efforts for, these species; and (4) consultation with other Federal agencies concerning measures to avoid harm to listed species.

An endangered species is a species officially recognized by the USFWS as being in danger of extinction throughout all or a significant portion of its range. A threatened species is a species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Proposed species are those that have been formally submitted to Congress for official listing as threatened or endangered. Species may be considered endangered or threatened when any of the five following criteria occur: (1) current/imminent destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors affect continued existence.

In addition, the USFWS has identified species that are candidates for listing as a result of identified threats to their continued existence. The candidate designation includes those species for which the USFWS has sufficient information to support proposals to list as endangered or threatened under the ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity. Although not afforded protection by the ESA, candidate species may be protected under other Federal or state laws.

Biological surveys of the proposed tower sites were conducted by Harris during October and November 2007, and January and April 2008 (Appendix D). Additionally, biological surveys were conducted at proposed tower TCA-AJO-189 by GSRC in April 2009. These investigations included surveys for all Federal, BLM, NPS, and state protected species potentially occurring in the project area.

3.10.2 Federal

The unique and varied array of habitat types found in southwestern Arizona are home to a diverse assemblage of species, but the area is also one of the last places where some habitats and species can be found. Southwestern Arizona is home to many species listed as threatened or endangered. Within Pima County, 14 species are listed as Federally endangered, two are Federally threatened, and three species are candidate species (Table 3-9; Appendix H). Not all of these species occur within the vicinity of the project area. Two endangered species have the potential to occur within or near the project area: lesser long-nosed bat and Sonoran pronghorn. One endangered species, the desert pupfish (*Cyprinodon macularius)* and two candidate species, the Acuna cactus (*Echinomastus erectocentrus* var. *acunensis*) and Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*), do not occur within the disturbance footprint of the project, but these species occur within the area of enhanced enforcement provided by the COP.

Table 3-9. Federally Listed and Proposed Species Potentially Occurring Within Pima County, Arizona

Common/Scientific Name	Federal/State Status	Habitat	Potential to Occur within or near Project Corridor
Yellow-billed cuckoo (*Coccyzus americanus*)	Candidate	Large blocks of riparian woods.	No – No suitable habitat.
Masked bobwhite *(Colinus virginianus ridgewayi)*	Endangered	Desert grasslands with diversity of dense native grasses, forbs, and brush.	No – Presently only known to occur on Buenos Aires NWR.
Southwestern willow flycatcher *(Empidonax traillii extimus)*	Endangered	Cottonwood/willow and tamarisk vegetation communities along river and streams.	No – No suitable habitat.
California brown pelican *(Pelecanus occidentalis californicus)*	Endangered	Coastal lands and islands, also found around lakes and rivers inland.	No – No suitable habitat.
Mexican spotted owl *(Strix occidentalis lucida)*	Threatened	Nests in canyons and dense forests with multi-layered foliage structure.	No – No suitable habitat.
Sonoran pronghorn (*Antilocapra americana sonoriensis*)	Endangered	Broad intermountain alluvial valleys with creosote-bursage and palo verde-mixed cacti associations. Current distribution known to occur on the CPNWR.	Yes- Species present on CPNWR and western OPCNM.
Ocelot *(Leopardus pardalis)*	Endangered	Dense, thorny chaparral communities and cedar breaks.	No – No suitable habitat.
Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)	Endangered	Desertscrub habitat with agave and columnar cacti present as food plants.	Yes – Potential foraging habitat present.
Jaguar *(Panthera onca)*	Endangered	Found in Sonoran desertscrub up through subalpine conifer forest.	No – Extirpated from the area.
Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*)	Candidate	Occurs in pond and streams; however, it is restricted to Quitobaquito Springs and nearby stream habitat.	No – Known to occur at Quitobaquito Springs, but outside of project corridor.
Chiricahua leopard frog *(Rana chiricahuensis)*	Threatened	Streams, rivers, ponds, backwaters, and stock tanks that are mostly free from exotic species at elevations ranging from 1,200 to 4,000 feet.	No – No suitable habitat.
Desert pupfish *(Cyprinodon macularius)*	Endangered	Shallow springs, small streams, and marshes. Tolerant of saline and warm water.	No – Known to occur at Quitobaquito Springs, but outside of project corridor.
Gila chub *(Gila intermedia)*	Proposed Endangered	Pools, springs, cienegas, and streams within the Gila River system.	No – Known populations occur within the Gila River drainage.

BW1 FOIA CBP 001839

Table 3-9, continued

Common/Scientific Name	Federal/State Status	Habitat	Potential to Occur within or near Project Corridor
Gila topminnow (*Poeciliopsis occidentalis occindentalis*)	Endangered	Small streams, springs, and cienegas within the Gila River system.	No – Known populations occur within the Gila River drainage.
Kearney blue star (*Amsonia kearneyana*)	Endangered	West-facing drainages in the Baboquivari mountains.	No –Project corridor is west of Baboquivari Mountains.
Pima pineapple cactus (*Coryphantha scheeri* var. *robustispina*)	Endangered	Ridges in semi-desert grassland and alluvial fans in Sonoran desertscrub with elevation ranges from approximately 2,300 to 5,000 feet.	No – Known populations occur in east Pima County at high elevations.
Nichol Turk's head cactus (*Echinocactus horizonthalonius* var. *nicholii*)	Endangered	Unshaded microsites in Sonoran desertscrub on dissected limestone mountains.	No – Known populations occur in east Pima and south Pinal counties.
Huachuca water umbel (*Liaeopsis schaffneriana* var. *recurva*)	Endangered	Cienegas, perennial low gradient streams, wetlands.	No – Known populations found in San Pedro and Santa Cruz River Basins.
Acuña cactus (*Echinomastus erectocentrus* var. *acunensis*)	Candidate	Acuña cacti are found on granite substrates on rounded small hills at elevations ranging from 1,300-2,000 feet.	Yes– Known populations are located on OPCNM approximately 8 miles north of the U.S.-Mexico border; however, no individual of this species was observed during the biological field surveys.

Source: USFWS 2007

BW1 FOIA CBP 001840

3.10.2.1 Sonoran Pronghorn

Photograph 3-3. Sonoran Pronghorn

Courtesy of NPS

The Sonoran pronghorn (Photograph 3-3) was listed as Federally endangered on March 11, 1967 (32 Federal Register [FR] 4001). Sonoran pronghorn require vast areas of open range to meet their annual needs for survival and reproduction (USFWS 2003). This includes the ability to freely travel long distances in response to localized, seasonally intermittent rainfall which stimulates plant growth and provides forage. The diet of Sonoran pronghorn consists of a variety of plant materials from common desert herbs, shrubs, and cacti. Jumping cholla (*Opuntia fulgida*) is thought to provide a large portion of food and water requirements. Visibility is a key factor in determining habitat use by Sonoran pronghorn, which prefer more open sandy areas and low hillsides with a variety of palatable forage. Beginning in December and following the winter rains, forage is abundant in the creosote-bursage communities of the alluvial valleys, and animals are commonly found in the Mohawk Valley. From February through May, does are fawning and seek areas of higher cover along wash margins. Following summer storms in July and August, new plant growth is found in the paloverde -mixed cactus vegetation communities on the bajadas of desert mountains in the OPCNM. The breeding season occurs between July and September.

Sonoran pronghorn range from the plains of central and western Sonora, Mexico north to southwestern Arizona (USFWS 2003). In Arizona, Sonoran pronghorn occur on CPNWR, BMGR, the western portion of OPCNM, from SR 85 west to the Cabeza Prieta Mountains and from near the Wellton-Mohawk Canal south to the U.S.-Mexico border (Figure 3-4). Based on radio telemetry data and incidental visual sightings, Sonoran pronghorn most commonly occurred in the Valley of the Ajo, the foothills of the Puerto Blanco Mountains, Acuña Valley, the foothills of the Bates Mountains, Growler Valley and San Cristobal Wash. (USFWS 2004). However, in recent years the pronghorn has not been observed in the Valley of the Ajo (Tibbitts 2009). Critical habitat for Sonoran pronghorn has not been designated (USFWS 2003).

Environmental factors such as drought, predation, and available forage, as well as human factors such as illegal hunting, fencing, and human encroachment, have all been identified as possible reasons for the decline of Sonoran pronghorn. While all of these factors may have historically contributed to the decline, drought has apparently caused most of the population fluctuations in recent time (USFWS 2004).

The USFWS established a recovery plan for the Sonoran pronghorn in 1982, and revised the plan in 1998. The final plan calls for down-listing the Sonoran pronghorn to threatened when there are an estimated 300 adults in one self-sustaining population in the U.S. that remains stable for a minimum of 5 years, or when numbers are determined

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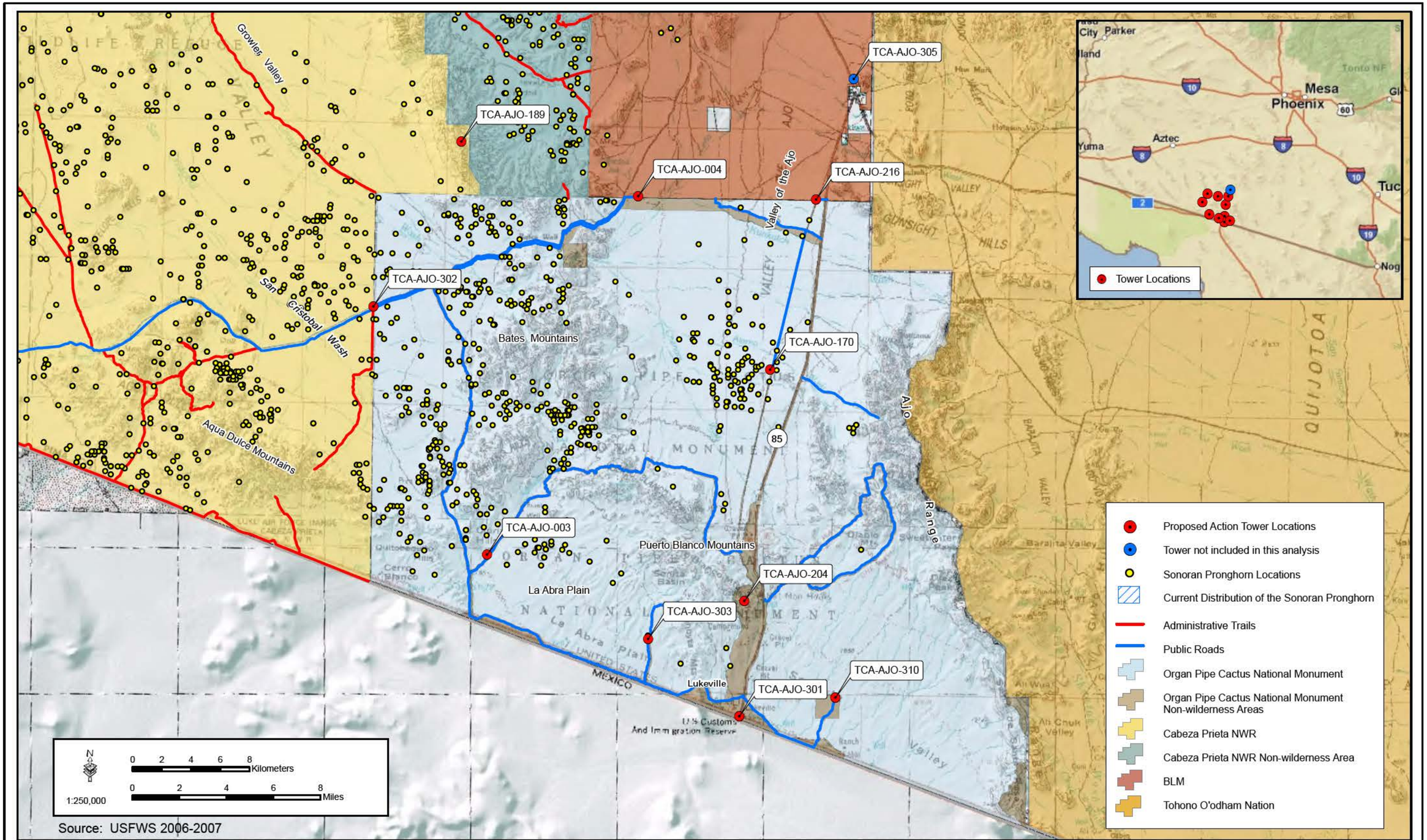

Figure 3-4: Historical Sonoran Pronghorn Sitings Telemetry Data

GSRC

August 2009

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to be adequate to sustain the population through time, and at least one other self-sustaining population is established in the U.S. (USFWS 1998).

In 2003 a semi-captive breeding enclosure was established to aid in the recovery efforts of the Sonoran pronghorn population. The enclosure is located in the non-wilderness portion of the CPNWR. The 640-acre pen is designed to keep predators (e.g., coyotes) out and to provide irrigated forage plots and a free water source in a drinking trough (Defenders of Wildlife 2005 and USFWS 2005). To eliminate or reduce disturbances to nursing Sonoran pronghorns and fawns during fawning season, a time when they are especially sensitive, the USFWS closed the eastern three-quarters of the CPNWR to all public access between March 15 and July 15 during 2002 through 2005 (USFWS 2005). The Sonoran pronghorn population on the CPNWR was estimated to be 33 individuals in 2003 (USFWS 2005). In 2004, the population nearly doubled to 58 individuals (McCasland 2005). This population increase coincided with the record rainfall during the spring. The USFWS estimated the Sonoran pronghorn populations at 75 individuals in 2005 and 70 to 100 individuals in 2006 (Coffeen 2006 and Atkinson 2008). A rangewide assessment is scheduled again to assess the population in the fall of 2008. Currently, the Sonoran pronghorn population is estimated to be 70 individuals (McCasland 2009). Additionally, there is also a breeding enclosure on CPNWR that currently houses 54 individuals. Individuals from this population will be released into the wild herd annually (Atkinson 2009).

3.10.2.2 Lesser Long-nosed Bat

Lesser long-nosed bat (Photograph 3-4) was listed as endangered on September 30, 1988 (53 FR 38456). The lesser long-nosed bat is a nectar, pollen, and fruit foraging species that migrates into southern New Mexico and Arizona seasonally from Mexico (AGFD 2003). They begin migrating in early April, apparently coinciding seasonally with the flowering of columnar cacti and desert agave (*Agave deserti simplex*), and return to Mexico during sometime in September (USFWS 1995). The lesser long-nosed bat occurs within desert grasslands and scrublands habitat during the summer months. Typical roosting sites include, but are not limited to, caves, abandoned buildings, and mines located at the base of mountains which have also been documented to coincide where bat foraging habitat occurs (AGFD 2003).

Photograph 3-4. Lesser Long-nosed Bat
Courtesy of USFWS

The lesser long-nosed bat is a seasonal resident of CPNWR and OPCNM. As early as April continuing through mid-July, female lesser long-nosed bats, most of which are pregnant, arrive at known maternity roosts in southwest Arizona. These maternity colonies begin to disband by September, and both males and females can be found in

transient or maternity roosts from September to as late as early November. The bats eat nectar and fruits of columnar cacti and paniculate agaves and are considered an important dispersal and pollination vector for these species. Lesser long-nosed bats are known to travel up to 36 miles to reach suitable concentrations of forage. There is one known maternity roost within CPNWR non-wilderness area north of OPCNM, and one known maternity roost and one known minor roost within OPCNM (Figure 3-5).

The main threats to this species are the reduction in numbers of maternity colonies and decline in size of remaining colonies due to exclusion and disturbance (AGFD 2003). Additionally, large reductions in acreage of native agaves over large areas of northern Mexico due to excessive harvesting for local manufacture of mescal and tequila are also reasons for the decline of this species.

The recovery plan for the lesser long-nosed bat was completed in March 1997 to provide protective actions needed for the recovery of the bat. Protection of all known roost sites and food plants within a radius of 36 miles around known roosts will help prevent this species from going extinct. In addition, the protection of food resources along migratory pathways may be important to the survival of the species (USFWS 1995). Critical habitat has not been designated for the lesser long-nosed bat.

3.10.2.3 Desert Pupfish

The desert pupfish (Photograph 3-5) was listed as an endangered species in March 1986 (51 FR 10842). The Quitobaquito population of the desert pupfish is thought to be a subspecies (Quitobaquito pupfish [*Cyprinodon macularis eremus*]) of the desert pupfish, but some scientists advise that the Quitobaquito population is sufficiently distinct to be a unique species (Echelle et al. 2000). They are adapted to desert environments and are capable of surviving extreme environmental conditions (USFWS 1993).

Photograph 3-5. Desert Pupfish
Courtesy of USFWS/John Rinne

The only known natural population of the desert pupfish in Arizona is found at Quitobaquito Springs where critical habitat for the species has been established (USFWS 1993). Desert pupfish habitat is not located at the proposed FOB or any of the proposed tower sites, but Quitobaquito Springs is located within the project area.

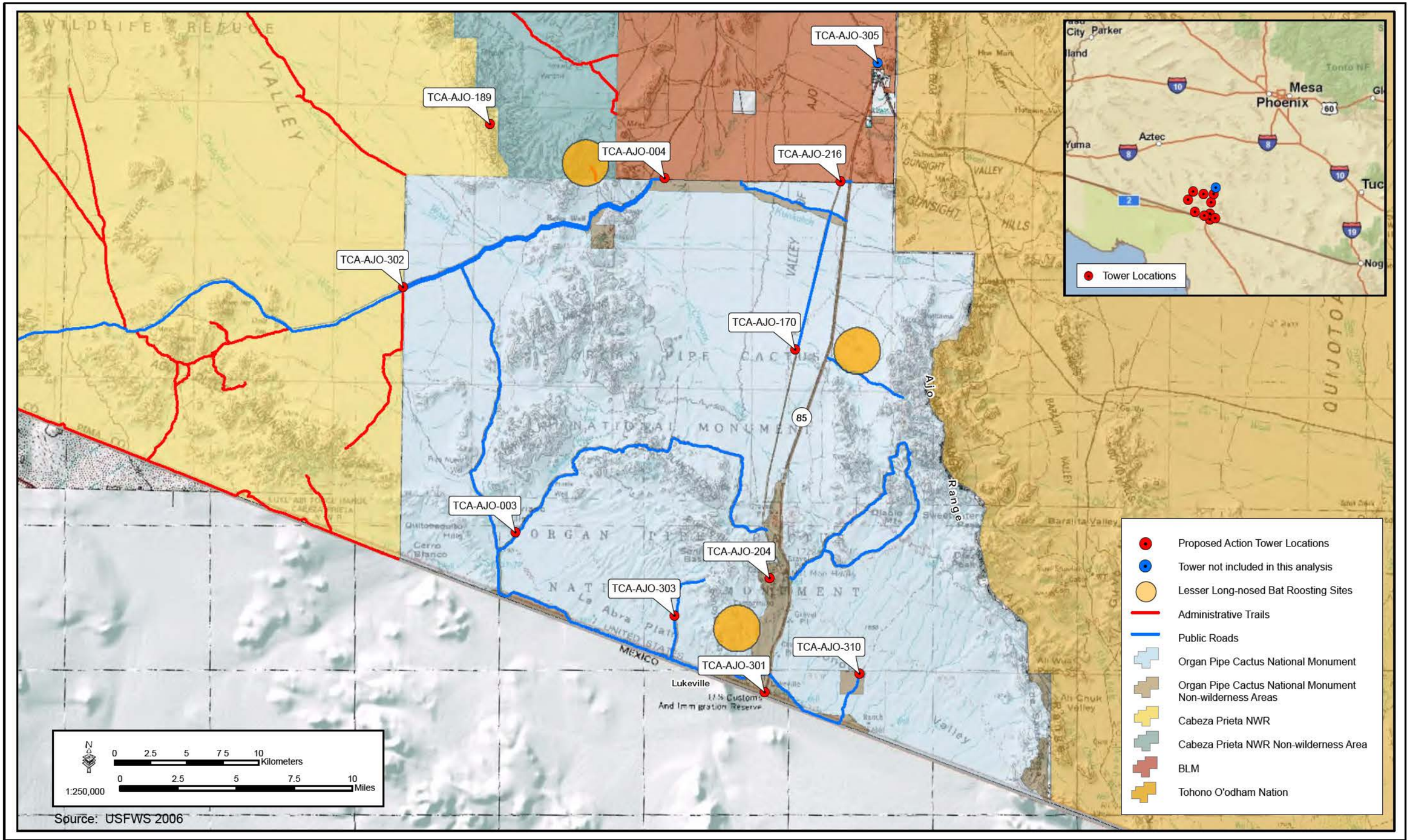

Figure 3-5: Lesser Long-nosed Bat Roosting Sites

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3.10.2.4 Acuna Cactus

Acuna cactus (Photograph 3-6) occurs on well drained ridges and hills between major washes in Sonoran desertscrub habitat and is known from six locations on granite substrates at elevations ranging from 1,300 to 2,000 feet (USFWS 2007). Known occurrences of Acuna cactus are located near Florence in Pinal County, near Ajo in Pima County, and near Sonoyta in Mexico. The populations near Ajo are found along the northern drainages of the Batamote Mountains and along the southern drainages between the Cipriano Hills and Sonoyta Mountains. Known threats include habitat destruction, illegal collection, drought, and insects. In recent years, a 50 percent mortality rate has been observed at the known populations near Ajo and is believed to be attributable to drought. Additionally, opuntia borer (*Moneilema gigas*) has been identified as being responsible for considerable mortality of larger Acuna cactus on OPCNM (Johnson 1991). Illegal border related activities are not known to have affected Acuna cacti; however, vehicle tracks have been observed through the population range of the species within the project area (Sturm 2009b).

Photograph 3-6.
Acuña Cactus
Courtesy of USFWS

3.10.2.5 Sonoyta Mud Turtle

The Sonoyta mud turtle (Photograph 3-7) occurs only in pond and stream habitat at Quitobaquito Springs on OPCNM and in the nearby Rio Sonoyta, Sonora Mexico (AGFD 2005). The turtle is highly aquatic and depends on permanent water for survival. Primary threats include loss and degradation of stream habitat from water diversions and groundwater pumping, and it may be vulnerable to spraying of pesticides on nearby agricultural fields. The Sonoyta mud turtle habitat is not located at the proposed FOB or any of the tower sites, but is located at Quitobaquito Springs within the project area.

Photograph 3-7. Sonoyta Mud Turtle
Courtesy of USFWS

3.10.2.6 Critical Habitat

The ESA also calls for the conservation of what is termed “critical habitat” – the areas of land, water, and air space that an endangered species requires for survival. Critical habitat also includes such things as food and water sources, breeding sites, cover or shelter, and sufficient habitat area to provide for normal population growth and behavior.

One of the primary threats to many species is the destruction, conversion, or modification of essential habitat by uncontrolled land and water development. Designated critical habitat for the desert pupfish is located at Quitobaquito Springs within the project area. None of the proposed tower sites, associated roads, or FOB are located near Quitobaquito Springs.

3.10.3 State

AGFD Natural Heritage Program maintains lists of wildlife of special concern (WSC) in Arizona. This list includes fauna whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines (AGFD 2007). These species are not necessarily the same as those protected under the ESA. A list of these species is presented in Appendix H. No Arizona WSC, NPS, or BLM sensitive species were observed within the project footprint; however, habitat within the project footprint was determined to be suitable for six Arizona WSC and six BLM sensitive species (Table 3-10).

The Arizona Department of Agriculture (ADA) maintains a list of protected plant species within Arizona. The 1999 Arizona Native Plant Law defined five categories of protection within the state; 1) Highly Safeguarded, no collection allowed; 2) Salvage Restricted, collection only with permit; 3) Export Restricted, transport out of state prohibited; 4) Salvage Assessed, permit required to remove live trees; and 5) Harvest Restricted, permit required to remove plant by-products (ADA 2007). A list of native plants protected by the ADA is included in Appendix H. Only those plants with highly safeguarded and salvage restricted status are discussed here, as other regulated activities would not occur.

Of the 133 highly safeguarded or salvage restricted status species (Appendix H), only four were observed at proposed tower sites or along associated access roads: Organ pipe cactus, Emory's barrel cactus, desert night-blooming cereus, and stag-horn cholla (Table 3-10).

3.10.4 Environmental Consequences

3.10.4.1 No Action Alternative

Under the No Action Alternative, there would be no direct impacts to threatened or endangered species or their habitats as no construction activities would occur. However, the direct and long-term impacts of CBV and consequent law enforcement activities throughout the project area and surrounding areas would continue to disturb threatened or endangered species and their habitats, including desert pupfish critical habitat at Quitobaquito Springs. CBV activities create trails, damages vegetation, promotes the dispersal and establishment of invasive species, and can result in catastrophic wild fires. These actions have an indirect adverse impact on threatened and endangered species by causing harm to individuals and degrading habitats occupied by these species.

Specifically, CBV activities can result in the loss of forage and cover resources for Sonoran pronghorn. The presence of CBVs and resulting law enforcement activities

Table 3-10. Potentially and Observed Occurrences of Arizona WSC and BLM sensitive species at Proposed Tower Sites

Common Name	Scientific Name	ESA Status	NPS Status	BLM Status	State Status	TCA-AJO-003	TCA-AJO-004	TCA-AJO-170	TCA-AJO-189	TCA-AJO-204	TCA-AJO-209	TCA-AJO-216	TCA-AJO-301	TCA-AJO-302	TCA-AJO-303	TCA-AJO-304	TCA-AJO-308	TCA-AJO-310
American peregrine falcon	*Falco peregrinus anatum*	SC	S	S	WSC				*									
Cactus ferruginous pygmy owl	*Glaucidium ridgewayi cactorum*	SC	S	S	WSC	*	*	*		*	*				*	*	*	*
Tropical kingbird	*Tyrannus melancholicus*				WSC	*	*	*		*	*		*	*	*	*	*	*
Loggerhead shrike	*Lanius ludovicianus*			S								*						
Burrowing owl	*Athene cunicularia hypugaea*	SC		S	WSC	*		*						*	*			*
Big free-tailed bat	*Nyctinomops macrotis*	SC		S		*	*	*		*	*		*	*	*	*	*	*
California leaf-nosed bat	*Macrotus californicus*	SC		S	WSC	*	*	*		*	*	*	*	*	*	*	*	*
Cave myotis	*Myotis velifer*	SC		S		*	*	*	*	*	*		*	*	*	*	*	*
Greater western bonneted bat	*Eumops perotis californicus*	SC				*	*	*	*	*	*		*	*	*	*	*	*
Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*	SC				*	*	*		*	*		*	*	*	*	*	*
Pocketed free-tailed bat	*Nyctinimops femorosaccus*			S			*				*	*						
Spotted bat	*Euderma maculatum*			S	WSC	*	*	*		*	*		*	*	*	*	*	*
Underwood's mastiff bat	*Eumops underwoodi*	SC		S		*	*	*		*	*		*	*	*	*	*	*
Chuckwalla	*Sauromalus obesus*			S								*						
Great plains narrow-mouthed toad	*Gastrophyrne olivacea*				WSC				*			*						
Mexican rosy boa	*Charina trivirgata trivirgata*	SC	S	S			*	*	*	*	*				*	*	*	*
Desert rosy boa	*Charina trivirgata gracia*	SC		S					*									
Red-back whiptail	*Aspidoscelis burti xanthonota*	SC							*	*						*		
Sonoran desert tortoise	*Gopherus agassizii*	SC	S	S	WSC	*	*	*	*	*	*			*	*	*	*	*
Thronber fishhook cactus	*Mammalaria thornberi*				SAR							*						
Varied fishhook cactus	*Mammalaria viridiflora*				SR							*						
Desert night-blooming cereus	*Peniocereus greggii var. transmontanus*				SR													o
Emory's barrel cactus	*Ferocactus emoryi*				SR				o		o							
Organ pipe cactus	*Stenocereus thurberi*				SR	o			o	o	o					o		
Stag-horn cholla	*Opuntia versicolor*				SR						o	O				o		

Key - S = Sensitive, SC Species of concern, SAR = Salvage Restricted, WSC = Wildlife of Special Concern, o = observed, * = potentially suitable habitat; Source: Appendix H, CBP 2008b

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can disturb pronghorn and result in their temporary displacement from vital resources and potentially result in the loss of individuals due to heightened response and exertion of energy. The degree of this impact would be dependent on environmental stressors (i.e., drought, season), the health of the animal, and the duration and frequency of disturbances. However, disturbance to any Sonoran pronghorn could be considered by ESA definition "take" in the form of harassment and would be an adverse effect on the species.

CBV activity can temporarily degrade foraging habitats utilized by lesser long-nosed bats, and wildfires can result in long-term loss of foraging habitats. Furthermore, the use of bat roosts by CBVs has been documented and can result in the temporary displacement of bats, and potentially the discontinued use of a roost. Roosts are an essential resource for the bats and even a temporary displacement can result in the loss of energy and potentially the loss of individuals. CBV and resulting law enforcement activities in the vicinity of Quitobaquito Springs could deteriorate critical habitat for the desert pupfish and adversely affect the pupfish and Sonoyta mud turtle.

The current location of the USBP FOB at Bates Well would continue to potentially limit Sonoran pronghorn from using the narrow migration corridor at Bates Well to access the Valley of the Ajo. This could potentially decrease the current range of Sonoran pronghorn in the U.S. and have long-term, moderate adverse effects on the U.S. Sonoran pronghorn population.

3.10.4.2 Proposed Action

Under the Proposed Action, there would be direct and indirect effects to threatened and endangered species and their habitats. Long-term, beneficial effects would occur by lessening impacts of CBV activity on habitats throughout the project and surrounding areas. CBV activity creates trails, damages vegetation, promotes the dispersal and establishment of invasive species, and can result in catastrophic wild fires. These actions have a long-term, indirect adverse impact on threatened and endangered species by causing harm to individuals and degrading habitats occupied by these species. Species that may be affected and associated tower sites are discussed below.

Thirteen of the 15 protected species listed in Table 3-9, which are known or presumed to occur in Pima County, were not observed by Harris (CBP 2008b) within the project footprint. Based on known occurrences, existing preferred habitat, and potential home range and foraging habitats overlapping with the project footprint, 10 of these species would not be affected by the Proposed Action. Based on known occurrences, existing preferred habitat, and potential home range and foraging habitats overlapping with the project footprint, Sonoran pronghorn, lesser long-nosed bat, desert pupfish, Sonoyta mud turtle and Acuña cactus could occur within the area of potential effects resulting from the project. Therefore, these five species could be affected by the Proposed Action.

SBI*net* has prepared a biological assessment analyzing potential effects to these five species and has completed Section 7 consultation pursuant to the ESA. A Biological

Opinion (AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6) was prepared by USFWS and issued to CBP on December 9, 2009. To minimize any adverse effects on sensitive species resulting from degradation or loss of vegetation communities and wildlife habitats, mitigation measures outlined in Section 5.0 and conservation measures developed during Section 7 consultation will be implemented during construction and operation. Potential effects on each of these species from the Proposed Action are discussed in detail below.

Sonoran Pronghorn

Telemetry data and visual records from OPCNM have shown that areas associated with the Valley of the Ajo, Growler Valley and San Cristobal Wash, among others, are or were commonly occupied by Sonoran pronghorn (see Figure 3-3). Based on telemetry data and biological surveys of proposed tower sites and roads, Sonoran pronghorn could occur in the vicinity of proposed tower sites TCA-AJO-003, TCA-AJO-004, TCA-AJO-170, TCA-AJO-204, TCA-AJO-216, TCA-AJO-302, and TCA-AJO-303 and their associated access roads (Appendix D).

The effects of tower site and road construction, operation, and maintenance on the Sonoran pronghorn would be similar to those described for common wildlife species. Specifically, these activities could result in the short- and long-term degradation and loss of resources and subsequent avoidance of impacted areas. However, Sonoran pronghorn population numbers are significantly low and both short-term (i.e., avoidance of construction areas and degradation of vegetation communities) and long-term (i.e., tower operation and maintenance and loss of vegetation communities) reductions in the availability of these resources would have an adverse affect on this population. Furthermore, Sonoran pronghorn are migratory and dependent upon new growth found on the mountain bajadas in the project area only during summer rains. The new growth provides both cover and forage during the breeding season.

Long-term, adverse effects include disturbance to the pronghorn from noise and lights associated with operation of the FOB. However, the relocation of the FOB would also result in beneficial impacts by reducing CBV and resulting required law enforcement activities within Sonoran pronghorn habitat. The relocation of the FOB would reduce human presence and activity along the migratory route from the western portion of the Sonoran pronghorns range into the Valley of the Ajo. The current FOB located on the CPNWR, Camp Grip, has reduced apprehensions on both the CPNWR and OPCNM, which likely resulted in reduced adverse impacts on the Sonoran pronghorn. A reduction in CBV activity and consequent law enforcement actions would provide a long-term beneficial impact by decreasing the enforcement footprint within Sonoran pronghorn habitat and reduction of human presence in Sonoran pronghorn habitat.

Sonoran pronghorn are also highly sensitive to human activity and typically respond by avoidance. The intensity of impacts related to avoidance behavior would depend on many biotic and climatic factors. If an individual is startled during a period of drought and is already under physical stress, the disturbance would further increase the physical stress. A lack of alternative sources of cover and forage could compound these

impacts. Therefore, it has been determined that the Proposed Action may affect and is likely to adversely affect Sonoran pronghorn. Mitigation measures outlined in Section 5.0 and conservation measures included as part of the Proposed Action would reduce potential impacts to Sonoran pronghorn. The Proposed Action would have a long-term, moderate affect on Sonoran pronghorn.

The Proposed Action would reduce CBV activity and resulting CBP apprehension efforts throughout the project area. The proposed towers would allow CBP to detect IAs earlier and concentrate enforcement and apprehension efforts, thus increasing deterrence and consequently reducing the enforcement footprint required for interdiction activities. This reduction in illegal traffic and enforcement area would have a long-term, indirect beneficial effect on Sonoran pronghorn. Additionally, conservation measures included as part of the Proposed Action would enhance Sonoran pronghorn habitat (i.e., restoration of illegal roads in Sonoran pronghorn habitat) and protection of the species. These efforts would have a long-term direct beneficial effect on Sonoran pronghorn.

Lesser Long-nosed Bat

Based on USFWS occurrence records and biological surveys, three lesser long-nosed bat roosts occur within the project area, although none are located within or adjacent to the footprint of any tower sites. Because lesser long-nosed bat can travel up to 36 miles to obtain resources, the entire project area is within the foraging range of this species.

Lesser long-nosed bat forage plants, such as organ pipe cacti and saguaro cacti, were observed within the footprint of construction disturbance. A total of 20 saguaro cacti and one organ pipe cactus was recorded within the proposed tower or access road footprints. These plants will be salvaged, relocated or replaced outside the construction footprint as mitigation for the loss of the plants. Additionally, saguaro an important forage plant, is abundant throughout the lesser long-nosed bat's range. Thus, the direct impacts of potential forage habitat degradation would be minimal. Because construction activities would not occur at night, lesser long-nosed bats would not be likely to avoid any forage resources occurring near the construction areas.

Noise generated from helicopter deployment and maintenance at proposed tower site TCA-AJO-204 could encompass up to 16,409 acres, which would include one roost. If the roost is occupied during deployment or maintenance, noise could disrupt roosting bats and result in stress to both mothers and young. The effects associated with noise emissions would be intermittent but adverse and long-term. The presence of the proposed towers is not expected to affect lesser long-nosed bat, as bats would be able to avoid the physical structures at the tower site.

Bats have been shown to avoid EMF produced by radar equipment at levels greater than 2 V/m (Nicholls and Racey 2007). Although Nicholls and Racey showed a statistically significant difference in the number of passes through and number of minutes within areas exposed to EMF greater than 2 V/m when compared to areas with no measurable EMF, the biological significance of this effect remains unknown. Out of

2,979 recorded passes in areas of high, low, and no EMF, approximately 155 more passes occurred in areas of no exposure when compared to areas of high EMF. Similar results were shown for duration of time spent in high- and no-EMF zones. Neither the total number of passes or total duration of time spent at high- and no-radiation sites was reported; thus, a percent difference can not be determined. While this research shows that bat avoidance of high EMF is detectable (i.e., statistically significant) it does not indicate any significant adverse effect on bat behavior or survival or the reasons bats avoid high levels of EMF. In fact, bat activity (i.e., number of passes and duration of time spent) was higher in some high-EMF zones when compared to nearby areas with no EMF. The mechanism of interaction between bats and EMF remains unclear; however, it is likely that EMF causes increased body temperature and possibly even auditory detection. Based on the level of deterrence, Nichols and Racey (2007) suggest that EMF could be an effective tool in mitigation the effects of bat strikes on wind turbines. Because bats have been shown to avoid EMF (Nichols and Racey 2007), EMF produced by the proposed tower could result in avoidance by lesser long-nosed bat, and would be expected to have a long-term, minor adverse effect on the species. There were few forage resources identified within the project footprint and lack of available forage resources is not a threat to this species within the OPCNM. Mitigation measures outlined in Section 5.0 and conservation measures developed during Section 7 consultation would reduce potential impacts to lesser long-nosed bat. The Proposed Action would have a long-term, moderate affect on lesser long-nosed bat.

Implementation of the Proposed Action could reduce CBV activity and consequent CBP apprehension efforts throughout the project area. The proposed towers would allow the CBP to detect IAs earlier and improve interdiction efficiency, thus increasing deterrence of CBVs and consequently reducing the enforcement zone. This reduction in illegal traffic and enforcement area would have a long-term, indirect beneficial effect on vegetation communities used by lesser long-nosed bat and could reduce the frequency of roost disturbance by IAs.

Desert Pupfish and Sonoyta Mud Turtle

The Sonoyta mud turtle and desert pupfish would not be directly affected by the construction of the proposed towers and roads as none are located near Quitobaquito Springs and pond; however, off-road USBP operations could degrade the habitat near Quitobaquito Springs and pond. If vehicles are operated within the riparian habitat around the springs or pond there is a potential for soil erosion and sedimentation, increased water turbidity, and water contamination from vehicle fluids (e.g., motor oil). Thus, USBP operations could adversely affect the Sonoyta mud turtle and desert pupfish. Additionally, indirect adverse impacts to desert pupfish and Sonoyta mud turtle could occur as a result of CBV traffic attempting to avoid detection by the proposed towers. However, these impacts cannot be quantified as CBV routes are unpredictable and can occur anywhere along the southwestern border. The Proposed Action would have a long-term, moderate affect on Desert pupfish and Sonoyta mud turtle. The proposed tower project would allow USBP agents to detect CBVs earlier and concentrate enforcement and apprehension efforts, thus increasing the deterrence of CBVs and consequently reducing the enforcement footprint required for interdiction activities. This

reduction in CBV traffic and the enforcement footprint would have a long-term, indirect beneficial effect on Quitobaquito Springs and the species occurring there.

Acuña cactus

It is anticipated that the Proposed Action would not have an effect on the Acuña cactus. Acuña cacti were not observed at any of the tower or access road sites surveyed. Additionally, CBV activities and consequent law enforcement activities have not been known to directly affect the Acuña cactus; however, evidence of vehicular activity near Acuña cactus populations has been observed (Sturm 2009b). Indirect adverse impacts to Acuña cactus could occur as a result of CBV traffic attempting to avoid detection by the proposed towers. However, these impacts cannot be quantified as CBV routes are unpredictable and can occur anywhere on the landscape. The Proposed Action would have a long-term minor adverse affect on Acuña cactus. However, the Proposed Action would potentially benefit the Acuña cactus. The proposed towers would allow CBP to detect CBVs earlier and improve interdiction efficiency, thus increasing deterrence of CBVs and consequently reducing the enforcement footprint required for interdiction activities. This reduction in illegal traffic and the enforcement footprint would have a long-term, indirect beneficial effect on the Acuña cactus.

3.11 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES

3.11.1 Affected Environment

The process of identifying and evaluating potential impacts to cultural resources was described in detail in several documents. Those discussions are incorporated herein by reference (CBP 2007b and INS and JTF-6 2001). Briefly, the National Historic Preservation Act (NHPA) of 1966 established the Advisory Council on Historic Preservation (ACHP) to advocate full consideration of historic values in Federal decision-making and ensure consistency in national policies. Additionally, the NHPA also established the SHPO to administer national historic preservation programs on a state level, and Tribal Historic Preservation Officers on tribal lands, where appropriate. The NHPA also established the National Register of Historic Places (NRHP), which is the Nation's official list of cultural resources worthy of preservation and protection. The historic preservation review process mandated by Section 106 of the NHPA is outlined in the ACHP regulations, "Protection of Historic Properties" (36 CFR Part 800), which were revised and became effective on January 11, 2001.

The cultural overview of the project region was described in various environmental documents and is incorporated by reference (INS and JTF-6 2001). Briefly, the cultural history of southwestern Arizona is usually discussed in periods: Paleo-Indian (*circa* 11,500 to 8,000 years before present), Archaic (*circa* 8,000 to 1,400 years before present) which is generally divided into the Early, Middle and Late Archaic periods, Formative Period (1,400 to 550 years before present) which is generally divided into the Pioneer Period, Colonial Period, Sedentary Period, and Classic Period, Protohistoric and Early Historic Periods (A.D. 1540 to 1860), and Late Historic Period (A.D. 1860 to 1950).

Illegal roads and trails created by CBVs have potentially impacted cultural resources throughout the project area. These impacts have varied from minor disturbances to complete destruction and loss of the resource.

3.11.1.1 Previous Archaeological Investigations

The archaeological site records on the Arizona State Museum's (ASM) AZSITE Cultural Resource Inventory were examined prior to the initiation of the field surveys of the 10 proposed tower locations. In addition, both maps and patent records from the General Land Office were examined in order to identify potential historic resources located within the vicinity of the 10 proposed tower locations. Six archaeological surveys were previously conducted within 1-mile of each of the proposed tower locations. These surveys were conducted in support of construction, utility installation, road maintenance and improvements, park improvements, research and other initiatives. A total of 85 archaeological sites were previously recorded within 1-mile of the proposed tower locations. These sites include prehistoric and historic artifacts scatters along with historic-period trails, and mining and ranching sites. Eleven previously recorded archaeological sites (AZ Y:16:9[ASM], AZ Y:16:32[ASM], AZ Z:13:39[ASM], AZ Z:13:42[ASM], AZ Z:13:48[ASM], AZ Z:13:95[ASM], AZ Z:13:127[ASM], SN B:4:9[ASM], SN B:4:16[ASM], SN B:4:17[ASM], and SN C:1:52[ASM]) are either located adjacent to or intersecting the Area of Potential Affect (APE) of the access roads. None of the previously recorded archaeological sites have been evaluated for their inclusion on the NRHP (Harris 2008).

3.11.1.2 Current Investigations

Archaeological surveys were conducted at the proposed 10 tower sites and their associated roads between October and December 2007 and during March, April, August, and September 2008 (Harris 2008). A total of 444 acres were surveyed as part of this effort. No remains associated with any of the previously recorded archaeological sites adjacent or bisecting the survey corridors were recorded. The surveys did identify the possible historic structural remains of the Armenta Ranch within the boundary of AZ Z:13:127(ASM). The structural remains were located outside of the APE for the proposed access road (Harris 2008). Additionally, Northland Research, Incorporated (NRI) conducted an archaeological survey at TCA-AJO-189 in April 2009 (NRI 2009). A total of three isolated finds were recorded at proposed tower site TCA-AJO-189 during the survey. No additional archaeological work was recommended for proposed tower site TCA-AJO-189.

Three new archaeological sites (SN B:4:32[ASM], SN C:1:71[ASM], and SN C:1:63[ASM]) were recorded during the cultural resources surveys of the 10 proposed tower locations and their associated access roads. The sites consist of prehistoric artifact scatters, some with associated isolated rock features, and historic berm earthworks. All three archaeological sites are considered eligible for listing on the NRHP.

Site SN B:4:32(ASM) consists of a small prehistoric scatter with three features. Artifacts recorded include a San Pedro serrated projectile point, lithic debitage of basalt, jasper,

chert, chalcedony, and obsidian, shell fragments, prehistoric and historic pottery, and groundstone fragments. The features consisted of bedrock mortars. The site has the potential to provide important information on patterns of site distribution, archaic period use of the area, lithic procurement, prehistoric land use, and subsistence practices.

Site SN C:1:71(ASM) consists of historic earthworks and a prehistoric artifact scatter. The historic earthworks consist of parallel earthen berms constructed of locally available cobbles and fill. The prehistoric component consists of an artifact concentration of lithic flakes and prehistoric pottery along with rock features. The historic berm earthworks located at SN C:1:71(ASM) may have significant associations with important historic events or trends in erosion control, the Gray Ranch Partnership (a locally significant historic ranch), OPCNM land management, important agency projects, or the contributions of the Tohono O'odham laborers to range management or Civilian Conservation Corps work in the area.

Site SN C:1:63(ASM) consists of a fairly large and low density scatter of stone artifacts. Artifacts recorded at the site include lithic debitage, performs, a hammer stone, and a metate. Lithic material at the site included locally available rhyolite, vesicular basalt, and chert. Site SN C:1:63(ASM) has the potential to provide information toward the understanding of human adaptation in the area, period of use and cultural affiliation, and the environmental factors involved in site selection (Harris 2008).

3.11.2 Environmental Consequences

3.11.2.1 No Action Alternative

The No Action Alternative would have no effect, either beneficial or adverse, on cultural resources, since construction activities associated with towers would not occur. Beneficial impacts in the form of increased knowledge of the past are realized as a result of surveys conducted in support of this EA. Under the No Action Alternative, both recorded and unrecorded cultural resources would continue to be impacted by illegal traffic through the area and the required interdiction efforts of CBP such as off-road pursuits.

3.11.2.2 Proposed Action

Impacts to the 11 previously recorded archaeological sites (AZ Y:16:9[ASM], AZ Y:16:32[ASM], AZ Z:13:39[ASM], AZ Z:13:42[ASM], AZ Z:13:48[ASM], AZ Z:13:95[ASM], AZ Z:13:127[ASM], SN B:4:9[ASM], SN B:4:16[ASM], SN B:4:17[ASM], and SN C:1:52[ASM]) from the implementation of the Proposed Action would be avoided through a combination of project design and monitoring. No additional archaeological work is recommended for these sites. Mitigation measures to avoid impacts to these cultural resources are outlined in Section 5.0.

All three of the newly recorded sites, SN B:4:32[ASM], SN C:1:71(ASM) and SNC:1:63[ASM), are considered eligible for the NRHP under Section 106 of the NHPA, as amended. Potential impacts would include ground disturbance within the archaeological sites. These impacts would occur in portions that would not affect the integrity of the sites or their NRHP eligibility under Section 106 of the NHPA and are

considered minor. Section 106 coordination with the SHPO has been completed and SHPO's concurrence letter is located in Appendix B. Additional mitigation measures to minimize effects on these cultural resources are outlined in Section 5.0 If previous unidentified cultural resources are encountered during tower construction and related activities, all ground disturbing actions in the vicinity of the discovery will cease until an archaeologist is notified and the nature and significance of the find is evaluated. If human remains are encountered during construction activity, the ASM must be notified and appropriate tribal entities must be consulted.

Beneficial impacts in the form of increased knowledge of the past, including site density and distribution, are realized as a result of surveys conducted as part of this EA. Additionally, both previously recorded and unidentified cultural resource sites located within the project area and regionally would receive increased protection from disturbance through the deterrence of CBV foot and vehicle traffic moving through surrounding areas. Further, focused enforcement operations resulting from tower operations would assist in reducing the enforcement footprint and subsequently reduce potential impacts to cultural resources.

3.12 AIR QUALITY

3.12.1 Affected Environment

EPA established National Ambient Air Quality Standards (NAAQS) for specific pollutants. The NAAQS standards are classified as either "primary" or "secondary" standards. The major pollutants of concern, or criteria pollutants, are carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns (PM-10), and lead (Pb). NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare. The NAAQS are included in Table 3-11.

Areas that do not meet these NAAQS standards are called non-attainment areas or maintenance areas; areas that meet both primary and secondary standards are known as attainment areas. The Federal Conformity Final Rule (40 CFR Parts 51 and 93) specifies criteria or requirements for conformity determinations for Federal projects. The Federal Conformity Rule was first promulgated in 1993 by the EPA, following the passage of Amendments to the Clean Air Act in 1990. The rule mandates that a conformity analysis must be performed when a Federal action generates air pollutants in a region designated as non-attainment or as a maintenance area for one or more NAAQS.

A conformity analysis determines whether a Federal action meets the requirements of general conformity rule. It requires the responsible Federal agency to evaluate the nature of the Proposed Action and associated air pollutant emissions, calculate emissions as a result of the Proposed Action, and mitigate emissions if *de minimis* thresholds are exceeded. EPA considers Pima County as a moderate non-attainment area for PM-10 (EPA 2009). The *de minimis* threshold for moderate non-attainment for PM-10 is 100 tons per year (40 CFR 51.853).

Table 3-11. National Ambient Air Quality Standards

POLLUTANT	STANDARD VALUE	STANDARD TYPE
Carbon Monoxide (CO)		
8-hour average	9 ppm (10mg/m^3)	1˚
1-hour average	35 pm (40mg/m^3)	1˚
Nitrogen Dioxide (NO_2)		
Annual arithmetic mean	0.053 ppm (100μ/m^3)	1˚ and 2˚
Ozone (O_3)		
8-hour average* (2008 standard)	0.075 ppm	1˚ and 2˚
8-hour average* (1997 standard)	0.08 ppm (157μg/m^3)	1˚ and 2˚
1-hour average*	0.12 ppm (235μg/m^3)	1˚ and 2˚
Lead (Pb)		
Rolling 3-Month Average	0.15 μg/m^3	1˚ and 2˚
Quarterly average	1.5 μg/m^3	1˚ and 2˚
Particulate<10 micrometers (PM-10)		
Annual arithmetic mean	50 μg/m^3	1˚ and 2˚
24-hour average	150 μg/m^3	1˚ and 2˚
Particulate<2.5 micrometers (PM-2.5)		
Annual arithmetic mean	15 μg/m^3	1˚ and 2˚
24-hour average	35 μg/m^3	1˚ and 2˚
Sulfur Dioxide (SO_2)		
Annual average mean	0.03 ppm (80μg/m^3)	1˚
24-hour average	0.14 ppm (365μg/m^3)	1˚
3-hour average	0.50 ppm (1300μg/m^3)	2˚

Legend: 1˚= Primary 2˚= Secondary ppm = parts per million
mg/m^3 = milligrams per cubic meter of air μg/m^3 = micrograms per cubic meter of air
* Parenthetical value is an approximate equivalent concentration
Source: EPA 2008

3.12.2 Environmental Consequences

3.12.2.1 No Action Alternative

The No Action Alternative would not result in any direct impacts to air quality because there would be no construction activities. However, fugitive dust emissions created by illegal off-road vehicle traffic and resulting law enforcement actions, and vehicle traffic on authorized roads would continue and likely increase. These fugitive dust emissions would continue to adversely affect the air quality of the region.

3.12.2.2 Proposed Action

Temporary and minor increases in air pollution would occur from the use of construction equipment (combustible emissions) and the disturbance of soils (fugitive dust) during construction of the new facilities. The construction plan must include a Pima County Fugitive Dust Control Construction Permit for surface disturbances and demolition.

The following paragraphs describe the air calculation methodologies utilized to estimate air emissions produced by the Proposed Action. Fugitive dust emissions were calculated using the emission factor of 0.19 ton per acre per month (Midwest Research Institute 1996), which is a more current standard than the 1985 PM-10 emission factor

of 1.2 tons per acre-month presented in AP- 42 Section 13 Miscellaneous Sources 13.2.3.3 (EPA 2001).

EPA's NONROAD Model (EPA 2005a) was used, as recommended by EPA's *Procedures Document for National Emission Inventory, Criteria Air Pollutants, 1985-1999* (EPA 2001), to calculate emissions from construction equipment. Combustible emission calculations were made for standard construction equipment, such as front-end loaders, backhoes, bulldozers, and cement trucks. Assumptions were made regarding the total number of days each piece of equipment would be used, and the number of hours per day each type of equipment would be used (Appendix I).

Construction workers would temporarily increase the combustible emissions in the airshed during their commute to and from the project area. Emissions from delivery trucks would also contribute to the overall air emission budget. The emissions from these two sources were calculated using the EPA MOBILE6.2 Model (EPA 2005b, 2005c and 2005d).

The total air quality emissions were calculated for the proposed construction activities occurring in Pima County to compare to the General Conformity Rule *de minimis* threshold of 100 tons per year. The *de minimis* threshold (100 tons per year) is the point at which air emissions are significant; if air emissions exceed that 100-ton threshold, they are considered a "major" impact. Summaries of the total emissions for the Proposed Action are presented in Table 3-12. Details of the analyses are presented in Appendix I.

Table 3-12. Total Air Emissions (tons/year) from Construction Activities vs. *de minimis* Levels

Pollutant	Total (tons/year)	*de minimis* Thresholds (tons/year)[1]
Carbon Monoxide	13.60	100
Volatile Organic Compounds	2.39	100
Nitrogen Oxides	17.38	100
Particulate Matter <10 microns	19.79	100
Particulate Matter <2.5 microns	3.19	100
Sulfur Dioxide	2.12	100

Source: EPA 2008, 40 CFR 51.853, and GSRC modeled air emissions (Appendix I).
[1] Pima County is in moderate non-attainment for PM-10.

Several sources of air pollutants contribute to the overall air impacts of the construction project. The air emission calculations included emissions from:

1. Combustible engines of construction equipment
2. Construction workers commute to and from work site
3. Supply trucks delivering materials to construction site
4. Fugitive dust from job site ground disturbances
5. Bi-monthly commute to towers site for maintenance

As can be seen from the tables above, the proposed construction activities do not exceed *de minimis* threshold for PM-10 in Pima County and, thus, do not require a Conformity Determination. As there are no violations of air quality standards and no conflicts with the state implementation plans, impacts to air quality would not be consider major in the context of the General Conformity Rule.

During the construction of the proposed project, proper and routine maintenance of all vehicles and other construction equipment would be implemented to ensure that emissions are within the design standards of all construction equipment. Dust suppression methods would be implemented to minimize fugitive dust. In particular, wetting solutions would be applied to construction area to minimize the emissions of fugitive dust. By using these BMPs, air emissions from proposed construction activities would be temporary and minor.

Ongoing Air Emissions

Ongoing air emissions refer to air emissions that may occur after the towers have been installed, such as maintenance vehicle trips to the tower site up to twice a month to check and repair equipment, and routine patrols by CBP agents. However, air emissions associated with routine patrols are unquantifiable as the area patrolled changes in response to illegal traffic. In addition, six of the towers would not be connected to the existing electric grid. These towers would be partially powered by solar and backed up by propone fueled generators. Therefore, emissions were calculated for six propane generators operating 8 hours per day 365 days per year. The air emissions from propane generators and bi-monthly maintenance visits are presented in Appendix I and are summarized in Table 3-13 below.

Table 3-13. Total Air Emissions (tons/year) from Propane Generators and Bi-Monthly Maintenance Visits vs. *de minimis* Levels

Pollutant	Total (tons/year)	*de minimis* Thresholds (tons/year)[1]
Carbon Monoxide	30.54	100
Volatile Organic Compounds	2.54	100
Nitrogen Oxides	6.20	100
Particulate Matter <10 microns	0.03	100
Particulate Matter <2.5 microns	0.03	100
Sulfur Dioxide	0.01	100

Source: EPA 2008, 40 CFR 51.853, and GSRC modeled air emissions (Appendix I).
1. Pima County is in moderate non-attainment for PM-10.

As can be seen from the tables above, the proposed construction and operational activities do not exceed Federal *de minimis* thresholds even when they are combined; thus, do not require a Conformity Determination. As there are no violations of air quality standards and no conflicts with the state implementation plans, the impacts on air quality in Pima County from the implementation of the Proposed Action would be minor.

3.13 NOISE

Noise is often described as unwanted sound. Sound is usually represented on a logarithmic scale with a unit called the decibel (dB). Sound on the decibel scale is referred to as sound level. The A-weighted decibel scale (dBA) takes this into account and emphasizes the frequencies and is a measure of noise at a given, maximum level or constant state level. The threshold of perception of the human ear is approximately 3 dBA, which is considered barely perceptible, and a 5 dBA change is considered to be clearly noticeable. A 10 dBA increase in the measured sound level is typically perceived as being twice as loud.

3.13.1 Affected Environment

The tower sites and access roads are located across a wide geographical range which includes designated wilderness areas. Anthropogenic noises can degrade the natural soundscape and adversely affect humans and wildlife. Natural soundscapes are composed completely of natural sounds without the presence of human-made sounds. The project area is located on lands where noise can adversely affect natural soundscapes. The natural ambient back-ground noise levels on OPCNM were measured and averaged 20 dBA over a 20-day period (NPS 2009b).

With the exception of TCA-AJO-301, all the tower sites and access roads are located on or near OPCNM and CPNWR lands which are undeveloped lands used primarily for the protection of the Sonoran Desert Ecosystem, and recreational and educational purposes. Proposed tower sites TCA-AJO-004 and 216 are located on BLM lands adjacent to wilderness areas; however, approach roads to TCA-AJO-004 are located on OPCNM and BLM lands. Proposed tower site TCA-AJO-310 is located on ASTL property adjacent to Organ Pipe Cactus Wilderness, with approach roads on OPCNM lands within an area that is considered potential wilderness. Proposed tower TCA-AJO-189 is located on CPNWR, within designated wilderness.

Wilderness Areas

Two important noise emission thresholds are considered in this noise analysis of wilderness. First, noise emission criteria for construction activities has been published by the Federal Highway Administration which has established a construction noise abatement criteria of 57 dBA for lands, such as National Parks, in which serenity and quiet are of extraordinary significance (23 CFR 722, Table 1). The 57 dBA criteria threshold is used to measure the impacts from short-term noise emissions associated with constructing the proposed towers and access roads.

Secondly, CBP is committed to minimizing long-term noise impacts on wilderness and the Sonoran pronghorn. CBP, CPNWR, OPCNM and USFWS-AESO managers have agreed that a noise emission of 35 dBA is the threshold where there should be no adverse effect to the Sonoran pronghorn. Therefore, CBP used the 35 dBA threshold to measure impacts from long-term operational noise emissions from long-term point sources of noise such as power generators.

Residential Areas

Proposed tower TCA-AJO-301 is located at the POE in Lukeville, Arizona where residential sensitive noise receptors are located within 300 feet of the proposed tower site. When noise affects humans, it can be based either on objective effects (i.e., hearing loss, damage to structures, etc.) or subjective judgments (e.g., community annoyance). However, operations at the Lukeville POE generate noise emissions that currently affect adjacent residents. A 65 dBA day-night level (DNL) is the impact threshold most commonly used for noise planning purposes near residents, and represents a compromise between community impact and the need for activities like construction (U.S. Department of Housing and Urban Development [HUD] 1984).

3.13.2 Environmental Consequences

3.13.2.1 No Action Alternative

Under the No Action Alternative, the sensitive noise receptors and wildlife near the proposed tower sites and associated roads would not experience construction and tower operational noise events. Noise emissions associated with CBV off-road travel and consequent law enforcement actions would be long-term and minor, and would continue under the No Action Alternative.

3.13.2.2 Proposed Action

The following analysis segregates noise emissions into two categories: short-term noise emissions which include emissions from construction equipment used to build and install the towers and roads and, in the case of TCA-AJO-189 and 204, helicopter transportation to the construction job site. Secondly, long-term noise emissions which refer to ongoing noise emissions that would occur after the towers have been installed and access roads have been built and improved. The noise analysis modeled noise contours for a variety of sources and summarized the area of impact in acres for short-term noise emissions and long-term noise emissions.

Short-term Tower Construction Noise

It was assumed all 10 of the towers (RDTs and SSTs) would require the use of general construction equipment, which produces noise emission up to 81 dBA, for 40 days (RDTs) and 57 days (SSTs). The latter does not include the 28 days required for concrete to cure, during which time there would be little or no additional construction at the site. Two of the towers are RATs, which require up to 26 days to install. Assuming the worst case scenario of 81 dBA from general construction equipment, the noise model predicts that noise emissions would have to travel 738 feet before they would be attenuated to acceptable levels equal to or below 57 dBA, which is the criterion for National Monument and Wildlife Refuges (23 CFR 722, Table 1). The 57 dBA construction noise contour would encompass 39 acres for each tower and a total of 353 acres for the nine tower sites located near or within wilderness areas.

Drill rigs, which produce noise emissions at 97 dBA, would be required for tower construction at two sites. Thus, a greater distance (5,002 feet) would be required to attenuate the noise to the 57 dBA level. Approximately, 3,607 acres of OPCNM land would be subjected to noise emissions for 2 days while the drill rig is used to install the

two SST towers (i.e., 1,803 acres affected per site). Figure 3-6 presents the 57 dBA noise contour for the drill rigs and general construction noise emissions at a typical tower site. Noise emissions associated with tower construction would have a temporary, minor adverse effect on the noise environment.

Road Construction Noise Impacts on OPCNM

Road construction equipment would produce noise emissions up to 81 dBA. Assuming a worst case scenario of 81 dBA, the noise model predicts that noise emissions of 81 dBA from construction equipment would have to travel 738 feet before they would attenuate to acceptable levels equal to or below 57 dBA. All road construction included, the noise contour would encompass 2,568 acres. Wilderness lands would be directly exposed to short-term noise emissions for approximately 5 to 22 days, depending on the length of time to build or improve a road in a specific area. Noise emissions would have a temporary, minor adverse effect on the soundscape.

Helicopter Noise Emissions

Construction of proposed towers TCA-AJO-204 and 189 would require the use of a helicopter. A helicopter would not be required to transport construction workers to TCA-AJO-204; however, TCA-AJO-189 would require helicopter lifts for both materials and personnel. Therefore, CBP estimates that construction of proposed tower sites TCA-AJO-189 and 204 would require up to 22 total lifts for equipment and materials per tower and approximately 63 total lifts for personnel during build cycle at proposed tower site TCA-AJO-189. Thus, a total of approximately 85 lifts would be required to construct proposed tower site TCA-AJO-189 and approximately 22 lifts would be required to construct proposed tower site TCA-AJO-204. A helicopter lift sequence for proposed tower site TCA-AJO-189 was provided previously in Table 2-3.

A Kaman K-MAX cargo helicopter, which has the lowest noise signature in its class, would be used to transport materials to construct the tower. According to the manufacturer's data, the K-MAX helicopter produces noise emissions of 82 dBA at a distance of 300 feet. The noise model predicted that noise emissions of 82 dBA would have to travel 3,838 feet before they would attenuate to acceptable levels of 57 dBA. All total, the 57 dBA noise contour produced by helicopter noise would encompass approximately 2,124 acres of land. Effects from helicopter noise emissions would be localized and would be considered a temporary, moderate adverse effect on designated wilderness. Table 3-14 summarizes noise emissions from short-term sources used during the construction of the towers and access roads.

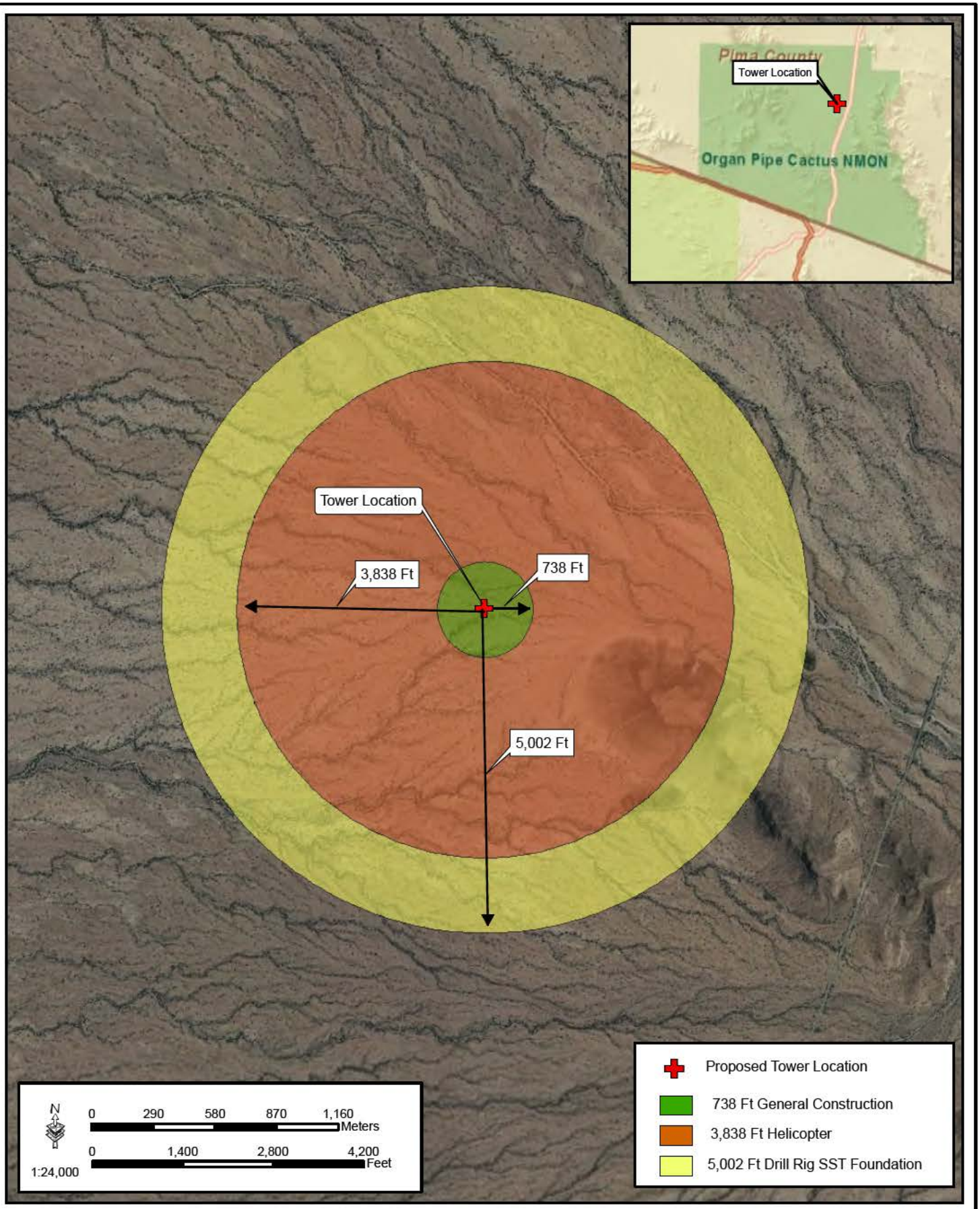

Figure 3-6: Short-term Construction Noise Contours for Tower Sites (57dBA)

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Table 3-14. Noise contour (57 dBA) from short-term noise sources

Noise Source	Emission level (dBA)	Area Included in the 57 dBA Noise Contour (acres)	Duration of Noise Source
General Construction Equipment-Towers	81	353	40-57 days per tower
Drill Rigs-towers	97	3,607	2 days per tower
General Construction Equipment-Roads	81	2,568	5-22 days per site
Helicopter Transportation-Towers	82	2,124	22 Lifts at TCA-AJO-204 85 Lifts at TCA-AJO-189 1 hour per lift

Noise Impacts to Residential Receptors

Proposed Tower TCA-AJO-301 is 120 feet from closest residential noise receptor. Construction activities have the potential to expose residential receptors to noise emissions that are above 65 dBA which are normally unacceptable (HUD 1984). To minimize this impact, construction activities should be limited to daylight hours during the work week when most of the residents are at school or at work. The construction activities from the Proposed Action would have a temporary, minor adverse effect on sensitive noise receptors adjacent to the project sites if the construction activities are limited to 7:30 AM to 5:30 PM on Monday through Friday.

Long-Term Noise Emission from Tower Operations

Ongoing tower operations refer to noise emissions that would occur after the towers have been installed and access roads have been improved. CBP is committed to minimizing noise impacts to a 35 dBA at 492 feet threshold, to avoid an adverse impact on the Sonoran pronghorn. Noise emissions from the propane generator were measured in the field by CBP and NPS personnel and were found to be 59 dBA at 49 feet from the enclosure under standard test conditions (NPS 2009b). CBP would incorporate additional noise abatement controls on the generator. These generator noise controls would restrict the 35 dBA noise contour to a maximum of 492 feet from the source.

Generators and air conditioner units at towers sites would produce intermittent noise emissions over an extended period of time. Four of the proposed tower sites would be connected to commercial grid power with a backup power propane generator that would run 1 hour twice a month. The remaining six towers sites are remote and not connected to the electric grid and would be powered by a hybrid propane generator/solar system. The propane generator would be expected to operate 4 to 8 hours a day. Noise emissions from the propane generator produce the dominant noise signature at these tower sites.

The FOB near tower TCA-AJO-302 would serve as a remote USBP agent support facility. Three generators would be located at the FOB site. One of the generators would be used to power the FOB and another two used as a backup; only one generator would be operating at any one time.

The assumptions for noise impacts from propane generators are based on use of a noise abatement control device. Figure 3-7 presents a map of the propane generator noise contour for a typical proposed tower site. Within a radius of 492 feet from the enclosed generator set, approximately 17.4 acres of land per tower site would be exposed to noise emissions greater than 35 dBA. Therefore, collectively for the six towers off the commercial electric grid, approximately 105 acres of land would be exposed to noise emissions greater than 35 dBA on a daily basis. For the towers that would be connected to the electrical grid, approximately 70 acres would be exposed to noise emissions greater than 35 dBA for two hours a month.

These acres would be affected by noise emissions and could potentially affect the activity of Sonoran pronghorn. Noise emissions associated with tower operations would have a long-term, moderate adverse affect on the soundscape. Potential effects would be localized to the proposed tower sites.

Four helicopter trips would be required annually to repair and maintain proposed tower TCA-AJO-189. Since TCA-AJO-240 can be accessed by foot, it is estimated that this tower would require one helicopter trip a year, in case heavy equipment or replacement parts are necessary at the site and they are too heavy to carry by hand.

When the helicopter is hovering above the TCA-AJO-189 and 204 tower site the noise contour would encompass approximately 16,409 acres of land which would be exposed to noise emissions greater than 35 dBA. The long-term operation of TCA-AJO-189 and 204 would produce periodic temporary direct noise impacts to 32,818 acres of CPNWR. Helicopter noise emissions produced as a result of implementing the Proposed Action would have a temporary, moderate adverse affect on wilderness land. Table 3-15 presents the estimated area of noise impacts.

Table 3-15. Noise Contour (35 dBA) from Long-term Noise Sources

Noise Source	Emission level (dBA)	Area Included in the 35 dBA Noise Contour (acres)	Duration of Noise Source
Propane Generators at Towers-Off Grid (six)	59	105	4 to 8 hours per day
Propane Generators at Towers-On Grid (four)	59	70	2 hours per month
FOB	59	17.4	12 hours per day
Helicopter Transportation-TCA-AJO-204	82	16,409	1 lift per year 1 hour per lift
Helicopter Transportation-TCA-AJO-189	82	16,409	4 lifts per year 1 hour per lift

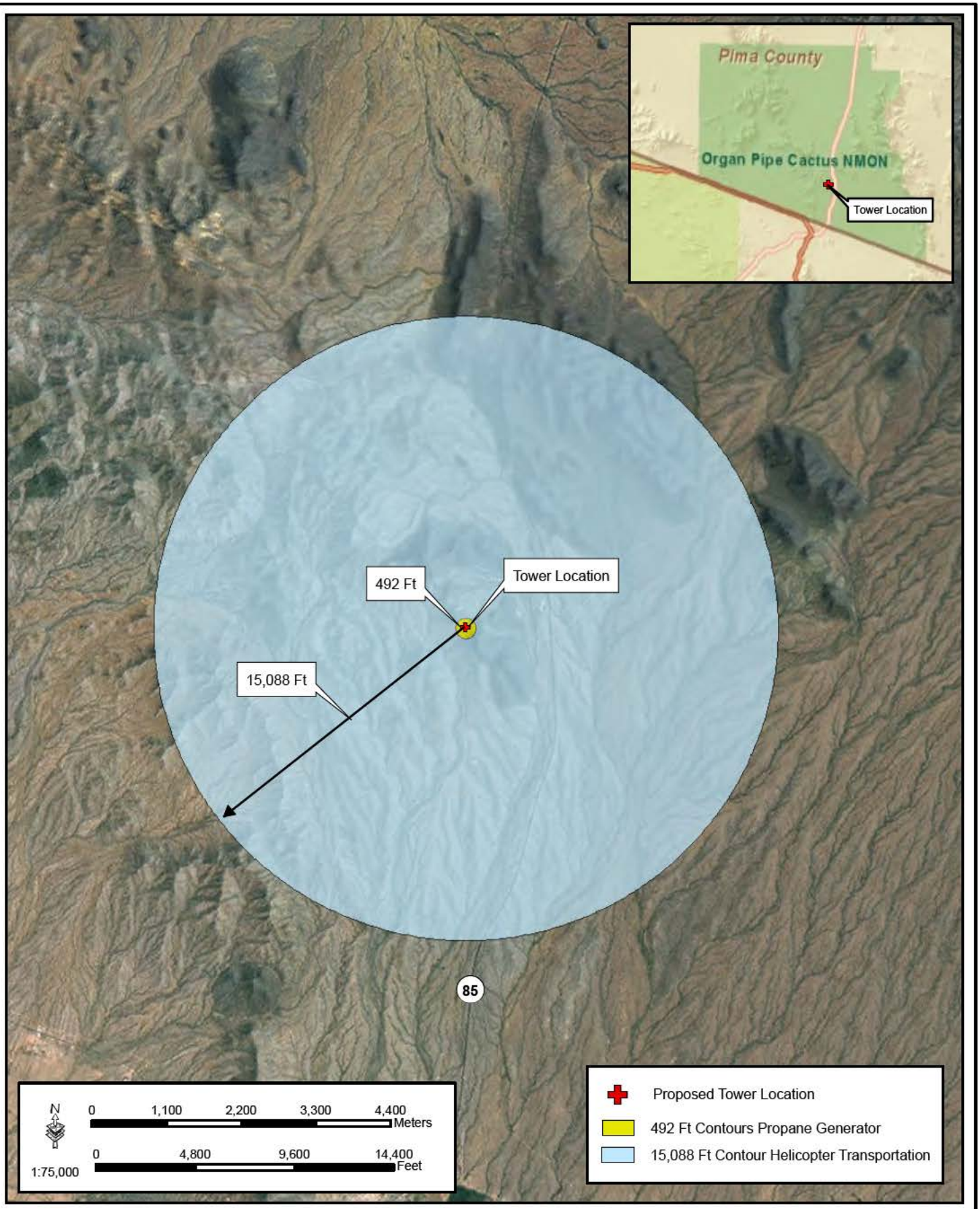

Figure 3-7: Long-term Noise Contours for the Sonoran Pronghorn Habitat (35dBA)

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3.14 RADIO FREQUENCY ENVIRONMENT

3.14.1 Affected Environment

The Radio Frequency (RF) environment refers to the presence of electromagnetic (EM) radiation emitted by radio waves and microwaves on the human and biological environment. EM radiations are self propagating waves of electric and magnetic energy that move through space via radio waves and microwaves emitted by transmitting antennas. RF is a frequency or rate of oscillation within the range of about 3 Hertz (Hz) and 300 GHz. This range corresponds to frequency of alternating current and electrical signals used to produce and detect radio waves. The EM radiation produced by radio waves and microwaves carry energy and momentum and can interact with matter. It is currently anticipated that the transmitters and sensors associated with the SBI*net* OPCNM project would operate below 30 GHz.

The Federal Communications Commission (FCC) is responsible for licensing frequencies and ensuring that the approved uses would not interfere with television or radio broadcasts or substantially affect the natural or human environment. The FCC adopted recognized safety guidelines for evaluating RF exposure in the mid 1980s (Office of Engineering and Technology [OET] 1999). Specifically, in 1985, the FCC adopted the 1982 American National Standards Institute (ANSI) guidelines to evaluate exposure due to RF transmitters that are licensed and authorized by the FCC (OET 1999). In 1992, ANSI adopted the 1991 Institute of Electrical and Electronics Engineers (IEEE) standard as an American National Standard (a revision of its 1982 standard) and designated it as ANSI/IEEE C95.1-1992 (OET 1999). The FCC proposed to update its rules and adopt the new ANSI/IEEE guidelines in 1993, and in 1996, the FCC adopted a modified version of the original proposal.

In addition to ANSI/IEEE standards, the FCC's guidelines are also based on the National Council of Radiation Protection and Measurements (NCRP) exposure guidelines. The NRCP and ANSI/IEEE exposure criteria identify the same threshold levels at which harmful biological effects may occur. The whole body human absorption of RF energy varies with the frequency of the RF signal. The most restrictive limits on exposure are in the frequency range of 30 to 300 Mega-Hz (MHz) where the human body absorbs RF energy most efficiently when exposed in the air field of an RF transmitting source (ANSI/IEEE C95.1-1992).

There are two tiers or exposure limits; occupational or "controlled" and general or "uncontrolled". Operational exposure is when people are exposed to RF fields as a part of their employment and they have been made fully aware of the potential exposure and can exercise control over their exposure. Uncontrolled exposure is when the general public is exposed or when persons employed are not made fully aware of the potential for exposure or cannot exercise control over their exposure.

In order for a transmitting facility or operation to be out of compliance with the FCC's RF guidelines in an area where levels exceed Maximum Permissible Exposure (MPE) limits, it must first be accessible to the public. The MPE limits indicate levels above

which people may not be safely exposed regardless of the location where those levels occur.

Adverse biological effects associated with RF energy are typically related to the heating of tissue by RF energy. This is typically referred to as a "thermal" effect, where the EM radiation emitted by an RF antenna, passes through and rapidly heats biological tissue, similar to the way a microwave oven cooks food. The Health Physics Society indicates that numerous studies have shown that environmental levels of RF energy routinely encountered by the general public are typically far below levels necessary to produce significant heating and increased body temperature and is generally only associated with workplace environments near high-powered RF sources used for molding plastics or processing food products. In such cases, exposure of human beings to RF energy could be exceeded, thus, requiring restrictive measures or actions to ensure their safety (Kelly 2007).

There is also some concern that signals from some RF devices could interfere with pacemakers or other implanted medical devices. However, it has never been demonstrated that signals from a microwave oven are strong enough to cause such interference (OET 1999). Furthermore, electromagnetic shielding has been incorporated into the design of modern pacemakers to prevent RF signals from interfering with the electronic circuitry in the pacemaker (OET 1999).

Other non-thermal adverse effects such as disorientation of passing birds by RF waves are also of concern. Past studies on effects of communication towers were noted by Beason (1999) during the 1999 Workshop on Avian Mortality at Communication Towers (Evans and Manville 2000). During this workshop, Beason (1999) noted that most research on RF signals produced by communication towers have no general disorientation effects on migratory birds. However, more research is needed to better understand the effects of RF energy on the avian brain.
Currently, CBP, USFWS, NPS, U.S. Air Force, U.S. Marines, BLM, and local law enforcement agencies use two-way radios as part of their daily operations in the project area. Further, several of these agencies operate and maintain radio repeaters with the project area.

3.14.2 Environmental Consequences

3.14.2.1 No Action Alternative

Under the No Action Alternative, the proposed tower sites would not be installed or operated. Daily radio operations by CBP, USFWS, NPS, local law enforcement, and the military would continue within the project area. There would be no impacts to existing RF environment or effect to the human or natural environment.

3.14.2.2 Proposed Action

With the implementation of the Proposed Action, the 10 towers equipped with radio wave and microwave communication systems, as well as radar systems, would be installed for use by CBP border security activities. As with any RF transmitter, all of these systems would emit RF energy and EM radiation; therefore, a potential for

adverse effects could occur. However, any adverse effects to human safety and wildlife would likely be negligible due to the minimal exposure limits associated with both the type of equipment used and the elevated locations in which they would be positioned on the towers. The tower sites would also be fenced for security, making human and terrestrial wildlife exposure to RF emitting equipment even less likely.

The potential to exceed MPE limits of RF energy such as those described by Kelly (2007) are far outside the capability limits of data and communications systems in the Proposed Action. Furthermore, communication and radar systems on the proposed towers would be installed a minimum of 20 feet off the ground and would exceed the minimum safe operating distance for these systems (i.e., 17 feet). Thus, maintenance and operational personnel working within the secure tower site would not be exposed to any RF energy that exceeds MPE limits set by the FCC.

Though greater research is required to have a better understanding of the effects of RF energy on the avian brain, the potential effects on passing birds is expected to be negligible as well. Any disorientating effect, if experienced, would be temporary and would occur only at close distances to the antennas.

As part of the overall spectrum management process, the National Telecommunications and Information Administration (NTIA) and the FCC have developed radio regulations to help ensure that the various radio services operate compatibly in the same environment without unacceptable levels of radio frequency interference and emissions. While the communication systems and the frequencies in which they would be operated are considered law enforcement sensitive and cannot be provided to the public, compliance with FCC and NTIA regulations would be required, and would ensure that recognized safety guidelines are not exceeded. All frequencies used by CBP would be coordinated through the FCC and NTIA as required by NTIA regulations. Additionally, transmitters and sensors associated with the SBI*net* OPCNM project would operate below 30 GHz. Therefore, the RF environment created by the installation, operation and maintenance of the communication and radar systems on the proposed towers would have a long-term, negligible adverse impact on observatories, human safety or the natural environment.

3.15 UTILITIES AND INFRASTRUCTURE

3.15.1 Affected Environment

3.15.1.1 Utility Commercial Grid Power

Several commercial utility power companies service the Arizona cities and counties in southwestern Arizona and are shown in Table 3-16.

Table 3-16. Power Company Service Areas

City and or County	Power Company
City of Ajo	Arizona Public Service Company (APS) and Ajo Improvement Company
Pima County	Tucson Electric Power and San Carlos Irrigation

Source: All Business Newsletter 2006 and Tucson Electric Power Company 2008

Currently, four of the proposed towers would potentially derive their power from the local power grid. Existing power line infrastructure is located near proposed tower site TCA-AJO-170, 204, 216, and 301. Powerlines would be extended from the service or secondary pole to each proposed tower site utilizing overhead lines. Within the proposed tower sites power lines would be installed underground. Although power line corridors have not been defined as of yet, coordination is currently underway with the local utility provider within the service area for these proposed four tower sites. It is assumed that new power lines would be installed adjacent to surveyed new or existing access and/or authorized roads. If it is necessary to deviate from access road locations, then new biological and archaeological surveys would be utilized to ensure NHPA Section 106 and environmental compliance.

The proposed towers that are not connected to commercial grid power would typically be powered by a propane fueled hybrid generator system which consists of a common generator system with supplemental photovoltaic capabilities consisting of 18 solar panels, an energy storage battery system, an inverter, and direct current power subsystems. Each proposed tower is not expected to utilize more than 3,650 kW-hours per month from commercial grid power and generator/solar hybrid systems.

For the four towers in which commercial power may be utilized, there may be instances when commercial power may not be available immediately upon tower deployment. If this should occur, the 35 kW hybrid propane generator/solar system would be utilized until commercial grid power is installed and functional.

3.15.1.2 Ambient and Artificial Lighting

Ambient or atmospheric light is of concern to many including, most notably, astronomical observatories (International Dark Sky Association 2008). The reduction of man-made or artificial light sources is generally what astronomers would like to see in the southwest and there are light ordinances in place in some cities in the southwest to minimize sky brightness in large population centers. Tucson and Pima County first adopted outdoor lighting ordinances in 1972, to provide standards so that artificial (man-made) lighting did not interfere with nearby astronomical observatories and preserved the relationship of the residents of City of Tucson/Pima County to their unique desert environment through protection of access to the dark night sky (Pima County 2006). Within this ordinance is a mean lumens cap per net acre.

Additionally, when tower facility lighting is deemed necessary due to CBP operational needs, such as the installation of infrared lighting, USFWS (2000) *Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers*

would be implemented to reduce night-time atmospheric lighting and the potential adverse effects of night-time lighting to migratory bird and nocturnal flying species, and astronomical observatories. Any infrared lighting installed on the proposed towers would be compatible with night vision goggle usage. If the tower sites are lighted for CBP security purposes then lighting would utilize low sodium bulbs, be shielded to avoid illumination outside the footprint of the tower site, and when possible, be activated by motion detectors.

Currently, it is not anticipated that nighttime construction would occur; however if nighttime construction becomes necessary, use of lights would be minimized.

3.15.2 Environmental Consequences

3.15.2.1 No Action Alternative

Under the No Action Alternative, the proposed towers would not be installed and operated. There would be no impacts to local utilities because no additional power demands associated with the SBI*net* Ajo-1 Tower Project would occur. Ambient lighting conditions would continue to be problematic near large urban areas such as Tucson.

3.15.2.2 Proposed Action

Under the Proposed Action, four of the proposed towers would utilize the local commercial power grid. CBP has coordinated extensively with Arizona Public Service (APS) and no adverse significant adverse effects to the local commercial power grid are anticipated. APS would be responsible for constructing commercial grid infrastructure and providing power to each of the tower site proposed for commercial grid power. The Proposed Action would have a long-term, negligible effect on utilities and infrastructure.

If the proposed tower sites are lighted for CBP security purposes, CBP would utilize low sodium bulbs, shield lights to avoid illumination outside the footprint of the tower site, and utilize motion detectors to activate lights when possible. Security lighting at the proposed tower sites would have a permanent, intermittent impact on approximately 0.66 acre (total) and would not be expected to have a major adverse impact on wildlife. Should nighttime construction occur, CBP would ensure that all construction lighting would be shielded to minimize ambient lighting issues and would follow Pima County lighting ordinances to the greatest extent possible. Based on these measures, negligible to minor long-term adverse impacts to the night sky and ambient lighting would occur as a result of the implementation of the Proposed Action.

3.16 ROADWAYS AND TRAFFIC

3.16.1 Affected Environment

The proposed tower sites are located on OPCNM, BLM, and CPNWR lands in western Pima County. The project area is extremely remote and the only highway within the project area is SR 85, which extends from Interstate 10 near Buckeye south to the POE at Lukeville. It is a major transportation route for U.S. citizens traveling to Rocky Point, Sonora, Mexico and is the paved access to OPCNM. Rocky Point is a popular vacation area for Arizona residents.

Many of the project sites are located in rural, undeveloped areas with recreation or wilderness as the main land uses for the region. Traffic flow is usually low on these roads because most vehicular movement in the region occurs on the interstates. The average annual daily traffic count for SR 85 from Puerto Blanco Road to the Lukeville POE is 1,500 vehicles (ADOT 2006).

3.16.2 Environmental Consequences

3.16.2.1 No Action Alternative

Under the No Action Alternative, the proposed tower sites would not be used. Construction of access roads, towers, foundations, and associated buildings would not occur. There would be no impacts to local vehicular traffic because no construction equipment, materials or construction crews would be needed in the area.

3.16.2.2 Proposed Action

With the implementation of the Proposed Action, construction and staging for the access roads, foundations, towers and associated equipment shelters would create a short-term, minor impact to roadways and traffic within the project region. The increase of vehicular traffic would occur to supply materials and work crews at each tower site for a short amount of time. Tower construction would require 26 to 80 days depending on tower type. The initial construction phase would include creation of a staging area for materials and equipment. Once a staging area is established, traffic near the construction site would be from the influx of construction workers and new materials. Staging areas would be set off the main roads and would not disrupt the flow of traffic.

Existing roads would mainly be utilized to access the tower sites and they would be maintained. A total of 1.2 miles of new roads would be constructed to access the proposed tower sites from existing roads. Because the public already has access to the existing approved roads, the creation of an additional 1.2 miles of roads would have a long-term, minor effect on the public's access to designated wilderness. However, authorized road improvements would potentially increase recreation use on BLM lands.

Once construction work is completed, maintenance visits to each site would be required up to twice a month depending on tower type. Tower maintenance and refueling would require approximately 191 vehicle trips annually. These visits would have a long-term, negligible effect on traffic. However, the proposed project would decrease CBV and resulting required law enforcement traffic on public roads on OPCNM and to some extent CPNWR. Increased deterrence of CBVs resulting from the proposed project would reduce the enforcement footprint generally closer to the international border, thus reducing illegal traffic and moving USBP traffic closer to the border.

3.17 AESTHETIC AND VISUAL RESOURCES

3.17.1 Affected Environment

Towers currently exist within the project area and are generally commercial, General Services Administration (GSA), or CBP communications towers. Roads within the

OPCNM and other Federal lands may be maintained by these various entities depending upon land management strategies or plans.

All of the proposed tower sites except five (TCA-AJO-004, TCA-AJO-216, TCA-AJO-301, and 310) are located on OPCNM. However, access to proposed tower site TCA-AJO-004 is on BLM and OPCNM lands. Lands controlled by BLM are assigned visual resource inventory classes. BLM utilizes this inventory for a two-fold purpose. It serves as an inventory tool to portray the relative value of the visual resources and as a management tool that portrays the visual management objectives. Visual resources of the region are divided in four classes: Class I, II, III, and IV. Proposed tower sites TCA-AJO-004 and 216 are located on BLM land with a Visual Resource Management of Class IV. Class IV lands are managed in a way that allows the level of change to be high and major modifications of the existing landscape are allowed. BLM also subdivides landscapes into three distance zones based on relative visibility from observation points. The three zones are: foreground-middleground, background, and seldom-seen. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations which are less than 3 to 5 miles away and where management activities might be viewed in detail. This zone is more visible to the public and changes are more noticeable. The background zone includes areas beyond the foreground-middleground zone but usually less than 15 miles away. This does not include areas in the background which are so far distant that the only thing discernible is the form or outline. Areas that are not visible within the foreground-middleground zone or background zone are in the seldom-seen zone (BLM 2009)

There is no development adjacent to the project area, except near the towns of Lukeville and Why and the OPCNM administrative facilities. Aesthetic resources vary throughout the project corridor, which includes vast open areas of arid desert land, lava flows, and areas of unique native vegetation. Areas within the project area visited for their natural setting and aesthetic values include OPCNM and CPNWR and their associated wilderness.

3.17.2 Environmental Consequences

3.17.2.1 No Action Alternative

Under the No Action Alternative, the aesthetics of the project region would not be directly affected by installation of towers. However, trash, illegal roads, graffiti, and general vandalism resulting from IA traffic would be expected to continue to detract from the visual quality of area. The No Action Alternative would be expected to have minor, permanent impact on aesthetics in the project area. It has been estimated that each IA leaves an average 8 pounds of trash on U.S. soil per entry (Davis 2005).

3.17.2.2 Proposed Action

The proposed towers and FOB on OPCNM would be located primarily within undeveloped areas, the majority of which is located adjacent to designated wilderness. The proposed towers and associated infrastructure would be an unnatural element in an undeveloped area visited for its natural setting and visual qualities and would be expected to detract from the visual qualities of the project area. A viewshed analysis

was conducted for each proposed tower site and depending on the location and elevation of a viewer it is possible that up to five towers could be visible from one site in the western portion of the OPCNM and possibly two towers, TCA-AJO-189 and 302, could be visible at one time in the eastern portion of CPNWR. Viewshed analysis maps for each tower are provided in Appendix E. However, no towers would be visible from portions of the Cipriano Hills, Bates Mountains, and the southwest corner of OPCNM. The Proposed Action would have a long-term, moderate impact on aesthetic qualities within 15 miles or less of the proposed towers and FOB because the impact would be readily apparent. The impacts on the region's aesthetic quality from the towers would be negligible beyond an observation point of 15 miles because the towers would be within the seldom-seen zone and would not be visibly apparent.

The Proposed Action would have a long-term indirect benefit to the visual quality of the landscape through the reduction or elimination of newly created illegal roads and trails. Implementation of the proposed SBI*net* Ajo-1 Tower Project would enhance USBP's ability to detect CBV and enhance the efficiency of interdiction, thus deterring illegal traffic and reducing the enforcement footprint. Based on similar technology operations in Yuma Sector and the Altar Valley in the Tucson Sector a reduction in illegal traffic could be realized within 1 year of the proposed towers becoming operational and accepted by USBP. In the Altar Valley the enforcement footprint was reduced by 35 to 45 miles north of the international border as a result of the technology enhanced operations. A reduction in the enforcement footprint would reduce damage to natural resources that result from CVB activity and consequent law enforcement activities. Additionally, The Proposed Action would reduce the number of illegal roads and trails being created and decrease the amount of human waste and trash deposited on both OPCNM and to some extent on CPNWR. Reducing damage to natural resources, illegal roads and trails, trash associated with illegal cross border activities would enhance the visual quality of the landscape throughout OPCNM and to some extent on CPNWR.

3.18 HAZARDOUS MATERIALS

3.18.1 Affected Environment

Solid and hazardous wastes are regulated in Arizona by a combination of laws promulgated by the Federal, state and regional Councils of Government. All proposed tower sites had a search conducted on the EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). CERCLIS contains information on hazardous waste sites, potential hazardous waste sites, and remedial activities, including sites that are on the National Priorities List (NPL) or being considered for the NPL. The search found no active NPL sites within a 1-mile radius of any of the proposed tower sites located in Pima County, Arizona. Additionally, during the March, April, and June 2009 biological surveys conducted by GSRC, no evidence of hazardous waste or materials (e.g., drums, soil staining) were observed at the tower sites.

GSRC contracted Environmental Data Resources, Inc. (EDR) to produce radius reports which examine Federal and state environmental databases that track activities associated with hazardous waste and incidents that have resulted in major environmental impairment. These databases are prepared and maintained by various Federal and state environmental agencies, such as the EPA and the ADEQ.

Only one proposed tower site, TCA-AJO-301, had a report of any potentially hazardous materials within a 1-mile radius of the tower site. The Chevron gas station (i.e., Gringo Pass) in Lukeville maintains above ground storage tanks for gasoline and diesel fuel. There were no reported spills or violations on record for the Chevron gas station (EDR 2009).

3.18.2 Environmental Consequences

3.17.2.1 No Action Alternative

The No Action Alternative would not contribute any hazardous waste or materials to the project area, as no construction of towers or access roads would take place.

3.18.2.2 Proposed Action

Construction Activities

During construction of the proposed towers, access roads, and FOB a potential exists for petroleum, oil, and lubricants (POL) contamination at the construction site due to storage of POL material for maintenance and refueling of vehicles and fuel storage tanks. However, these activities would include primary and secondary containment measures. Clean-up materials (e.g., oil mops) would be maintained at each site for appropriate spill response and cleanup in case an accidental spill occurs. Drip pans would be provided for the power generators and other stationary equipment to capture any POL that is accidentally spilled during maintenance activities or leaks from equipment. To ensure oil pollution prevention, the construction contractor would have a SPCCP in place prior to the start of construction activities as outlined in Section 5.0.

Portable sanitary facilities would be provided during construction activities and waste products would be collected and disposed of by licensed contractors. Disposal contractors would use only established roads to transport equipment and supplies, and all waste would be disposed of in compliance with Federal, state, and local regulations, and in accordance with contractors' permits. The Proposed Action would have a temporary, minor impact to the environment as a result of hazardous materials.

Maintenance and Operations Activities

All solid and hazardous wastes and materials, including universal waste (such as batteries, motor oil, fluorescent light bulbs, etc.), would be handled in accordance with applicable Federal and state laws and guidelines governing these items. Additionally, hazardous material handling guidelines would be included as part of the maintenance plan for the SBI*net* Ajo-1 Tower Project (Boeing 2009). These guidelines would include spill prevention and spill response measures.

The Proposed Action would result in indirect beneficial impact to the natural environment as a result of reducing solid and hazardous waste. As illegal vehicle and pedestrian traffic is reduced or eliminated within the project corridor, fewer abandoned vehicles and other solid or hazardous waste associated with illegal cross border activities would be expected.

3.19 SOCIOECONOMICS

3.19.1 Population and Demographics

The region of influence (ROI) on socioeconomics of the proposed SBI*net* Ajo- Tower Project consists of Pima County, Arizona. The population and racial mixes of Arizona and across the ROI are presented in Table 3-17. Population in Pima County was 946,626 in the 3-year census ending in 2007 (U.S. Census Bureau 2007b). There was a 42 percent population growth in Pima County between 1990 and 2007 (U.S. Census Bureau 2002 and U.S. Census Bureau 2007b). The racial mix of the area is predominated by Caucasians and 32 percent of the population of Pima County reports Hispanic origin.

Table 3-17. 3-Year Census Ending in 2007 Population and Race Estimates

Location	White	African American	Native American	Asian	Native Hawaiian	Some Other Race	Two or More Races	Hispanic Origin	Total Population
Arizona	4,701,013 (76.4%)	210,069 (3.4%)	276,132 (4.5%)	144.389 (2.3%)	8,878 (0.1%)	661, 797 (10.8%)	149,897 (2.4%)	1,785,737 (29.0%)	6,152,175
Pima	667,549 (70.4%)	29,682 (3.1%)	30,150 (3.2%)	23,418 (2.5%)	1,288 (0.1%)	165,015 (17.4%)	30,524 (3.2%)	305,904 (32.3%)	9467,626

Source: U.S. Census Bureau 2007a and 2007b.

3.19.2 Employment and Income

Table 3-18 summarizes the total number of jobs in the ROI and Arizona. The number of jobs in Pima County increased 28 percent between 1996 and 2006. In 2006, the government and government enterprises sector provided 84,403 jobs in Pima County and the major industries were health care and social assistance (56,577 jobs) and retail trade (55,289 jobs) (U.S. Bureau of Economic Analysis 2006b).

Table 3-18. Total Number of Jobs and Unemployment Rate

Location	1996	2006	Percent Change	2008 Unemployment Rate
Arizona	2,405,874	3,366,201	40%	5.5%
Pima	393,012	503,332	28%	4.9%

Source: U.S. Bureau of Economic Analysis 1996a and 1996b, U.S. Bureau of Economic Analysis 2006a and 2006b, Real Estate Center 2009a and 2009b.

Pima County had 455,087 persons in the labor force in the census year ending 2007 (U.S. Census Bureau 2007b) and the 2007 unemployment rate was 3.7 percent (Real Estate Center 2009b). Although the 2008 unemployment rate for Pima County is over 1 percentage point greater than in 2007, it was less than the 2008 unemployment rate in Arizona of 5.5 percent (Real Estate Center 2009a).

The 2006 per capita personal income (PCPI) for Pima County was $31,418 and ranked 2nd in the state (Table 3-19; U.S. Bureau of Economic Analysis 2006c). This PCPI was 98 percent of the state average ($31,936) and 86 percent of the national average ($36,714). The 1996-2006 average annual growth rate of the Pima County PCPI was 4.6 percent, higher than both the average annual growth rate for the state (4.4 percent) and the Nation (4.3 percent) (U.S. Bureau of Economic Analysis 2006c).

Table 3-19. Income and Median Household Income for the Nation, Arizona, and Pima County

Location	2006 Per Capita Personal Income (PCPI)	PCPI 1996-2006 Average Annual Growth Rate (percent)	2007 Median Household Income
United States	$36,714	4.3	$50,740
Arizona	$31,936	4.4	$49,923
Pima County	$31,418	4.6	$43,721

Sources: U.S. Bureau of Economic Analysis 2006c and 2006d, U.S. Census Bureau 2007c

3.19.3 Housing

The total number of housing units in the ROI in the 3-year census ending 2007 was 417,065, with 11 percent vacancy (Table 3-20). Pima County had a smaller percentage of vacant units than the State of Arizona. However, the percentage of units in Pima County occupied by owner and renter are comparable to the percentage in each of the categories for the State.

Table 3-20. Housing Units by Location (3-year Census Ending 2007)

Location	Vacant Housing Units	Occupied Housing Units		Total Housing Units
		Owner	Renter	
Arizona	380,103 (15%)	1,523,041 (68%)	701,951 (32%)	2,596,351
Pima	46,939 (11%)	241,634 (65%)	128,492 (35%)	417,065

Source: U.S. Census Bureau 2007a and 2007b.

3.19.4 Environmental Consequences

3.19.4.1 No Action Alternative

Under the No Action Alternative, construction of towers would not take place. As a result, no direct impacts would be anticipated under the No Action Alternative. However, CBV traffic would not be deterred in the project area and societal costs such

as insurance costs, property losses, law enforcement expenses, and drug rehabilitation, medical expenses, and labor opportunities associated with CBV would continue to burden society. The No Action Alternative would continue to endanger the lives and increase health risks to CBVs attempting to cross the southern border and jeopardize the safety of CBP agents who attempt to apprehend them.

3.19.4.2 Proposed Action

The labor for the Proposed Action would be provided by private contractors, resulting in only temporary increases in the population of the project area. When possible, materials and other project expenditures would predominantly be obtained through merchants in the local community resulting in temporary, minor economic benefits. All construction activities, regardless of the area, would be limited to daylight hours only, to the maximum extent practicable. Safety buffer zones would be designated around all construction sites to ensure public health and safety. No displacement of residential or commercial properties would result from this action.

Adequate housing and contracting resources are available in the ROI for private contractor involvement in constructing the proposed towers. Only minor direct impacts to housing or employment in the project areas would result from temporary increases in the tower construction workforce that would last for the approximate 26- to 80-day construction work schedule. No changes to local employment rates, poverty levels, or local incomes would occur as a result of this program. Long-term, but minor, beneficial socioeconomic impacts would be realized from the purchasing of fuel for the backup generators locally to power up to 10 towers and future maintenance of tower projects. Additionally, contractors and government project personnel assigned to the project would represent a short-term, minor to moderate beneficial impact to local retailers, restaurants, and hotels.

The enhanced detection capabilities and improved interdiction efficiency of CBP agents would deter illegal traffic in the project area. Reductions in CBV traffic resulting from increased deterrence would be expected to reduce crimes on OPCNM and nearby lands (e.g., BLM lands and the Tohono O'odham Nation) and enhance the safety of U.S. residents, OPCNM and CPNWR visitors, USBP agents, and OPCNM, CPNWR, BLM and other agencies' personnel.

3.20 ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN

3.20.1 Affected Environment

3.20.1.1 Executive Order 12898, Environmental Justice

The fair treatment of all races has been assuming an increasingly prominent role in environmental legislation and implementation of environmental statutes. In February 1994, President Clinton signed EO 12898 titled, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This action requires all Federal agencies to identify and address disproportionately high and adverse effect of its programs, policies, and activities on minority and low-income populations. Pima County has approximately 32 percent of their population claiming

Hispanic or Latino origin (see Table 3-19). Furthermore, Pima County has a greater percentage of its population in poverty relative to both Arizona and the Nation (Table 3-21).

Table 3-21. 2007 Poverty Data for the Nation, Arizona, and the ROI

Location	All Ages in Poverty, Percentage
United States	13.0
Arizona	14.1
Pima	14.9

Source: U.S. Census Bureau 2007c.

3.20.1.2 Executive Order 13045, Protection of Children

EO 13045 requires each Federal agency "to identify and assess environmental health risks and safety risks that may disproportionately affect children"; and "ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks." This EO was prompted by the recognition that children, still undergoing physiological growth and development, are more sensitive to adverse environmental health and safety risks than adults. In Pima County, 226,705 individuals, or 23.9 percent of the population, are children under the age of 18 (U.S. Census Bureau 2007c). The potential for impacts to the health and safety of children would be greater where projects are located near residential areas.

3.20.2 Environmental Consequences

3.20.2.1 No Action Alternative

Under the No Action Alternative, construction of towers would not take place. As a result, no impacts would be anticipated under the No Action Alternative for environmental justice issues.

3.20.2.2 Proposed Action

The Proposed Action would beneficially affect the ROI, regardless of race and income level. The Proposed Action would not result in disproportionately high or adverse environmental health or safety impacts to minority or low-income populations or children. This conclusion is based on the fact that all proposed tower sites are located on Federal or state lands and there would be no displacement of persons (minority, low-income, children, or otherwise) as a result of implementing the Proposed Action. Further, security would be provided at the proposed tower sites during construction activities to prevent unauthorized entry onto the sites.

3.21 SUSTAINABILITY AND GREENING

3.21.1 Affected Environment

In accordance with EO 13423 – Strengthening Federal Environmental, Energy, and Transportation Management (72 FR 3919), CBP would incorporate practices in an

environmentally, economically, and fiscally sound, integrated, continuously improving, efficient and sustainable manner in support of their mission. CBP implements practices throughout the agency to: 1) improve energy efficiency and reduce greenhouse emissions, 2) implement renewable energy projects, 3) reduce water consumption, 4) incorporate sustainable environmental practices such as recycling and the purchase of recycled-content products, and 5) reduce the quantity of toxic and hazardous materials used and disposed of by the agency. Additionally, new facility construction would comply with the *Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings* set forth in the *Federal Leadership in High Performance and Sustainable Memorandum of Understanding*. DHS will also reduce total consumption of petroleum products as set forth in the EO and use environmentally sound practices with respect to the purchase and disposition of electronic equipment.

3.21.2 Environmental Consequences

3.21.2.1 No Action Alternative

The No Action Alternative would not result in any direct or indirect impacts, as no construction activities would take place.

3.21.2.2 Proposed Action

Under the Proposed Action, the Federal sustainability and greening practices would be implemented, to the extent practicable. CBP intends to obtain the goal of reducing petroleum-based product use with a Fleet Management Plan facilitated through CBP's Asset Management Division. This project would adhere to this management plan.

SECTION 4.0
CUMULATIVE IMPACTS

4.0 CUMULATIVE IMPACTS

The NEPA regulations define cumulative impacts as an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision-making is served by consideration of cumulative impacts resulting from activities that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

This cumulative impacts analysis summarizes expected environmental effects from the combined impacts of past, current, and reasonably foreseeable future activities which affected any part of the human or biological environment impacted by the Proposed Action. Activities were identified for this analysis by reviewing CBP and USBP documents, news/press releases and published media reports, and through consultation with planning and engineering departments of local governments, and state and Federal agencies, including DHS/CBP/SBI and SBI*net* project proponents.

4.1 HISTORICAL IMPACTS TO THE SONORAN DESERT

The Sonoran Desert Ecosystem has been significantly impacted by historical and ongoing activities such as ranching, agricultural, and urban development; Federal land use including military operations and management for recreation and wildlife; CBV activity and resulting law enforcement actions, and climate change. All of these actions have, to a greater or lesser extent contributed to several ongoing threats to the ecosystem including loss and degradation of habitat for both common and rare wildlife and plants and the proliferation of roads and trails. The most substantial impacts of these activities were not or are not regulated by NEPA and did not include efforts to minimize impacts. These include loss of a significant lesser long-nosed bat maternity roosts, restriction of the Sonoran pronghorn range, the establishment of non-native plants, and the proliferation of roads and trails.

4.2 REASONABLY FORESEEABLE CBP PROJECTS WITHIN AND NEAR THE TUCSON SECTOR

USBP has been conducting law enforcement actions along the U.S.-Mexico border since its inception in 1924, and has continually transformed its methods as new missions, CBV modes of operations, agent needs, and national enforcement strategies have evolved. Development and maintenance of training ranges, station and sector facilities, detention facilities, and roads and fences have affected hundreds of acres of resources associated with the Sonoran Desert including the climate and landscapes which support native plants and animals, as well as socioeconomic conditions in border communities.

In recent years, Congress expressed its interest in border security through various legislative enactments and by consistently appropriating significant funds for the construction of fencing, infrastructure, and technology along the border. In FYs 2008 and 2009, CBP completed construction of up to approximately 224 miles of primary fence in the CBP Sectors of Rio Grande Valley, Marfa, Del Rio, and El Paso, Texas; Tucson and Yuma, Arizona; El Centro and San Diego, California (SBI 2009). Approximately 5 miles of primary fence was constructed on OPCNM in 2008.

Another CBP initiative, entitled Vehicle Fence 300 (VF 300), constructed approximately 197 miles of vehicle fence in Arizona and California as of December 2009 (SBI 2009). Approximately, 15 miles of vehicle fence was constructed on CPNWR. Projects recently completed or reasonably foreseeable in the near future in the Tucson Sector are presented in Table 4-1. SBI*net* tower projects are currently in the planning phase for Arizona and would include tower construction and access roads in the Naco, Douglas and Wilcox stations' AORs (Tucson East, 29 towers proposed), Tohono O'odham Nation (30 proposed towers), and in the Ajo and Yuma Sector's Wellton Station AORs (CPNWR, 11 proposed towers). The number of proposed towers for these projects may change based on the development of final planning and analysis designs.

Table 4-1. Recently Completed or Reasonably Foreseeable CBP projects within and near the Tucson Sector

Project	Approximate Acres Permanently Impacted
Recent construction of 36 miles of hybrid barrier and the proposed construction of 35 miles of patrol and drag road, eight water wells, two new temporary staging areas, five existing staging areas, and approximately 7.5 miles of improvements to north-south access roads on the BMGR	189
Proposed expansion of the USBP Ajo Station in Why, Arizona (including one tower)	30
Proposed widening of the El Camino Del Diablo to approximately 18-feet wide.	62
Construction of approximately 15 miles of vehicle fence and north-south access road improvements on the CPNWR (VF 300)	115
Construction of approximately 37 miles of permanent vehicle barrier, improvements to approximately 37 miles of access road, construction of 1-mile of new road, and installation of approximately 1.5 miles of temporary vehicle barriers on the CPNWR.	186
Improvement of 80 miles of all weather patrol road and construction of 50 miles of PVBs on TON as well as a construction access road for the installation and maintenance of the PVBs (construction on-going)	72
SBI*net* has proposed installing commercial grid power and fiber optics to proposed tower sites TCA-AJO-004, 302, and the proposed FOB near TCA-AJO-302. Fiber optics would also be installed to proposed tower site TCA-AJO-216. The commercial grid power and fiber optics would originate near SR 85. The potential commercial grid power and fiber optic lines would be installed within the driving surfaces of existing roads (e.g., Bates Well Road). If this action comes to fruition, Tower TCA-AJO-189 would be eliminated.	1

Table 4-1, continued

Project	Approximate Acres Permanently Impacted
USBP may consider increasing the size of the proposed FOB near proposed tower site TCA-AJO-302 from 1 acre to 2 acres. The FOB would have two modular buildings for agent support and detention of CBVs and would be similar to the existing facility at Papago Farms on the Tohono O'odham Nation.	2
Installation of 26 emergency beacons within the CPNWR and BMGR	0
Proposed construction of vehicle fence on the Tohono O'odham Nation (VF 300)	41
Proposed tower construction and access roads for SBI*net* Yuma/BMGR project	9*
Proposed tower construction and access roads for SBI*net* CPNWR project	2*
Proposed tower construction and access roads for SBI*net* Tucson East project	5*
Proposed tower construction and access roads for SBI*net* Ajo Station Tower project	30
Proposed tower construction and access roads for SBI*net* Tohono O'odham project	3*

* These are only initial planning estimates based on tower impacts and currently does not include roads.

All CBP actions have been in support of the agency's mission to gain and maintain control of the U.S. border. Infrastructure projects have supported the operational methods determined to be the most effective approach to achieving the agencies mission. Each of these projects has been compliant with NEPA and measures to avoid, minimize, or mitigate for the adverse effects on the human and biological environment have been developed and implemented on a project specific basis. With continued funding and implementation of BMPs developed as part of past, ongoing, and future actions, including environmental education and training of its agents, use of biological and archaeological monitors, wildlife water systems, wildlife forage plots, and restoration activities, the direct impacts of these projects have been and would be prevented or minimized.

Operational impacts have also occurred as part of required CBV interdiction activities. Agents patrol the U.S. border and adjacent U.S. lands using a variety of transportation including foot, horse, ATV, trucks, and aircraft. Both CBV traffic and resulting required law enforcement traffic have disturbed existing roads and off-road travel has affected natural resources. Traffic volume and travel speed has increased on existing OPCNM and CPNWR authorized roads. These changes have necessitated increased road maintenance and road widening. However, infrastructure (i.e., vehicle barriers) and technology (i.e., MSS) projects serve as force multipliers, allowing for increasingly efficient interdiction activities and consequent increased deterrence of CBVs, thereby reducing the level of cross border crime and thus reducing the required enforcement footprint.

An example of the effectiveness of this application of force multipliers is seen in the USBP enhanced operations in Yuma Sector in 2007. At that time, Yuma Sector was one of the busiest locations for illegal entry into the U.S. Within one year of enhancing operations, Yuma Sector saw a decrease in activity from 33,405 arrests to 7,077. Since

2005 (when the traffic was highest) there has been a 95 percent decrease in cross border violations in the sector (99,491 arrests in 2005 vs. 5,287 in 2009).

In addition to the phased projects listed above, CBP might be required to implement other activities and operations that are currently not foreseen or not within the ROI and therefore not discussed in this document. These actions could be in response to national emergencies or security events like the terrorist attacks on September 11, 2001, or to changes in the mode of operations of CBVs.

4.3 OTHER AGENCY/ORGANIZATIONS PROJECTS

Projects are currently being planned by other Federal entities which could affect areas in use by CBP. CBP should maintain close coordination with these agencies to ensure CBP activities do not conflict with other agencies' policies or management plans. CBP would consult with applicable state and Federal agencies prior to performing any construction activities and would coordinate operations so that they do not inappropriately impact the mission of other agencies. Other agencies, such as BLM, U.S. Air Force, NPS, and USFWS, routinely prepare or update Resource Management Plans for the resources they manage. The following is a list of projects other Federal agencies and tribes are conducting or have completed within the U.S.-Mexico border region.

OPCNM

- Planned installation of fiber optics cable along SR 85 from the northern boundary of the OPCNM to the Visitors Center.
- Proposed installation of approximately 2 miles of new water line from the Visitors Center to the Camp Grounds.
- There are ongoing efforts to reduce water loss from Quitobaquito Pond.
- Ongoing facilities maintenance project include installation of gates along park administrative roads, reconstruction of picnic ramadas, rehabilitation of the campground dump station, and culvert replacement.
- There are two new office buildings proposed for construction adjacent to the maintenance facility. One would house law enforcement operations and the other the resource division. This construction would involve new ground disturbance, but it would be in the existing administrative site boundaries.

Marine Corps Air Station (MCAS)-Yuma

MCAS-Yuma conducts military flights over CPNWR and BMGR; operates various training facilities, such as landing strips and a rifle range; and conducts Weapons Tactics Instructor (WTI) courses. The WTI courses are conducted twice a year and involve overflights, and ground based activities such as movement of troops and vehicles at ground-support areas. Ordnance delivery occurs in two locations within the range of Sonoran pronghorn. MCAS-Yuma implements measures to minimize

destruction and degradation of habitat and closely monitors all activities which could disturb or harm pronghorn.

Luke Air Force Base, Barry M. Goldwater Range (BMGR)
Military activities within BMGR-east (the area nearest CPNWR and the Sonoran pronghorns range) include: use of airspace, four manned air-to-ground ranges, three tactical air-to-ground target areas, four auxiliary airfields, use of Stoval Airfield, and explosive ordnance disposal burn area. Luke Air Force Base has committed to implementing measures to minimize impacts to Sonoran pronghorn and to implementing recovery projects recommended by the Sonoran Pronghorn Recovery Team.

CPNWR
Activities on CPNWR include the construction of forage enhancement plots and waters as part of Sonoran pronghorn recovery efforts. Additionally, a semi-captive breeding pen is maintained on CPNWR as part of an emergency recovery program for Sonoran pronghorn.

4.4 IDENTIFICATION OF CUMULATIVE EFFECTS ISSUES

Impacts on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis the intensity of impacts will be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3.1.

4.4.1 Land Use

Construction of tower sites and access roads would directly change the current land use as directed by the policies of the managing agencies, (i.e., USFWS, NPS, BLM, or Arizona State Lands) and have indirect effects on the ability of the managing agencies to implement land use policies. The direct effects of removing small areas of land from their current land use and replacing them with areas of law enforcement land use would be localized and is not part of a trend. Although land use in the southwest has changed dramatically over time, in recent history management of the lands affected by the proposed project has been consistent with the mission of the managing agencies. Thus, the direct cumulative effects of changing land use would be negligible.

Changes in land use on nearby lands, such as changing military training and residential development, could have indirect effects on the lesser long-nosed bat and the Sonoran pronghorn. Although these two species could be directly affected by habitat degradation associated with the proposed project, the effect of changing land use, including the indirect effects of tower operation and subsequent changes in USBP operations is expected to be beneficial over the long-term. A reduction of CBV traffic in the affected area, a reduced enforcement footprint, more efficient interdictions, and a reduced need to track CBVs on the ground would all benefit protected species. These indirect effects of the proposed project would also benefit land use policies which direct agencies to protect and enhance wildlife, not only by reducing impacts to the Sonoran Desert Ecosystem, but by creating a safer environment in which to practice land management policies. Furthermore, a safer environment would benefit recreational

land use on NPS and to some extent on CPNWR and BLM lands. Grazing allotments on BLM lands would also benefit from reduced CBV traffic and consequent law enforcement activities. Additionally, the proposed project would allow the OPCNM superintendent to re-evaluate opening the closed portion of OPCNM to public visitation due to increased security and public safety.

4.4.2 Wilderness

As part of the SBI*net* project, a total of seven towers would be constructed adjacent to designated wilderness, two towers would be constructed in potential wilderness, and one tower would be constructed in designated wilderness. The proposed towers would adversely affect the natural values, sense of solitude, and unconfined recreational characteristics of designated wilderness. These actions when considered with past TI (i.e., NPS and CBP vehicle barriers) and construction projects, and the degradation of designated wilderness associated unauthorized trails created by CBV traffic and consequent law enforcement actions would have a moderate cumulative effect on designated wilderness. However, the proposed project would have a beneficial effect as a result of reducing CBV traffic and the enforcement footprint in designated wilderness.

4.4.3 Soils

Construction of tower sites and access roads and the relocation of the FOB would result in disturbance of soils. Soil disturbance could lead to long-term erosion; however, BMPs described in Section 5 and BMPs included as part of the SWPPP and erosion and sediment control plans would minimize construction related erosion. Additionally, the engineering study and resulting road maintenance and upgrade plan committed to by CBP would further reduce erosion associated with road construction, repairs, improvements, and maintenance. Other activities which contribute to the erosion of soils include the establishment and use of unauthorized roads, off-road vehicle and foot traffic, ranching, and fire. Erosion of soils creates opportunities for the establishment of non-native, invasive species and damages biological soil crusts. Non-native, invasive species can increase fuel loads, displace native plants, and degrade wildlife habitats. Biological crusts stabilize soils, increase infiltration of surface flows, and contribute to nutrient uptake of plants. The establishment of non-native, invasive species and damage to large areas of soil crust began with the arrival of the first, non-native American travelers in the southwest. However, direct impacts associated with construction of new roads and use of authorized roads has largely stabilized. Sonoran Desert communities adjacent to authorized roads are likely to be affected by non-native, invasive plants and damage to adjacent soil crust into the foreseeable future. Maintenance of roads and efforts to stop the spread of non-native, invasive plants minimizes adverse effects. Because there are relatively few authorized roads in the Sonoran Desert on Federal lands, and because the authorization of new roads, road widening, or other development typically requires measures to minimize potential impacts, the cumulative effect of all activities associated with authorized roads and land development would be moderate.

Other activities, such as recreational and non-recreational off-road travel and ranching, also result in soil disturbance which promotes the establishment of non-native, invasive plants and damages biological soil crusts. While small disturbances, such as those caused by off-road foot and equestrian traffic not occurring on established routes, can be naturally restored relatively quickly; larger disturbances, such as those caused by off-road vehicle traffic and all traffic on established routes, result in long-term changes in the landscape. CBV traffic and the consequent law enforcement response is the largest contributor to the cumulative effects of soil disturbance in the project area. Past CBV off-road activities and resulting law enforcement responses have disturbed soils that resulted in erosion of soils. In the absence of technology, USBP agents are required to conduct basic patrols off-road to track and interdict CBVs. With implementation of the proposed project, more efficient interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced enforcement footprint, and a reduced need to track CBVs on the ground would all reduce the cumulative effects of soil disturbance. It is anticipated that USBP off-road travel to track and interdict CBV would be reduced and thus the resulting impacts to soils would be reduced. Furthermore, the construction of a vehicle barrier along the OPCNM and CPNWR boundaries and current USBP interdiction efforts limit the extent of off-road CBV vehicle traffic. As off-road traffic and subsequent soil disturbance is reduced, the potential spread of non-native, invasive species would be reduced and soil crusts would begin to naturally regenerate. Because the direct impacts of soil disturbance resulting from all new roads and development are minimized and limited primarily to the Proposed Action and because the largest contributor of soil disturbance (i.e., CBV activity and subsequent enforcement efforts) would ultimately be reduced as a result of the proposed project, the proposed project would have a moderate cumulative effect on soils.

4.4.4 Hydrology and Groundwater

As part of the SBI*net* project, a total of 11.97 acre-feet of water would be obtained from a commercial source in Ajo or Lukeville. Both the Lower Gila and Western Mexican (Sonoyta Valley) basins experience water overdrafts as a result of withdraws for irrigation for agriculture and residential water use. Although water shortage is a substantial issue for those basins within the project area, the one-time use of this relatively small amount of water would not have a major direct effect on water availability in the region. The proposed project would have a moderate cumulative effect on groundwater when combined with other projects.

The repair, improvement, and construction of roads could alter surface water hydrology. Surface water hydrology has been substantially affected throughout the southwest. However, the roads that would be altered or created as a result of the Proposed Action do not intersect major streams and existing roads have been part of the landscape for many years, some likely predating the management of these lands by Federal land management agencies. Road upgrades to be implemented as part of the future engineering plan would be expected to improve current surface water hydrology problems. New road construction, although limited in number and length, would contribute to adverse cumulative impacts on floodplains. However, road upgrades and

maintenance as proposed in the future engineering plan would minimize potential adverse impacts. Illegal roads and trails may continue to divert surface water flows to some extent. However, surface water flows would be restored in portions of the project area as a result of URV restoration activities included as part of the Proposed Action. The proposed project would have a minor cumulative effect on floodplains.

4.4.5 Surface Waters and Waters of the U.S.

Past construction projects and existing unimproved roads are sources of sediment that have adversely affected surface waters in the past and continue to serve as a source of sediment in the project area. The SBI*net* project could lead to long-term erosion of soil into nearby surface waters during storm events. However, the volume of increased sediments in these waters resulting from the project would be minor in comparison to the volume of sediments contributed by natural erosion. BMPs included in Section 5.0, the SWPPP, and erosion and sediment control plans for each proposed tower site would reduce potential erosion and sedimentation. The proposed project would have a minor to moderate cumulative effect on surface waters and WUS from tower construction and a minor to moderate adverse effect on water quality as a result of sediment production form road construction, repair, improvement, and maintenance.

CBV off-road activities and consequent law enforcement activities have created UVRs and disturbed soils within the project area. Continued use of these UVRs has lead to accelerated soil erosion and sedimentation in some areas as well as the disruption of natural drainage patterns. With implementation of the proposed project, more efficient interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced enforcement footprint, and a reduced need to track CBVs off-road cumulative effects to surface waters would be reduced. Further, restoration of UVRs would have a beneficial effect on surface waters as a result of reducing erosion and sedimentation, and restoring natural drainage patterns within the vicinity of UVRs. Cumulative effects on surface water from USBP operations associated with the proposed project would be minor.

4.4.6 Floodplains

Road repairs to and maintenance of approach roads would not construct any structures within floodplains. Road repair and maintenance activities would involve grading within floodplains and would not impede the conveyance of flood waters, decrease floodplain capacity, or increase flood elevations, velocities, frequencies, or durations. Floodplains throughout the southwest have been affected by other activities, especially agriculture. Erosion and sedimentation as a result of the proposed project would have a minor cumulative effect on floodplains.

CBV off-road activities and consequent law enforcement activities have created UVRs and disturbed soils with the project area. Continued use and development of UVRs has lead to accelerated soil erosion and sedimentation in some areas as well as the disruption of natural drainage patterns. With implementation of the proposed project, more efficient interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced zone of enforcement, and a reduced need to track CBVs off-road cumulative effects to floodplains would be reduced. Further, restoration

of UVRs would have a beneficial effect on floodplains as a result of reducing erosion and sedimentation associated with UVRs. The proposed project would have a minor cumulative effect on floodplains.

4.4.7 Vegetation

The proposed project would remove and degrade vegetation. Although numerous other activities have also resulted in the loss or degradation of vegetation, these direct impacts do not threaten any Sonoran Desert vegetation community as a whole and have resulted in a minor to moderate cumulative effect. Vast areas of similar plant communities remain essentially unaffected by the direct loss and degradation of vegetation. However, these impacts can have substantial effects when the lost or damaged vegetation provides habitat for sensitive plants or animals. Sensitive species which have very specific habitat requirements can be substantially impacted by the removal or degradation of small areas of vegetation. The direct cumulative effects of vegetation removal and degradation on sensitive species are discussed below.

Similar to soil disturbance, the removal and degradation of vegetation results in opportunities for the establishment of non-native, invasive species which can result in impacts to much larger areas. In general, any activity resulting in increased human presence on the landscape results in an increased potential for the colonization, establishment, and spread of non-native, invasive species. Non-native, invasive plants can displace native plants and result in loss or degradation of native habitats. Furthermore, non-native, invasive plants provide fuel for fires. Sonoran Desert plant communities are not adapted to fire, especially when fuel loads are high. Although the SBI*net* project would result in soil disturbance and loss of vegetation that promotes the establishment of non-native invasive species, these local and direct effects would be minimized or eliminated through BMPs described in Section 5.0. Efforts by other agencies to reduce the presence of these plants would further minimize the cumulative effects of non-native, invasive plants. Operation of the towers or accidents could provide a source of ignition; however, fire management would be coordinated with land managing agencies and this potential would be minimized. Ultimately, the indirect effects associated with a reduction of CBV traffic and consequent law enforcement activities would have a beneficial effect on vegetation resources on the OPCNM and to some extent on CPNWR and BLM lands. The proposed project would have a minor cumulative effect on vegetation resources on OPCNM.

CBV off-road activities and consequent law enforcement activities have created UVRs and disturbed soils with the project area. Continued use and development of these UVRs has lead to accelerated soil erosion and sedimentation in some areas as well as the disruption of natural drainage patterns. With implementation of the proposed project, more efficient interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced enforcement footprint, and a reduced need to track CBVs off-road cumulative effects to floodplains would be reduced. Further, restoration of UVRs would have a beneficial effect on floodplains as a result of reducing erosion and sedimentation associated with UVRs. The proposed project would have a minor cumulative effect on floodplains.

4.4.8 Wildlife and Aquatic Resources

The SBI*net* Ajo-1 Tower Project would remove and degrade wildlife habitats. Numerous activities have resulted in impacts to wildlife habitats throughout the Sonoran Desert. However, common wildlife has not been substantially affected and the cumulative effects would be minor to these species. The proposed towers could have an adverse impact on migratory birds as a result of bird strikes and RF emissions. Similar to other wildlife, numerous activities have affected migratory birds. However, the potentially affected migratory bird populations are stable and the minor impacts of the project would not result in major cumulative effects. Because vast areas of Sonoran Desert are managed for wildlife, and because common wildlife species are not substantially threatened by any ongoing or future actions, the proposed project would have a minor cumulative effect on wildlife resources.

Past and present CBV off-road activities and consequent law enforcement activities have degraded wildlife habitat and disturbed wildlife. With implementation of the proposed project, more efficient interdictions, a reduction of CBV traffic and resulting law enforcement actions in the project area, a reduced enforcement footprint, and a reduced need to track CBVs off-road cumulative effects to wildlife and their habitats would be reduced. Further, restoration of UVRs would have a beneficial effect on wildlife as a result of restoring habitat that has been degrade through the creation and use of UVRs. The proposed project would have a minor cumulative effect on wildlife resources.

4.4.9 Protected Species

Two protected species would be affected by the SBI*net* Ajo-1 Tower Project: the lesser long-nosed bat, and the Sonoran pronghorn. Both of these species have been and are substantially affected by historical and ongoing projects, as evidenced by their protection under the ESA.

4.4.9.1 Sonoran Pronghorn

Most lands within the Sonoran pronghorns range in the U.S. are managed by Federal agencies; thus, authorized projects that could potentially affect this population of Sonoran pronghorn are Federal activities that are subject to Section 7 consultation. Illegal cross border activities and the consequent law enforcement actions have adversely affected protected species in and adjacent to the project area. Relatively small parcels of private and state lands occur within the currently-occupied range of Sonoran pronghorn near Ajo and Why, north of the BMGR from Dateland to SR 85, and from the Mohawk Mountains to Tacna. State in-holdings on BMGR were acquired by the U.S. Air Force.

Historically, livestock grazing, hunting or poaching, and development along the Gila River and Rio Sonoyta were all probably important factors in the well-documented Sonoran pronghorn range reduction and apparent population decline that occurred early in the 20th century. The U.S. Sonoran pronghorn sub-population is isolated from other sub-populations in Sonora by Mexico Highway 2 and the barbed wire fence that was erected to demarcate the U.S./Mexico border. Additionally, access to greenbelts of the

Gila River and Rio Sonoyta, which likely were important sources of water and forage during drought periods, has been severed by fencing and roadways (i.e., I-8).

Within its remaining range, continuing rural and agricultural development, increasing recreational activities, vehicle use, grazing, and other activities on private and state lands adversely affect Sonoran pronghorn and their habitat. These activities on state and private lands and the effects of these activities on potential recovery areas currently outside of the current range are expected to occur on lands in and near the project area in the vicinity of Ajo, Why, and Yuma. In 2001, MCAS-Yuma reported that 2,884 acres had been converted to agriculture near Sentinel and Tacna. MCAS-Yuma also reported the extent of current pronghorn range that is affected by various activities as follows: recreation cover 69.6 percent of their range, military training on North and South Tactical Ranges covers 9.8 percent, active air-to-air firing range covers 5.8 percent, proposed explosive ordnance disposal 5-year clearance areas at North and South Tactical Ranges and Manned Range 1 cover 1.0 percent, and MCAS-Yuma proposed ground support areas and zones cover 0.3 percent.

Of particular concern are cross border activities by CBVs. In FY 2005, USBP Yuma Sector apprehended record numbers of CBVs. From October 1, 2005 to May 2006, 96,000 apprehensions were made, which was a 13 percent increase over the prior year. Increased USBP presence in the Douglas, Arizona area, and in San Diego (Operation Gatekeeper) and southeastern California, is associated with increased CBV activities in remote desert areas, such as CPNWR, OPCNM, and BMGR.

Illegal crossings and required law enforcement response to this traffic have resulted in route proliferation, off-road vehicle activity, increased human presence in backcountry areas, discarded trash, abandoned vehicles, cutting of firewood, illegal campfires, and increased chance of wildfire. Habitat degradation and disturbance of Sonoran pronghorn almost certainly result from these illegal cross border activities. Currently, much of the illegal traffic travels through the southern passes of the Growler Mountains and lead either through or by all USFWS forage enhancement plots and the captive rearing pen in the Child's Valley. Increased enforcement presence, construction of a vehicle barrier at CPNWR, and the vehicle barrier at OPCNM have been associated with a significant decrease in all forms of illegal cross border activities except narcotics trafficking in FY 2008 as compared to the same period in FY 2007. Apprehensions for USBP Ajo Station decreased from 22,504 (FY 2007) to 15,462 (FY 2008) (OBP 2009). Additionally, vehicle seizures decreased from 456 (FY 2004) to 248 (FY 2008). It is anticipated that completion of the SBI*net* Ajo-1 Tower Project would enhance USBP agents' enforcement efficiency, and thus compressing the primary enforcement footprint closer to the U.S./Mexico border. For example, in the 3-year period that the P-28 Tower Project has been active in the Tucson Sector, apprehensions in the project area have decreased from 114,656 (FY 2006) to 61,923 (FY 2008) (OBP 2009).

The proposed project would result in a minimal contribution to development activities which remove or degrade habitat and result in cumulative adverse affects. Law enforcement actions associated with the Proposed Action would have minor contribution to activities that adversely affect Sonoran pronghorn's range. However, the beneficial

effects of the proposed project (i.e., a reduction of CBV traffic and consequent interdiction efforts in the affected area, a reduced enforcement footprint, more efficient apprehension, and a reduced need to track CBVs on the ground) would substantially reduce the cumulative adverse effects associated with human presence. Other beneficial effects resulting from the Proposed Action and other USBP actions include: the assessment and restoration of UVRs, funding for Sonoran pronghorn population monitoring, forage enhancement plots, and efforts to expand the current distribution of the pronghorn. Although the proposed project would contribute to the adverse cumulative effects which threaten Sonoran pronghorn, it would not contribute to curtailment of their range, the most substantial of these effects, and would reduce the cumulative effects of increased human presence within their range. The Proposed Action would have a moderate adverse cumulative effect on Sonoran pronghorn.

4.4.9.2 Lesser Long-nosed Bat

Development within the range of the lesser long-nosed bat can degrade foraging habitats and has and is likely to continue to adversely affect the species. Development resulting from the proposed project would not directly affect foraging habitat, but could indirectly limit foraging opportunities if towers are located between roosts and foraging areas. However, because lesser long-nosed bats are capable of flying long distances and because they are largely dependent upon visual cues for navigation, it is unlikely that the towers would substantially limit the ability of individuals to locate and travel to and from foraging habitats. A greater cumulative threat to the species is the disturbance of roosts resulting from human disturbance related to both recreational and CBV activity. CBVs have entered lesser long-nosed bat roosts in the past for shelter and concealment from law enforcement officers. Increased development near these roosts and increased accessibility can both result in an increased potential for roost disturbance to occur. Because the length and number of new roads associated with the proposed project is minimal and the new roads do not substantially reduce off-road travel distance to roosts, the proposed project would not result in substantial cumulative effects associated with increased public access of roost sites. Furthermore, the proposed project would reduce CBV activity near roosts and limit the potential for roost disturbance associated with this activity. The proposed project would have a moderate cumulative effect on lesser long-nosed bat.

4.4.10 Cultural Resources

Numerous activities have adversely affected cultural resources throughout the southwest; however, the SBI*net* Ajo-1 Tower Project would not contribute to a loss of these resources. The identification and protection or recordation of significant cultural resources have been coordinated through the Section 106 process.

Much of the land within the immediate vicinity of the tower sites and access roads is located on Federal lands and all actions on these lands will require NEPA and Section 106 compliance. Consequently, the impacts to cultural resources would be avoided and/or impacts to cultural resources would be mitigated through appropriate measures. Future developments are expected to conduct surveys and assess the potential for impacts to cultural resources if a Federal action (including financial aid or assistance,

permits, or land) is required. The proposed project would not contribute to adverse impacts to cultural resources which may result from individuals or private entities that inadvertently damage these resources or intentionally collect these resources. Past and present CBV off-road activity and resulting law enforcement responses have likely adversely affected cultural resources in the project area. It is anticipated that the proposed project would reduce CBV activity in the project area and the resultant enforcement footprint would be reduced as a result of enhanced detection capabilities and more efficient interdiction efforts. Any reduction in CBV activity and subsequent reduction of law enforcement efforts would reduce potential impacts to cultural resources from disturbance. Because the effects of the proposed project on cultural resources would be minimized or mitigated, would not contribute to inadvertent or intentional damage or collection of these resources, and because reduced CBV activity would ultimately benefit these resources, the proposed project would have a minor cumulative effect on cultural resources.

4.4.11 Air Quality

Numerous activities have affected air quality throughout the southwest. However, the proposed project would have very local and minimal impacts on air quality. The air quality analysis conducted for this EA considers ambient air quality conditions (i.e., conditions relative to the impact of all activities in the airshed) and determined that the impacts of the project would be temporary and minor. Thus, the proposed project would have a minor cumulative effect on air quality.

4.4.12 Noise

The project area is undeveloped except for the town of Lukeville and OPCNM's headquarters and thus, noise sources are lacking within the project area. Past construction projects have resulted in increased noise emissions at or near project sites; however, these increases in noise emissions have been localized and temporary. The proposed project would increase noise above ambient conditions during construction and long-term, near the tower sites and at the FOB. Noise emissions from the operation of the proposed towers would have a long-term, moderate cumulative effect on the soundscape on OPCNM and, to some extent on CPNWR and BLM lands.

4.4.13 Radio Frequency Environment

No other known actions would affect the radio frequency environment impacted by the proposed project, thus the proposed project would have a negligible cumulative effect.

4.4.14 Utilities and Infrastructure

Currently, there is a planned project to extend fiber optics along SR 85 to the OPCNM visitor center. The proposed project would have a negligible cumulative effect on utilities and infrastructure. Additionally, CBP may extend commercial grid power and fiber optics to three of the tower sites proposed as part of Proposed Action. Extension of commercial grid power and its use, as part of the proposed project, would have a negligible cumulative effect on utilities and infrastructure.

4.4.15 Roadways and Traffic

Minor traffic increases would be expected during the construction and would return to pre-construction conditions following the completion of construction. The proposed project would have a minor cumulative effect on traffic.

4.4.16 Aesthetics

The placement of towers and a FOB adjacent to designated wilderness would undoubtedly result in long-term adverse effects on the aesthetic qualities which contribute to the wilderness value of these lands. Other actions which have affected the aesthetics of these lands within the viewshed of the towers, and thus would constitute cumulative effects, are limited to construction of existing roads, the proliferation of unauthorized roads, and abandoned vehicles and trash left by CBVs. The existing authorized roads constitute approximately 5 percent of these lands and provide the access necessary for most users to realize the benefits of the surrounding aesthetic resources. Although unauthorized roads undoubtedly contribute to adverse aesthetic conditions, the proposed project would not contribute to these effects but would ultimately reduce the proliferation and use of unauthorized roads, and abandoned vehicles and trash left by CBVs. Additionally, some URVs would be restored as part of the Proposed Action. Thus, the proposed project would have a moderate cumulative effect on aesthetics.

4.4.17 Hazardous Waste

The proposed project includes measures to reduce the potential effects of pollutants associated with the handling of POLs, volatile organic compounds, and hazardous materials and would have a minor cumulative effect regarding hazardous waste.

4.4.18 Socioeconomics

Infrastructure projects have resulted in reductions in illegal drug smuggling and beneficially affected socioeconomic resources within the border area. Increased safety within OPCNM and to some extent CPNWR would also benefit local communities which derive a proportion of their income from tourists visiting OPCNM and CPNWR. Further, short-term economic benefits would be realized by local vendors during tower construction and long-term benefits would be realized through the purchase of fuel for generators. The proposed project would have a minor, beneficial cumulative effect on socioeconomics.

4.5 SUMMARY

No potentially major cumulative effects have been identified for further analysis. While cumulative effects would undoubtedly occur, the contribution of the proposed project to adverse effects would be avoided, minimized, or mitigated to levels that are minor to moderate in intensity. Furthermore, the proposed project would result in a reduction of the activities which are resulting in the most prevalent and damaging effects occurring in Sonoran Desert Ecosystems, specifically those impacts occurring as a result of CBV activities. The proposed project would enhance CBP's operational efficiency which ultimately reduces the enforcement footprint. While required law enforcement efforts

currently contribute to the disturbance of soils, vegetation, surface water hydrology, and other natural resources, damages resulting from CBV activity would undoubtedly be more severe in the absence of law enforcement efforts. In a cumulative sense, the actions of CBP minimize the adverse effects of current CBV activities and result in cumulatively less impacts than a scenario that does not include law enforcement efforts. The proposed project is expected to substantially reduce illegal traffic in the project area as CBP is able to bring the area into effective control which is the purpose of the project. The beneficial effects of the proposed project would extend beyond the reduction of CBV activity in the form of conservation measures for both protected species and cultural resources. When combined with the beneficial effects of other similar measures, the proposed project would ultimately result in cumulative effects which benefit these resources.

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SECTION 5.0
MITIGATION MEASURES

5.0 MITIGATION MEASURES

It is CBP's policy to reduce impacts through a sequence of avoidance, minimization, mitigation, and compensation. This chapter describes those measures that would be implemented to reduce or eliminate potential adverse impacts to the human and natural environment. Many of these measures have been incorporated as standard operating procedures by CBP on past projects. Environmental design measures are presented for each resource category potentially affected. These are general mitigation measures; development of specific mitigation measures would be required for certain activities implemented under the Proposed Action. The specific mitigation measures would be coordinated through appropriate agencies and land managers or administrators, as required. Mitigations vary and include activities such as restoration of habitat in other areas, acquisition of lands, implementation of BMPs, and are typically coordinated with the USFWS and other appropriate Federal and state resource agencies.

5.1 PROJECT PLANNING/DESIGN COMMUNICATION TOWERS

The following measures were adapted from the *Interim Guidance on Siting, Construction, Operation, and Decommissioning of Communication Towers* (USFWS 2000).

- CBP will minimize bird perching and nesting opportunities for new poles or towers.
- CBP will not site towers in or near wetlands, other known bird concentration areas (e.g., state or Federal refuges, staging areas, rookeries), in known migratory or daily movement flyways, or in habitat of threatened or endangered species. If this is not an option, mitigation will be required.
- CBP will not use guy wires for tower support to reduce the probability of bird and bat collisions.
- CBP will minimize security and other operations-related lighting impacts at tower sites and any other DHS-related infrastructure sites to the greatest extent practicable by minimizing the number of lights used and selectively placing and pointing lights down toward the ground, with shields on lights to prevent light from going up into sky, or out laterally beyond the tower site footprint.
- CBP will site, design, and construct towers and appurtenant elements to avoid or minimize habitat loss within and adjacent to the tower "footprint." CBP will minimize road access and fencing to reduce or prevent habitat fragmentation and disturbance, and to reduce above-ground obstacles to birds in flight.
- Where feasible, CBP will place electric power lines to facilities underground or on the surface as insulated, shielded wire to avoid electrocution of birds and bats. CBP will use recommendations of the Avian Powerline Interaction Committee (1994, 1996) for any required above-ground lines, transformers, or conductors. CBP will use raptor protective devices on all above ground wires.

- CBP will control noxious weeds using U.S. Environmental Protection Agency approved herbicides. A NPS Pesticide Use Permit will be obtained prior to applying herbicides on NPS lands.
- If rodent populations on the perimeter of the facility are to be controlled, CBP will not use rodenticides.
- Once CBP has determined that towers are no longer needed, CBP will remove them within 12 months. CBP will restore footprint of towers and associated facilities to natural habitat.

5.2 PROJECT PLANNING/DESIGN – GENERAL CONSTRUCTION

CBP will develop and provide USFWS and DOI land management agencies a map and the following GIS shapefiles: Sonoran pronghorn locations; lesser long-nosed bat roosts; proposed DHS tower sites and access roads; roads proposed to be maintained; existing and proposed CBP FOBs; border vehicle and pedestrian fence; property boundaries; authorized roads; and other shapefiles as appropriate (i.e., if useful for analyzing the effects of the project on Sonoran pronghorn).

CBP will use disturbed areas or areas that will be used later in the construction period for staging, parking, and equipment storage.

CBP will give particular importance to proper design and locating roads such that the widening of existing or created roadbeds beyond the design parameters due to improper maintenance and use will be avoided or minimized.

Site, design, and construct towers and their associated facilities, including roads, to avoid or minimize habitat loss within or adjacent to the footprint. Minimize access road and fence construction. Minimize the amount of above-ground obstacles associated with the site.

CBP will develop and implement an Erosion and Sediment Control Plan (ESCP) that includes restoration of areas of temporary impact associated with the SBI*net* Ajo-1 Tower Project. Details of the ESCP are described in Section 5.4 Soils.

CBP will control noxious weeds using EPA approved herbicides. Noxious weed control will be described in greater detail in Section 5.5 Vegetation.

CBP will ensure that all construction will follow *DHS Environmental Planning Management Directive* 025-01 for waste management.

A CBP-approved spill protection plan (or SPCCP) will be developed and implemented at construction and maintenance sites to ensure that any toxic substances are properly handled and that escape into the environment is prevented. Agency standard protocols will be used. Drip pans underneath equipment, containment zones used when refueling vehicles or equipment, and other measures are to be included.

CBP will incorporate BMPs relating to project area delineation, water sources, waste management, and site restoration into project planning and implementation for road construction and maintenance.

A detailed site plan for each tower site and all associated roads (including construction and maintenance access roads and patrol roads) and staging areas to minimize impacts to natural and cultural resources will be developed. Site plans will be developed with and approved by the land managers and among other items, it will include dimensions of tower footprint, height of the tower, power source for the tower, level of noise generated by each tower, maintenance schedule of each tower and associated roads, construction schedule, etc. The plans will be included in the description of the proposed action of the BA and EA.

All BMPs to be implemented by the project contractor will be included in the contract.

5.3 GENERAL CONSTRUCTION ACTIVITIES

CBP will clearly demarcate project construction area perimeters, including access roads, with land management agency. No disturbance outside that perimeter will be authorized.

CBP will construct and maintain the fewest roads needed, using proper standards.

Maintenance actions will not increase the width of the 12-foot road bed or the amount of permanent disturbance beyond the 12-foot road bed and 2-foot shoulders.

CBP will minimize the number of construction and maintenance vehicles traveling to and from the project site and the number of trips per day to reduce the likelihood of disturbing animals in the area or injuring an animal on the road, or disturbing their habitat.

Within the designated disturbance area, CBP will minimize the area to be disturbed by limiting deliveries of materials and equipment to only those needed for effective project implementation.

CBP will avoid contamination of ground and surface waters by storing concrete wash water, and any water that has been contaminated with construction materials, oils, equipment residue, etc., in closed containers on-site until removed for disposal. This wash water is toxic to wildlife. Storage tanks must have proper air space (to avoid rainfall-induced overtopping), be on-ground containers, and be located in upland areas instead of washes.

CBP will avoid lighting impacts during the night by conducting construction and maintenance activities during daylight hours only. If night lighting is unavoidable: 1) use special bulbs designed to ensure no increase in ambient light conditions, 2) minimize the number of lights used, 3) place lights on poles pointed down toward the ground, with

shields on lights to prevent light from going up into sky, or out laterally into landscape, and 4) selectively place lights so they are directed away from all native vegetative communities.

CBP will use road design and construction specifications appropriate to the local physical conditions and level of use.

CBP will design and construct roads according to engineering standards that avoid or minimize roadbed erosion.

CBP will avoid road bed erosion and increased disturbance (inadvertent widening) along access roads resulting from improper maintenance and use.

CBP will measure and record the width of all access and approach roads that are created, maintained, or closed by CBP using GPS coordinates and integrate these measurements into CBP's GIS database. The database will be made available to USFWS and the affected land management agencies.

CBP will implement a road maintenance project to avoid making wind rows with the soils once grading activities are complete and use any excess soils on-site to raise and shape the construction site or road surface.

All vehicular traffic associated with construction and maintenance will use designated/authorized roads to access the proposed tower sites and avoiding off-road vehicle activity outside of the project footprint.

CBP will avoid transmitting disease vectors, introducing invasive non-native species, and depleting natural aquatic systems by using wells, irrigation water sources, or treated municipal sources for construction or irrigation purposes instead of natural sources.

CBP will include a configuration to support fire management operations in the design of roads, fences, and other facilities that require land clearing.

CBP will minimize fences and other infrastructures that may be damaged due to periodic wildfire.

Remote sensors will be installed covertly with a minimum number of dedicated and trained personnel. All installation and maintenance will be performed on foot with the absolute minimum of ground disturbance. Once installed only essential maintenance will be conducted and site visits will be limited to the minimum amount practicable.

CBP will notify USFWS and DOI land managers two weeks before any project construction and maintenance activities begin and within one week after project construction and maintenance activities are completed.

5.4 SOILS

Vehicular traffic associated with the tower and access road construction activities and operational support activities will remain on established roads to the maximum extent practicable. Areas with highly erodible soils will be given special consideration when designing the proposed project towers and access roads to ensure incorporation of various erosion control techniques, where possible, to decrease erosion. Site rehabilitation will include re-vegetating or the distribution of organic and geological materials (i.e., boulders and rocks) over the disturbed area to reduce erosion while allowing the area to naturally vegetate. Additionally, erosion control measures and appropriate BMPs will be implemented before, during, and after construction activities as appropriate.

Road repairs or improvements shall avoid, to the greatest extent practicable, creating wind rows with the soils once grading activities are completed. Excess soils from construction activities will be used on-site to raise and shape proposed tower sites and road surfaces.

CBP will obtain materials such as gravel or topsoil that are clean and acceptable to the land management agency from existing developed or previously used sources, not from undisturbed areas adjacent to the project area.

CBP will place drip pans under parked equipment and containment zones when refueling vehicles or equipment.

CBP will salvage the top 4 inches of excavated soils and replace the soil on the surface after excavation.

CBP will quantify the volume and type of spoil material from construction activities. CBP will coordinate with the land management agency to determine disposition and location of spoil material (e.g., spoils from drilling tower footers or related road construction). If requested by the land management agency, haul spoil material to an appropriate off-site disposal area. CBP will remove material brought up from deep below the surface from conservation areas; it may support a different vegetation community than surrounding natural surface soils.

CBP will develop and implement an ESCP that includes restoration of areas of temporary impact associated with the SBI*net* Ajo-1 Tower Project. The plan will be developed in coordination with the USFWS and appropriate DOI land management agencies. The need for and extent of site restoration will be at the discretion and under the direction of the land manager. The ESCP will include provisions to re-contour the site, replace soils and provide proper drainage; replant native plants salvaged prior to construction; and revegetate with a mixture of native plant seeds or nursery plantings (or both) derived from acceptable sources as determined by the corresponding land manager. The plan will also address monitoring of establishment of non-native plants and appropriate control measures. Training to identify non-native plants will be

provided to contractor personnel as needed. The plan will also identify success criteria and monitoring and reporting requirements. The plan will be finalized before the initiation of project construction.

5.5 VEGETATION

CBP will minimize habitat disturbance by restricting vegetation removal to the smallest possible project footprint. CBP will limit the removal of trees, cacti, and brush to the smallest amount needed to meet the objectives of the project. If vegetation must be removed outside the permanent project footprint, allow natural regeneration of native plants by cutting vegetation with hand tools, mowing, trimming, or using other removal methods that allow root systems to remain intact.

CBP will use natural materials free of non-native plant seeds and other plant parts to limit potential for infestation for on-site erosion control in uninfected native habitats. Natural materials will be certified weed and weed-seed free.

CBP will identify fill material brought in from outside the project area by its source location. Use sources that are clean and weed-free. Outside fill material must be approved prior to use by the land management agency.

CBP will document any establishment of non-native plants and will implement appropriate control measures.

CBP will remove invasive plants that appear on the tower sites, and along sections of repaired, improved, and new road. Removal will be done in ways that eliminate the entire plant and remove all plant parts to a disposal area. Herbicides not toxic to listed species in the area can be used for non-native vegetation control. Application of herbicides will follow Federal guidelines and in accordance with label directions. A NPS Pesticide Use Permit would be received prior to herbicide application on NPS lands. . Removal will be done in a manner that does not affect Sonoran pronghorn or lesser long-nosed bats. Training to identify non-native invasive plants will be provided for CBP personnel or contractors as necessary. Prior to construction, CBP will conduct surveys for non-native, invasive plants within tower sites and roads to be constructed, improved, or repaired to establish a baseline.

CBP will avoid the spread of non-native plants by not using natural materials (e.g., straw) for on-site erosion control. If natural materials must be used, the natural material would be certified weed and weed-seed free. Herbicides not toxic to listed species that may be in the area can be used for non-native vegetation control. Application of herbicides will follow Federal guidelines and can be used according to in accordance with label directions. A NPS Pesticide Use Permit will be obtained prior to applying herbicides on NPS lands.

CBP will collect and stockpile organic material for later use in staging areas for erosion control while those areas naturally revegetate. CBP will use only native plant material for this purposed to avoid introducing invasive plants.

As requested by the land management agency, CBP will remove invasive plants that appear on the tower sites, along sections of repaired and new road. Removal will be done in ways that eliminate the entire plant and remove all plant parts to a disposal area. Herbicides not toxic to listed species that may be in the area can be used for non-native vegetation control. Application of herbicides will follow Federal guidelines and in accordance with label directions. Herbicides can be used according to label directions if they are not toxic to federally listed species that may be in the area. Removal will be done in a manner that does not affect Sonoran pronghorn or lesser long-nosed bats. Training to identify non-native invasive plants will be provided for CBP personnel or contractors as necessary.

5.6 WILDLIFE RESOURCES

The Migratory Bird Treaty Act (16 U.S.C. 703-712, [1918, as amended 1936, 1960, 1968, 1969, 1974, 1978, 1986 and 1989]) requires that Federal agencies coordinate with the USFWS if a construction activity would result in the take of a migratory bird. If construction or clearing activities are scheduled during nesting seasons (February 15 through August 31); surveys will be performed to identify active nests. If construction activities will result in the take of a migratory bird; then coordination with the USFWS and FAA will be required and applicable permits would be obtained prior to construction or clearing activities. Another mitigation measure that would be considered is to schedule all construction activities outside nesting seasons negating the requirement for nesting bird surveys. The proposed sensor and communication towers would also comply with USFWS guidelines for reducing fatal bird strikes on communication towers (USFWS 2000) to the greatest extent practicable. Guidelines recommend co-locating new antennae arrays on existing towers whenever possible and to build towers as short as possible, without guy wires or lighting, and use white strobe lights whenever lights are necessary for aviation safety.

CBP will use the most recent bird and bat strike avoidance guidance during tower design.

Towers, light poles, and other pole-like structures will be designed and constructed to discourage roosting and nesting by birds, particularly ravens or other raptors that may use the poles for hunting perches. Tubular supports with pointed tops will be used rather than lattice supports to minimize bird perching and nesting opportunities. Tower designs will avoid placing external ladders and platforms on tubular towers to minimize perching and nesting.

If rodent populations on the perimeter of the facility are to be controlled, CBP will not use rodenticides.

CBP will avoid or minimize, through proper road design and construction, the potential for entrapment of surface flows within the roadbed to incisement or edging berms created by grading.

To prevent entrapment of wildlife species during construction, CBP will cover all excavated, steep-walled holes or trenches more than 2 feet deep at the end of each working day with plywood or provide these holes with escape ramps of earth fill or wooden planks. Ramps will be located at no less than 1,000 feet apart and provide slopes less than 45 degrees. Biological monitors will thoroughly inspect all holes and trenches for trapped animals, and if animals are present, no construction can resume until the animals are out of the pit or trench.

CBP will cover all hollow vertical fence posts (i.e., those that will be filled with a reinforcing material such as concrete) from the time they are erected to the time they are filled.

CBP will place electric power lines to facilities underground or on the surface as insulated, shielded wire. CBP will shield above ground lines, transformers, or conductors as recommended by the Avian Powerline Interaction Committee. CBP will place raptor protection devices on all above ground wires.

No more than 10 percent of vegetation will be removed from suitable nesting or migration habitat or reduce it to less than 10 acres in size. CBP will avoid the removal of dense understory or midstory vegetation from breeding and migration habitat to the extent possible.

CBP will avoid placing riprap around towers.

CBP will not, for any length of time, permit any pets inside the project area or adjacent native habitats. This BMP does not pertain to law enforcement animals.

Biological monitors will check under construction equipment for wildlife species (e.g., desert tortoise) prior to moving equipment that has sat idle for more than 1 hour.

5.7 PROTECTED SPECIES

CBP will minimize impacts to listed species and their habitats by designating and using the minimal number of roads needed for project implementation. CBP will avoid creating new access routes by using, and improving if necessary, existing roads.

CBP will minimize impacts to Sonoran pronghorn and lesser long-nosed bats and their habitats by using flagging or temporary fencing to clearly demarcate project perimeters, including access roads, with the land management agency. CBP will not disturb soil or vegetation outside of that perimeter.

CBP will minimize impacts to listed species and their habitats by using areas already disturbed by past activities, or those that will be used later in the construction period, for

staging, parking, laydown, and equipment storage. If site disturbance is unavoidable, minimize the area of disturbance by scheduling deliveries of materials and equipment to only those items needed for ongoing project implementation.

CBP will minimize impacts to listed species and their habitats by limiting grading or topsoil removal to areas where this activity is absolutely necessary for construction, staging, or maintenance activities.

CBP will avoid restricting water access by identifying and not creating barriers to natural water sources available to listed species.

CBP will minimize impacts to listed species and their habitats by locating corrals and staging areas for equestrian operations in existing disturbed areas.

CBP will minimize impacts to listed species and their habitats by obtaining materials such as gravel or topsoil that are clean and acceptable to the land management agency, from existing developed or previously used sources, not from undisturbed areas adjacent to the project area.

CBP will develop (in conjunction with USFWS and DOI Land Managers) and implement a training program focusing on Trust Resources for contractors/construction personnel. Training will be provided to all personnel associated with the project before project construction begins and before any new personnel begin work on the project. Information presented in the training program will include occurrence of sensitive species in the project area, their general ecology, and sensitivity to human activities; legal protection afforded the species and the penalties for violation of state or Federal laws; implementation of included conservation actions/best management practices; and reporting requirements. Also included in this training program will be color photos of the listed species and maps of Federally listed species' habitats. Following the training program, the photos and maps will be posted in the contractor and resident engineer's office, where they will remain through the duration of the project. The selected construction manager will be responsible for ensuring that personnel are aware of the listed species. In addition, training in identification of non-native invasive plants and animals will be provided for contracted personnel engaged in post-construction monitoring of construction sites.

For upgrading towers, CBP will follow the guidelines for new construction as closely as possible. CBP will retro-fit sites with high bird or bat mortality.

<u>Lesser Long-nosed Bat</u>
Construction activities for towers and associated new roads, and road improvements that are within one mile of a bat roost and occur between May 1 and September 30 will be monitored by a qualified biologist. In some years, bats may arrive earlier and leave later in the year than the May to September time frame. For maternity roosts this will be March through August. For summer roosts, this will be July through October. Any

occurrences and/or disturbances of lesser long-nosed bats will be documented and mitigated.

If results of the Ajo-1 lesser long-nosed bat telemetry study or the Tucson-West Tower Project bat and bird monitoring studies indicate that towers result in significant disturbance to bats or birds, with the guidance of USFWS and the land management agencies, CBP will modify and update bird and bat strike avoidance equipment on the Ajo-1 towers and implement techniques that reduce the disturbance to birds and bats.

CBP will avoid disturbing areas containing columnar cacti (saguaro, organ pipe, senita) or agaves to the extent reasonable. If they cannot be avoided, columnar cacti and agaves should be salvaged and transplanted. When salvage is not possible, columnar cacti and agaves should be purchased and planted at a 3:1 ratio. Salvage, transplantation, and container planting will be done in accordance with a restoration plan, approved by the land manager and USFWS, that includes success criteria and monitoring.

CBP will avoid construction and maintenance activities within 4 miles of lesser long-nosed bat roosts between May 1 and September 30.

CBP will avoid entering lesser long-nosed bat maternity roosts (except in emergency/exigent circumstances).

Sonoran Pronghorn

CBP will minimize to the greatest extent possible the number of roads, detection and communication towers, and other infrastructure in Sonoran pronghorn habitat, particularly in movement corridors and areas important to Sonoran pronghorn during the fawning season (March 15 to July 31).

CBP will minimize the number of construction and maintenance trips to all tower sites, particularly those in important Sonoran pronghorn areas.

CBP will minimize the number of construction vehicles traveling to and from the project site and the number of trips per day. CBP will coordinate construction vehicle activity with land managers at their discretion.

CBP will provide for an on-site biological monitor to be present during work activities for all construction activities in Sonoran pronghorn and lesser long-nosed bat habitats. At a time interval (i.e., daily, weekly) determined by the land management agency, the monitor will check in and out of the land management unit (with the land manager or his/her representative). The biological monitor will have the responsibility to ensure and document that agreed upon BMPs (both those relating to construction and protection of individuals of Sonoran pronghorn and lesser long-nosed bat on or adjacent to the project site) are properly implemented. The monitor will use a daily BMP monitoring checklist (two checklists, a construction BMP list and maintenance BMP list) to record BMP adherence and will input information from this checklist into the USFWS IPaC

system every Friday (providing construction or maintenance activities occur that week). The monitor will additionally ensure a copy of this information as well as a weekly summary report is sent via electronic mail to the DOI land managers and AESO every Friday. The biological monitor will notify the construction manager who has the authority to temporarily suspend activities not in compliance with all agreed upon BMPs. The biological monitor will be notified 5 days in advance of any ground-breaking activity.

CBP will ensure a qualified Sonoran pronghorn monitor is on-site during tower construction in Sonoran pronghorn habitat. Land management agencies within Sonoran pronghorn habitat and USFWS-AESO will work with DHS to define “qualified Sonoran pronghorn monitor”. Before any construction work commences in Sonoran pronghorn habitat, the monitor will conduct hilltop surveys (visual and telemetry, if appropriate) for Sonoran pronghorn at sunrise in close coordination with land managers. If Sonoran pronghorn are detected within 2 miles of proposed daily project activities, no project work will begin until Sonoran pronghorn move on their own volition to a distance greater than 2 miles from the activities (note: monitoring method and buffer distance is project specific; 2 miles is for tower construction, see criteria for project maintenance below under "species-specific"). Daily Sonoran pronghorn monitoring reports will be provided (electronically mailed) to USFWS and DOI land managers on a weekly basis (due the following Monday). Sonoran pronghorn detections (with coordinates and time of detection) will be reported by electronic mail or phone call to the land managers with 24 hours of the detection.

CBP will report detections (i.e., detected construction or maintenance personnel, etc.) of Sonoran pronghorn via electronic mail to FWS-AESO and the corresponding DOI land manager within 48 hours of the detection. The electronic mail will include the following details: a) if known, the coordinates and a description of the location of the where the Sonoran pronghorn was detected, b) the date and time of the detection, c) the method used to make the detection, and d) as available, other pertinent details, such as the behavior of the Sonoran pronghorn (i.e., was it standing, foraging, running, etc.)

CBP will avoid and minimize animal collisions, particularly with Sonoran pronghorn, and fragmentation of Sonoran pronghorn populations by using proper road design techniques.

CBP will avoid constructing towers and associated infrastructure (i.e., roads) in Sonoran pronghorn habitat from March 15 to July 31.

CBP will place restrictions on construction vehicle activity during the Sonoran pronghorn fawning season (March 15 to July 31) to avoid disturbance to females and fawns.

CBP will minimize animal collisions, particularly with Sonoran pronghorn, by not exceeding construction and maintenance speed limits of 35 mph on major unpaved roads (i.e., graded with ditches on both sides) and 25 mph on all other unpaved roads. During periods of decreased visibility (e.g., night, weather, and curves), CBP and contractors will not exceed speeds of 25 mph.

During project maintenance and maintenance access, cease all work that may disturb a Sonoran pronghorn if one is seen within 1 mile of the project site or any access road to the site. For vehicle operations, this entails stopping the vehicle until the animal moves away on its own volition. Vehicles may then continue on at no more than 15 miles per hour. Maintenance crews and personnel in vehicles will wait up to 3 hours from the initial sighting for the animal to move beyond 1 mile. If the animal has not moved the required distance, all personnel will retreat back away from the animal. CBP will ensure all maintenance-related personnel are trained to identify Sonoran pronghorn. Biological monitors will report pronghorn detections (with coordinates and time of detection) by electronic mail or phone call to land managers within 24 hours of the detection.

CBP will minimize duration of noise exposure during maintenance activities in Sonoran pronghorn habitat. If helicopters must be used, work with USFWS and the land manager(s) to ensure measures are implemented to significantly minimize the potential for the maintenance work/access to result in adverse effects to Sonoran pronghorn (i.e., access the site outside of the Sonoran pronghorn closure period; before any work commences in Sonoran pronghorn habitat, a qualified Sonoran pronghorn monitor will conduct hilltop surveys (visual and telemetry, if appropriate) for Sonoran pronghorn at sunrise in close coordination with land managers. If Sonoran pronghorn are detected within 2 miles of maintenance and maintenance access activities, no work will begin until Sonoran pronghorn move on their own volition to a distance greater than 2 miles from the activities; etc.).

Efforts to minimize the level of construction and maintenance noise of tower projects (from construction, maintenance, and operations) within Sonoran pronghorn and lesser long-nosed bat habitat will be implemented by CBP and contractors.

CBP will minimize noise levels for day and night operations of towers, associated infrastructure, and FOB within Sonoran pronghorn and lesser long-nosed bat habitat by using either baffle boxes (a sound-resistant box that is placed over or around a generator, air-conditioning unit, or any other sound producing equipment) or other noise-abatement methods for all generators, air-conditioning units, or any other sound producing equipment. Specifically, for Sonoran pronghorn, limit noise emissions from each tower so as not to exceed 35 dBA (measured ambient noise) at 492 feet distance from the noise source. CBP will use an acoustical professional consultant to ensure that building and/or sound barrier design details are sufficient to achieve the aforementioned criteria. CBP will provide acoustic professional's findings to USFWS-AESO & CPNWR, Ajo Station Tower Project, and BLM.

CBP will design and locate new access roads in a manner that minimizes impacts to Sonoran pronghorn and lesser long-nosed bats and their habitats. Corrective maintenance will be provided as needed.

CBP will develop and implement site restoration plans for Sonoran pronghorn and lesser long-nosed bats and habitat during project planning and provide an achievement goal to be met by the restoration activity. The site restoration plan will be approved by

the USFWS and appropriate DOI land management agencies. The need for and extent of site restoration will be determined on a project-by-project basis. The Erosion Control Plan will include provisions to re-contour the site, replace soils and provide proper drainage; replant native plants salvaged prior to construction and provide for re-seeding with native, locally adapted plant species. The plan will also address monitoring of establishment of non-native plants and appropriate control measures. Training to identify non-native plants will be provided to contractor personnel as needed. The plan will also identify success criteria and monitoring and reporting requirements.

CBP will provide a report including a complete description of the action (construction component) implemented (including photographs; total acres impacted; total acres of Sonoran pronghorn habitat impacted; total number of lesser long-nosed bat food plants impacted; length of time to complete the project; all environmental design [i.e., BMPs] and conservation measures implemented, including all Sonoran pronghorn daily and other biological monitoring reports; etc.) to USFWS and DOI land management agencies within 90 days of project construction completion. As implementation of some measures will continue after project construction is completed, the report will also identify environmental design and conservation measures still under implementation or proposed for implementation and a timeframe for completing the measures. Until all environmental design and conservation measures are fully implemented, provide reports annually by February 1 to the USFWS and DOI land management agencies that describe implementation of the measures. In both the initial and the annual reports, provide a description of how well the environmental design and conservation measures worked, suggestions for improvements to the measures, and implementation of any restoration plan and monitoring post-construction.

5.8 WATER RESOURCES

Standard construction procedures will be implemented to minimize potential for erosion and sedimentation during construction. All work shall cease during heavy rains and would not resume until conditions are suitable for the movement of equipment and material. All fuels, waste oils, and solvents will be collected and stored in tanks or drums within secondary containment areas consisting of an impervious floor and bermed sidewalls capable of holding the volume of the largest container stored therein. The refueling of machinery will be completed following accepted guidelines, and all vehicles will have drip pans during storage to contain minor spills and drips. No refueling or storage will take place within 100 feet of drainages.

CBP will design new roads to minimize the risk of erosion to aquatic habitats. CBP will avoid road placement that requires a crossing of seasonally or perennially flowing streams. If not avoidable, CBP will design crossings to minimize effects to stream banks and the channel to protect natural substrates and flows.

CBP will avoid contaminating natural aquatic and wetland systems with runoff by limiting all equipment maintenance, staging, laydown, and dispensing of fuel, oil, etc., to designated upland areas.

CBP will avoid or minimize the potential for entrapment of surface flows within the roadbed due to incisement or edging berms created by grading.

CBP will avoid irreparable damage to streams by not locating stream crossings near or at bends or meanders; rather, design road to cross at straight stream reaches where channel stability is enhanced.

A Construction Stormwater General Permit will be obtained prior to construction, and this would require approval of a site-specific SWPPP and NOI. A site-specific SPCCP will also be in place prior to the start of construction. Other environmental design measures will be implemented such as straw bales, silt fencing, aggregate materials, wetting compounds, and re-vegetation with native plant species, where possible, to decrease erosion and sedimentation.

CBP will avoid impacts to groundwater by obtaining treated water from outside the immediate area for construction use.

CBP storage tanks containing untreated water will be of a size that if a rainfall event were to occur, the tank (assuming open), will not be overtopped and cause a release of water into the adjacent drainages. Water storage on the project area will be in on-ground containers located on upland areas not in washes.

Prior to the start of construction activities, the construction contractor will review the most up-to-date version of the ADEQ 305(b) and 303(d) report. Additionally, road repair or improvement activities in wash or drainage crossings will not impede the flow of affected water courses.

5.9 CULTURAL RESOURCES

An archaeologist will be present to monitor all ground disturbance activities in previously undisturbed areas.

The site boundaries of all previously recorded sites along with a 98 foot buffer would be flagged around each of the sites to ensure that they are avoided. In addition, archaeological monitoring would be conducted during construction to ensure that activities in these areas would remain confined to the surveyed right-of-way.

The limits of the newly recorded sites would be included on engineering drawings and an archaeologist would accompany the engineer in the field to assist in staking a new route that avoids adverse impacts to these archaeological resources. During construction the perimeters of all NRHP eligible archaeological sites would be flagged to ensure all construction activities would avoid inadvertent impacts to cultural resources. Additionally, an archaeologist would also monitor the transport of materials used to construct the tower, tower installation, and all associated road improvement activities.

Should any archaeological artifacts be found during construction, notify the appropriate land management archaeologist immediately. All work will cease until an evaluation of the discovery is made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values.

5.10 AIR QUALITY

Mitigation measures will be incorporated to ensure that fugitive dust and other air quality constituents emission levels do not rise above the minimum threshold as required per 40 CFR 51.853(b)(1). Measures will include dust suppression methods such as road watering to minimize airborne particulate matter created during construction activities. Standard construction BMPs such as routine watering of the construction site as well as access roads to the site will be used to control fugitive dust and thereby assist in limiting potential PM-10 excursions during the construction phase of the proposed project. Additionally, all construction equipment and vehicles will be required to be maintained in good operating condition to minimize exhaust emissions.

5.11 NOISE

During the construction phase, short-term noise impacts are anticipated. All applicable Occupational Safety and Health Administration regulations and requirements will be followed. On-site activities would be restricted to daylight hours to the greatest extent practicable although night-time construction could occur if the construction schedule requires it. Construction equipment will possess properly working mufflers and would be kept properly tuned to reduce backfires. Implementation of these measures will reduce the expected short-term noise impacts to an insignificant level in and around tower construction sites.

CBP will avoid noise impacts during the night by conducting construction and maintenance during daylight hours only. If construction or maintenance must occur during non-daylight hours, minimize the duration and frequency of these activities to the greatest extent possible.

5.12 HAZARDOUS MATERIALS

BMPs will be implemented as standard operating procedures during all construction activities, and will include proper handling, storage, and/or disposal of hazardous and/or regulated materials. To minimize potential impacts from hazardous and regulated materials, all fuels, waste oils and solvents will be collected and stored in tanks or drums within a secondary containment system that consists of an impervious floor and bermed sidewalls capable of containing the volume of the largest container stored therein. The refueling of machinery will be completed in accordance with accepted industry and regulatory guidelines, and all vehicles will have drip pans during storage to contain minor spills and drips. Although it is unlikely that a major spill would occur, any spill of reportable quantities will be contained immediately within an earthen dike, and the application of an absorbent (e.g., granular, pillow, sock, etc.) will be used to absorb and contain the spill.

To ensure pollution prevention, a SPCCP will be in place prior to the start of construction activities and all personnel will be briefed on the implementation and responsibilities of this plan as is typical in CBP/SBI projects. All spills will be reported to the designated CBP point of contact for the project. Furthermore, a spill of any petroleum liquids (e.g., fuel) or material listed in 40 CFR 302 Table 302.4 of a reportable quantity must be cleaned up and reported to the appropriate Federal and state agencies.

CBP will contain non-hazardous waste materials and other discarded materials, such as construction waste until removed from the construction and maintenance sites. This will assist in keeping the project area and surroundings free of litter and reduce the amount of disturbed area needed for waste storage.

Minimize site disturbance and avoid attracting predators by promptly removing waste materials, wrappers, and debris from the site. Any waste that must remain more than 12 hours should be properly stored until disposal.

All waste oil and solvents will be recycled. All non-recyclable hazardous and regulated wastes will be collected, characterized, labeled, stored, transported, and disposed of in accordance with all applicable Federal, state, and local regulations, including proper waste manifesting procedures.

Solid waste receptacles will be maintained at construction staging areas. Non-hazardous solid waste (trash and waste construction materials) will be collected and deposited in on-site receptacles. Solid waste will be collected and disposed of by a local waste disposal contractor.

Avoid contamination of ground and surface waters by storing concrete wash water, and any water that has been contaminated with construction materials, oils, equipment residue, etc., in closed containers on-site until removed for disposal. This wash water is toxic to wildlife. Storage tanks must have proper air space (to avoid rainfall-induced overtopping), be on-ground containers, and be located in upland areas instead of washes.

Disposal of used batteries or other small quantities of hazardous waste will be handled, managed, maintained, stored, and disposed of in accordance with applicable Federal and state rules and regulations for the management, storage, and disposal of hazardous materials, hazardous waste and universal waste. Additionally, to the extent practicable, all batteries will be recycled, locally.

CBP will avoid contamination of ground and surface waters by developing and implementing stormwater management plans for each tower site and associated roads.

CBP will avoid soil contamination by using drip pans underneath equipment and containment zones when refueling vehicle or equipment.

All construction will follow DHS Management Directive 025-01 for waste management.

5.13 POST-CONSTRUCTION – TOWER IMPLEMENTATION AND PATROL ACTIVITIES

CBP will provide a report including a complete description of the action (construction component) implemented (including photographs; total acres impacted; total acres of Sonoran pronghorn habitat impacted; total number of lesser long-nosed bat food plants impacted; length of time to complete the project; all environmental design [i.e., BMPs] and conservation measures implemented, including all Sonoran pronghorn daily and other biological monitoring reports; etc.) to USFWS and DOI land management agencies within 90 days of project construction completion. As implementation of some measures will continue after project construction is completed, the report will also identify environmental design and conservation measures still under implementation or proposed for implementation and a timeframe for completing the measures. Until all environmental design and conservation measures are fully implemented, provide reports annually by February 1 to the USFWS and DOI land management agencies that describe implementation of the measures. In both the initial and the annual reports, CBP will provide a description of how well the environmental design and conservation measures worked, suggestions for improvements to the measures, and implementation of any restoration plan and monitoring post-construction.

CBP will avoid the spread of non-native plants by feeding horses that are housed or ridden near natural areas weed-free feed.

If horses are housed anywhere within OPCNM, CPNWR, or BLM lands, CBP will avoid contamination of ground and surface waters by removing animal waste from areas where horses are housed and disposing it at an appropriate waste facility.

If USBP agents pursue or apprehend suspected CBVs in wilderness areas or off-road in an area not designated for such use, CBP will use the lowest impact mode of travel practicable to accomplish its mission and operate all motorized vehicles in such a manner as will minimize the adverse impacts on threatened or endangered species and on the resources and values of the particular Federal lands (MOU, page 6, IV.B.4). Officer safety is not to be compromised by the type of conveyance selected.

Once remote sensors are installed, only essential maintenance will be conducted and site visits will be limited to the minimum amount practicable. All maintenance will be performed on foot with the absolute minimum of ground disturbance.

Appropriate training for USBP agents focusing on Trust Resources, as addressed in the MOU (page 7, IV.B.7), will be provided by DOI agencies and formatted to meet operational constraints.

CBP will minimize duration of noise exposure during maintenance activities in Sonoran pronghorn habitat. If helicopters must be used, work with USFWS and the land manager(s) to ensure measures are implemented to significantly minimize the potential for the maintenance work/access to result in adverse effects to Sonoran pronghorn (i.e., access the site outside of the Sonoran pronghorn closure period; before any work

commences in Sonoran pronghorn habitat, a qualified Sonoran pronghorn monitor will conduct hilltop surveys [visual and telemetry, if appropriate] for Sonoran pronghorn at sunrise in close coordination with land managers. If Sonoran pronghorn are detected within 2 miles of maintenance and maintenance access activities, no work will begin until Sonoran pronghorn move on their own volition to a distance greater than 2 miles from the activities; etc.).

CBP will avoid flying over lesser long-nosed bat roosts to the extent possible during the time of year in which bats are present. CBP will avoid flying over sensitive Sonoran pronghorn areas (i.e., the captive breeding pen, pronghorn waters and forage enhancement plots, fawning areas, and areas of concentrated pronghorn use during the fawning season) to the extent practicable.

CBP will report detections (i.e., detected by tower sensors, agents, construction or maintenance personnel, etc.) of Sonoran pronghorn via electronic mail to USFWS-AESO and the corresponding DOI land manager within 48 hours of the detection. The electronic mail will include the following details: a) if known, the coordinates and a description of the location of the where the Sonoran pronghorn was detected, b) the date and time of the detection, c) the method used to make the detection, and d) as available, other pertinent details, such as the behavior of the Sonoran pronghorn (i.e., was it standing, foraging, running, etc.).

CBP will report all vehicular collisions with Sonoran pronghorn to USFWS-AESO and the corresponding DOI land manager via telephone and electronic mail as soon as practicable but no later than 12 hours after the collision. Information relayed will include the following details: a) coordinates and a description of the location where the collision occurred, including whether it occurred on or off an authorized road, b) the date and time of the collision, c) the type of vehicle, d) a photograph of the pronghorn, if available and authorized, e) if known, a description of the outcome of the collision with regard to the pronghorn (i.e., did the pronghorn die, run-off, etc.). To avoid conflict with ongoing USBP apprehensions, pursuits, or investigations, USFWS-AESO will coordinate with the USBP Patrol Agent in Charge, Ajo Station, prior to visiting sites of reported collisions with Sonoran pronghorn.

SECTION 6.0
REFERENCES

6.0 REFERENCES

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SECTION 7.0
ACRONYMS AND ABBREVIATIONS

7.0 ACRONYMS AND ABBREVIATIONS

1˚	Primary
2˚	Secondary
AC	Advisory Circulars
ACHP	Advisory Council on Historic Preservation
ADA	Arizona Department of Agriculture
ADEQ	Arizona Department of Environmental Quality
ADOT	Arizona Department of Transportation
ADWR	Arizona Department of Water Resources
AESO	Arizona Ecological Services Office
AGFD	Arizona Game and Fish Department
ANSI	American National Standards Institute
AOR	area of responsibility
APE	Area of Potential Effect
APS	Arizona Public Service
ASM	Arizona State Museum
ASTL	Arizona State Trust Lands
AZDC	Arizona Department of Commerce
bgs	below ground surface
BLM	Bureau of Land Management
BMGR	Barry M. Goldwater Range
BMP	best management practices
C	constructability
CBP	U.S. Customs and Border Protection
CBV	cross border violator
CEQ	Council on Environmental Quality
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CO	carbon monoxide
COP	Common Operating Picture
CPNWR	Cabeza Prieta National Wildlife Refuge
CRT	communications relay tower
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DHS	Department of Homeland Security
DOI	Department of Interior
E	environmental
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EM	electromagnetic
EMF	electromagnetic field

EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FOB	Forward Operating Base
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FR	Federal Register
GHz	gigaHertz
GSA	General Services Administration
GSRC	Gulf South Research Corporation
HARRIS	Harris Environmental Group, Incorporated
HUD	U.S. Department of Housing and Urban Development
Hz	Hertz
IA	illegal alien
IEEE	Institute of Electrical and Electronics Engineers
INS	Immigration and Naturalization Service
JTF-6	Joint Task Force-Six
kW	Kilowatt
MCAS	Marine Corps Air Station
MHz	Mega-Hertz
MOU	Memorandum of Understanding
MPE	Maximum Permissible Exposure
MRA	Minimum Requirement Analysis
MSS	Mobile Surveillance Systems
NAAQS	National Ambient Air Quality Standards
NBPS	National Border Patrol Strategy
NCRP	National Council of Radiation Protection and Measurements
NEPA	National Environmental Policy Act
NFWF	National Fish and Wildlife Federation
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NOA	Notice of Availability
NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRCP	National Council of Radiation Protection and Measurements
NRHP	National Register of Historic Places
NRI	Northland Research Incorporated
NTIA	National Telecommunications and Information Adminstration
NWP	Nationwide Permit
O_3	ozone
O	operational

OET	Office of Engineering and Technology
OPCNM	Organ Pipe Cactus National Monument
UGS	unattended ground sensors
USBP	U.S. Border Patrol
P	primary
PCPI	per capita personal income
Pb	lead
PM-10	particulate matter measuring less than 10 microns
P.L.	Public Law
POE	port of entry
POL	petroleum, oil, and lubricants
ppm	parts per million
RAT	remote access towers
RDT	rapidly deployed tower
Refuge Act	National Wildlife Refuge System Administration Act of 1966
RF	radio frequency
ROI	region of influence
ROW	right-of-way
RRVS	radar and remote video system
RRVS-CRT	combined radar and communication tower
S	sensitive
Santa Cruz	Santa Cruz-Rio Magdalena-Rio Sonoyta
SBI	Secure Border Initiative
SC	species of concern
SHPO	State Historic Preservation Office
SO_2	sulfur dioxide
SPCCP	Spill Prevention Control and Countermeasure Plan
SR	salvage restricted
SR 85	State Route 85
SST	self standing tower
SUV	Sport Utility vehicle
SWPPP	Stormwater Pollution Prevention Plan
T	technical
TI	tactical infrastructure
TON	Tohono O'odham Nation
UGS	unattended ground sensors
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USBP	U.S. Border Patrol
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Service
USHUD	U.S. Department of Housing and Urban Development
USIBWC	U.S. Section, International Boundary and Water Commission

UVR	Unauthorized Vehicle Route
V/m	volts per meter
WASSPT	Wide Area Surveillance Sensor Placement Tool
WTI	Weapons Tactics Instructor
WUS	waters of the U.S.
WSC	wildlife of special concern

SECTION 8.0
LIST OF PREPARERS

8.0 LIST OF PREPARERS

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

NAME	AGENCY/ORGANIZATION	DISCIPLINE/EXPERTISE	EXPERIENCE	ROLE IN PREPARING EA
Patience E. Patterson, RPA	Customs and Border Protection, SBI*net*	Archaeology	30 years professional archaeologist/cultural resource and NEPA manager	EA Review
Glenn Bixler	Customs and Border Protection, SBI*net*	Biologist	10 years of NEPA compliance	EA review
Chris Ingram	GSRC	Biology/Ecology	32 years EA/EIS studies	EA review
Suna Adam Knaus	GSRC	Forestry/Wildlife	20 years of natural resources studies and NEPA	EA review
Howard Nass	GSRC	Forestry/Wildlife	19 years of natural resources studies and NEPA	Project Manager (EA preparation and review)
Denise Rousseau Ford	GSRC	Environmental Engineering	Over 15 years of environmental experience	Hazardous Waste and EA review
John Lindemuth	GSRC	Archaeology	16 years professional archaeologist/cultural resources	EA preparation (Cultural Resources)
Steve Kolian	GSRC	Environmental Studies	10 years experience environmental science	EA preparation (Noise, Water Resources, Floodplains, Air Quality, Roadways and Traffic)
Maria Bernard Reid	GSRC	Environmental Studies	5 years NEPA and natural resources	EA review
Shanna McCarty	GSRC	Forestry	3 years natural resource studies, 2 years NEPA	EA preparation (Socioeconomics, Aesthetics, Land Use, Radio Frequency, Sustainability and Greening)

BW1 FOIA CBP 001943

List of Preparers, continued

NAME	AGENCY/ORGANIZATION	DISCIPLINE/EXPERTISE	EXPERIENCE	ROLE IN PREPARING EA
Michael Hodson	GSRC	Ecology/Botany	5 years botanical surveys and natural resources	EA preparation (Vegetation, Wildlife, and Protected Species) and biological surveys
Greg Lacy	GSRC	Biology/Wildlife	10 years NEPA and natural resources	EA preparation (soils)
Sharon Newman	GSRC	GIS/graphics	17 years GIS/graphics experience	GIS/graphics

APPENDIX A
PUBLIC SCOPING MEETING MINUTES

PUBLIC SCOPING MEETING

FOR THE

SITING, CONSTRUCTION, AND OPERATION

OF A TECHNOLOGY-BASED BORDER SECURITY SYSTEM

ALONG A PORTION OF THE INTERNATIONAL BORDER IN

EASTERN ARIZONA

JULY 17, 2007

7:00 P.M.

HOLIDAY INN PALO VERDE

4550 S. PALO VERDE ROAD

TUCSON, ARIZONA 85714

PUBLIC COMMENTS REPORTED BY:

FLORENCE PASTEUR, CR# 50300

OLIVIA ARMENTA, CR# 50411

CINDY SHEARMAN, CR# 50718

BW1 FOIA CBP 001947

JAMES McGAHA

Southern Arizona is one of the premier places in the world for astronomy, and lighting up the border will have a very detrimental effect on astronomy, so the lighting should be considered very carefully. It should be as low a light wattage as possible and certainly shielded and pointed towards the ground as much as possible, and away from the United States. And you can put my name, James McGaha, M-c-G-a-h-a, and I'm the director of the Grasslands Observatory.

GRETA ANDERSON

I'm Greta Anderson, representing the Center for Biological Diversity in Tucson, and we're pleased that they're following the NEPA process and we'd like to provide as much input on the environmental impacts of the project as possible.

We would remind the border patrol that their job is to recover endangered species, not merely maintain the status quo, meaning that they should assess the project in terms of the long-term consequences and how it might inhibit species coming back into areas.

Also, there's quite a bit of road construction that they're talking about, and roads relate strongly to the spread of invasive species which relate strongly to the spread of wildfire in our deserts, which is a huge issue. We encourage them to look at the cumulative effects of additional roads.

Changes to hydrology will be really important throughout the area and hydrologic change, where they're talking about adding roadways in riparian areas and washes, that could really change the whole watershed system. And my postal mailing address is P.O. Box 710, Tucson, 85702.

ANONYMOUS COMMENTATOR

No matter what we, as citizens, have responded to so far, you always say that there's no impact, so it's a game you're playing with us and I don't like it. I don't like the fact that I don't count. I don't like the fact that no matter what animal we list on there, you just say there's no impacts.

I think putting a wall up is absolutely hostile. I think putting up a tower is hostile. I don't think we need it. We're being hostile enough with the rest of the world. I think we should stop now, take our resources, and try and make up for all the wrong we've done in the past five years and figure out how to get along with the rest of the world instead of just preemptively striking at everything.

Okay. If we're going to develop our infrastructure, let's do it right. Let's put it into bridges, let's put it into connections with the rest of the world, as opposed to barriers to the rest of the world.

I don't think it's right that our government is auctioning off the different parts of the electromagnetic spectrum and are going to use

it now to impact biological life forms in ways that they haven't even bothered to study about yet. They're just going to impact them with this electromagnetic game they're going to play out there next and call it an intelligent call, when it's not.

I mean, from what we understand, they've already, down in Arivaca, they basically just cut off everybody's computer service by whatever electromagnetics they decided -- whatever part of the spectrum they decided to consume down there.

So they're just going to start making these arbitrary decisions on where they're going to fill up the electromagnetic spectrum with their needs and they're hostile and they're potentially dangerous to us. I don't appreciate it when they haven't even done the science to realize the impact on what they're projecting outward.

Okay. And I know it may sound kooky, but it's not. They've already said their equipment isn't working down there. Well, they're also canceling out their computer access, people's Wifi down there. What else haven't they thought about as they continue on the way?

Another big point I want to make is that if

we're going to have a secure nation, I don't think we should have a contract with another country to do our secure border technology design, you know, to pick another country's designs and use them; that doesn't make me feel secure. It may make that other country feel secure. I understand they're selling the same secure systems to the Canadians, to the Australians, et cetera. Who is in charge of that software of the command post? Who's making the designs for it and who's putting back gates into it, okay? If that technology is not designed in the US, then I question where the security is of it, where is the security of anything?

If it's a design made in another country, as they're saying in the paper, Boeing is collaborating with Elbit, E-l-b-i-t, a subsidiary of Elbit, they're an Israeli company, I'm not secure with them and the way they've conducted themselves in the world turning around and telling us how we're supposed to be secure, okay? I think it's wrong. Thank you.

CRAIG MILLER

I just wanted to be recorded that I had -- my name's Craig Miller. I'm representing Northern Jaguar project and I had a detailed discussion with Agent Dion Ethell, E-t-h-e-l-l, about wildlife migratory corridors, biological corridors, and the concern over fragmenting wildlife habitat, and particularly the bidispersal corridors, dispersal and recolonization routes used by jaguars between Sonora, Arizona, and New Mexico.

And I provided Agent Ethell with maps identifying those biological corridors and I'd like those to be included in the record as submitted as part of a scoping period.

And also I brought to his attention the reproduction documentation of female jaguars close to the US/Mexico border, and consistent occupancy in Arizona and New Mexico and the importance of maintaining conactivity between jaguars in the US and jaguars in Mexico. And we feel it's essential that those concerns be adequately addressed in -- during the NEPA process.

We'll make ourselves available to share any and all information we have on jaguar occupancy and the relationship between cats in the US and cats in

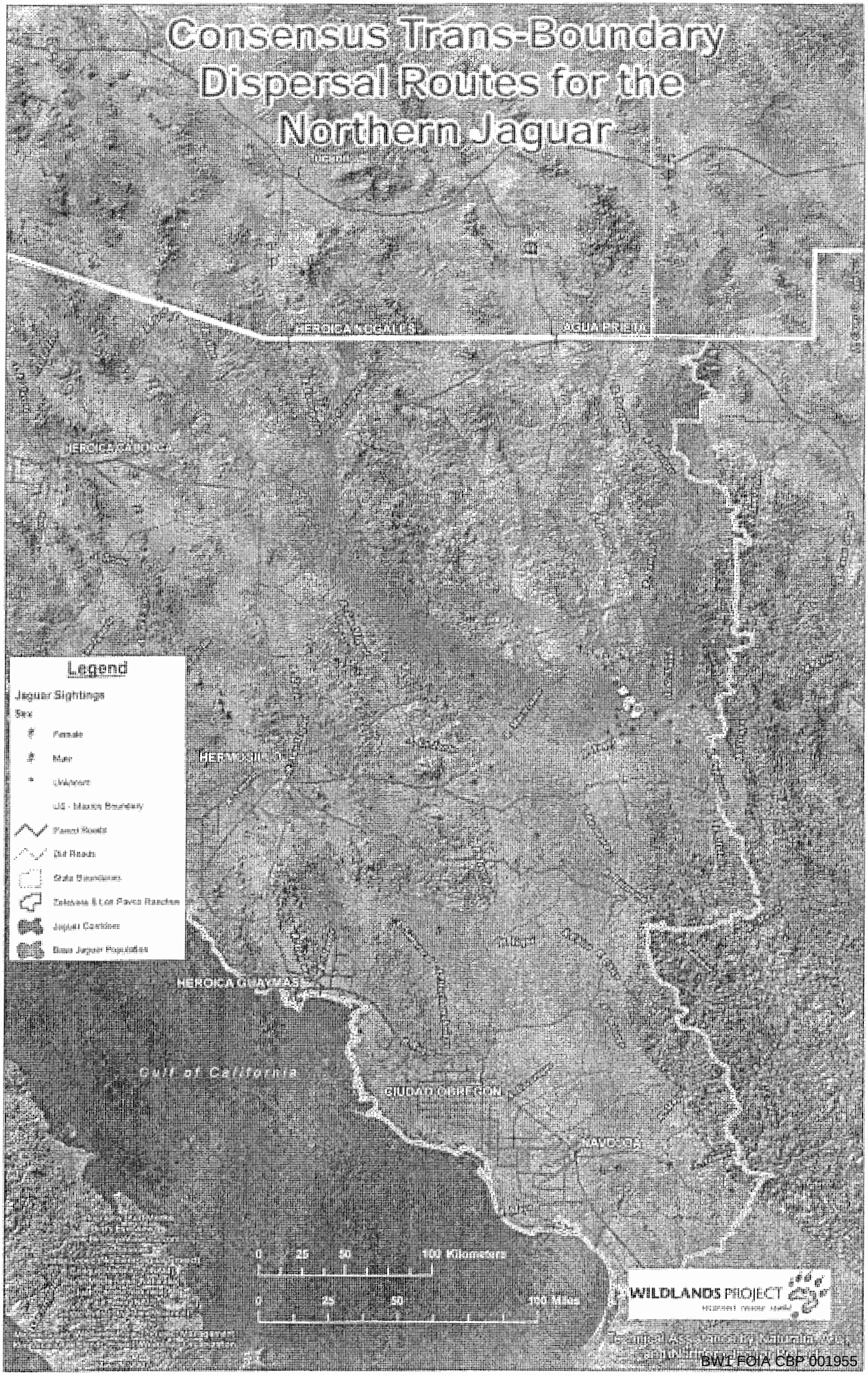
Mexico and how their conservation contributes to recovery. That's it.

Also, I wanted border patrol to be aware of an interagency collaborative effort in the border which they should participate in as a federal agency to obtain the most recent information on jaguar and related impacts on jaguar populations in the US/Mexico border regions, and particularly impacts of border patrol activities in the dispersal and reproduction. That's it.

My name's Craig Miller, 520-623-9653, extension 101, 110 South Church, Suite 4292, Tucson, Arizona 85701.

BW1 FOIA CBP 001954

Consensus Trans-Boundary Dispersal Routes for the Northern Jaguar



BWI FOIA CBP 001955

DR. BUELL T. JANNUZI

My name is Buell Jannuzi and I'm the director of Kitt Peak National Observatory. That's an astronomy observatory.

Paula Miller suggested that I should give a verbal comment giving my contact information, which is at 950 North Cherry Avenue, Tucson, Arizona 85719, so that she would be able to contact us about the importance of understanding lighting issues, border fence lighting, any radio transmission of any security equipment that is installed on our facilities and the other observatories along the southern U.S. border, which include McDonald Observatory in Texas, the Smithsonian Astronomical Observatory on Mt. Hopkins, the University of Arizona Stewart Observatory on Mt. Hopkins, on Mt. Graham and Mt. Lemmon, the National Radio Observatory on Kitt Peak, and the 26 other telescopes from thirty institutions around the U.S. that have observatories in southern Arizona.

We're hopeful that there will be communication about the need for fully shielded lighting when it's deployed, if it's deployed, in southern Arizona, and that that will be communicated to Boeing or any other contractor that's participating in the design of the Secure Border facility. Thank you.

JENNIFER ALLEN

My name is Jennifer Allen, A-l-l-e-n. I'm with the Border Action Network. We're a human rights community organization based on the Arizona/Sonora border. So our primary concerns relate to issues of the accountability and oversight, particularly as the responsibilities and contracts are given out to private companies.

Our constitutents, who are families that call the Arizona border home, want to make sure that regardless of who is implementing construction of new towers, or surveillance, or sitting behind computer screens, that those individuals fall under the responsibilities of the U.S. Constitution. And moreover, that if they have a complaint, that there is an agency that is responsible for investigating that complaint and insuring that the proper consequences for that potential violation are instituted.

And as SBI Net gets further implemented, which is new for our communities, we've not had private contractors operate in our backyards before. To date we've had Border Patrol, with whom we've had a number of issues related to accountability, whether they're accountable to the community in which they operate and with the complaints process insuring that complaints are

BW1 FOIA CBP 001957

followed through and resolved. So as private contractors come into this mix, our increase is -- our concerns increase in relationship to rights violations and resolving those issues.

We're also concerned about training. Again, as private contractors are brought into the mix, and as they enter in our communities, because the Arizona border is not a vacuumous (sic) in Arizona only. There are hundreds of thousands of people who call this region home, who work, who have school, who go to church, who play in the streets, in the backyards. So as we bring in people who are not trained at a minimum like Border Patrol, we're concerned about those interactions they will have with our grandparents, down to our children, and everybody in between.

And we're concerned that they do not know the culture, that they don't know the language, and they don't know the laws that all of us are held together by, so the U.S. Constitution and basic semblances of respect for one another. Because ultimately, private corporations are driven by profitability, and they're accountable to their shareholders.

Border Patrol are accountable to the U.S. Constitution and U.S. Government. And we would much rather have to deal with the Border Patrol and use those

mechanisms of accountability and continue our efforts to call for greater accountability to the Border Patrol, than to have to deal with shareholders whose interest is profit driven. I think that's it.

BW1 FOIA CBP 001959

U.S. Customs and Border Protection

PUBLIC SCOPING MEETING

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SECURE BORDER INITIATIVE PROJECT IN TUCSON BORDER PATROL SECTOR

JULY 17, 2007

Comments and Suggestions

U.S. Customs and Border Protection is interested in addressing your concerns and questions regarding this study. Suggestions regarding alternatives, resources issues, public involvements, etc. are encouraged as well. Your input is an important part of the NEPA process. Please write your comment or suggestion on the space provided below. Feel free to use the back of this form or add pages if needed.

Well, that was short. I'll be interested in the kind of provisions being consider to clean up the areas of the desert where human traffic will unavoidably move to. We all know that increasing surveillance along the border doesn't do away with either the immigration issue or drug trafficking. Instead of keeping people out of the desert, it brings them back over and over. So, if we are really interested in protecting the environment, we must consider how these border flows will adapt to SBI Net implementations and prepare for them. We don't want to repeat

the situation we now have. Enforcement in other parts of the border brought thousands of people to the deserts (per day). After a few years of these dynamics the result is mounts of debris no one will clear up — at least not efficiently nor sufficiently. So plan for the aftermath of the implementation of the project. Make provisions, set aside funding & do something!

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Does this project plan to stay within the Roosevelt 60' strip or beyond? What form of entry ~~of~~ will be obtained from the landowner/land manager. If entry is refused what action will SBI pursue to enter.

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I would like to be on a mailing list for future meetings, and mailing of environmental impact studies.

Thank you.

Jake Elkins
1309 E Lee St
Tucson AZ 85719
(520) 808-1665
borderlandsal@yahoo.com

U.S. Customs and Border Protection

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My Concern is with effective ~~Border~~ Projection Coupled with efficient use of resources and sensitivity to the Sonoran Desert environment - For example, allowing more light that is needed, and letting some spill upwards does not achieve any of these goals. The technology exists to do the best job - let's use it wisely!

Thank you!

CHRIS CORBALLY
VICE DIRECTOR
VATICAN OBSERVATORY
UNIV. OF ARIZONA
TUCSON AZ 85721.

U.S. Customs and Border Protection

PUBLIC SCOPING MEETING

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SECURE BORDER INITIATIVE PROJECT IN TUCSON BORDER PATROL SECTOR

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We suggest a Public Scoping meeting for Tohono O'odham Nation. We have 75 miles on the border.

Contact- Domestic Affair Committee Chair Timothy Joaquin 520 383-5260 X102
- Tohono O'odham legislative Branc

U.S. Customs and Border Protection

PUBLIC SCOPING MEETING

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THIS SEEMS LIKE A BOGUS PROCESS - NOT ALLOWING PUBLIC DISCOURSE - HARDLY A PUBLIC PROCESS! THIS IS NOT GIVING THE PUBLIC ANY INFORMATION.

ELLEN KURTZ
HC 65 BOX 7990
AMADO AZ 85645

U.S. Customs and Border Protection

PUBLIC SCOPING MEETING

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SECURE BORDER INITIATIVE PROJECT IN TUCSON BORDER PATROL SECTOR

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- Is the lighting component related to the sensor tower or are they separate components unrelated to each other?
- Will the lighting impact Kit Peak observatory?
- Much of SBInet will traverse Reservation land, will input be sought from Tribal authorities?
- How far apart will the towers be?

U.S. Customs and Border Protection

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Not having an address to submit written comments to makes this a pointless exercise — especially given the poor public notice of the meeting.

U.S. Customs and Border Protection

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Things to consider in the development of your EA

1- If a BLM permit or Authorization is needed - your EA must meet the BLM standards for an EA.

2- What is the Goal of the project or project components? To prevent illegal immigration or to create environ. friendly areas they can cross? State the goal in the Purpose/need section.

3- How many & where do you plan on installing the program components? ID locations

4- When do you anticipate the DEA coming out for review?

5- Any other federal/State permits needed should be looked into.

6- For temporary program components - state how long they plan on being installed.

over

PUBLIC SCOPING MEETING

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SECURE BORDER INITIATIVE PROJECT IN TUCSON BORDER PATROL SECTOR

JULY 17, 2007

	Name (Please Print)	Address (Mailing)	Representing
101	GRETA ANDERSON CENTER FOR BIOLOGICAL DIVERSITY	PO Box 710 TUCSON AZ 85702	
102	Steev Hise Arizona Independent Media Center	P.O.Box 1105 Tucson AZ 85702	
103	TERRY SIGGINS	3123 S. CALLE POCAR TUCSON, 85730	
104	Shelo McFarlin	BLM	
105	DAVID REDMONDS	7037 S. Cmn. DEL GARANON TUCSON, AZ 85747	
106			
107			

PUBLIC SCOPING MEETING

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SECURE BORDER INITIATIVE PROJECT IN TUCSON BORDER PATROL SECTOR

JULY 17, 2007

	Name (Please Print)	Address (Mailing)	Representing
201	P E Patterson	COE	
202	GARY HAYNES	1251 S. QUAIL PT. CT. TUCSON 85745	
203	LLoyd MILLER	SBI net F & TI	
204	Natalie Luna	OFFICE OF CONGRESSMAN Grijalva 810 E. 22nd St, Ste 102 TUCSON 85713	
205	Ruben Guerrero Jr	Office of Congressman Grijalva 810 E. 22nd ST. Suite 102 TUCSON 85713	
206	RYN Gargallinski		Tucson Citizen
207	TERESA ANN CIARUSCI	USDA FOREST SERVICE CORONADO NATIONAL FOREST 300 WEST CONGRESS TUCSON, AZ 85701	USDA FOREST SERVICE CORONADO NF EMP STAFF OFFICER

208	Jennifer Allen	PoB 384, Tucson AZ 85702	Border Action Network
209	Cynthia Manuel	PO Box 1211 Sells, AZ 85634	
210	[redacted]	[redacted]	
211			
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214			
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PUBLIC SCOPING MEETING

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED SECURE BORDER INITIATIVE PROJECT IN TUCSON BORDER PATROL SECTOR

JULY 17, 2007

	Name (Please Print)	Address (Mailing)	Representing
1	Brady McCombs	Arizona Daily Star – Tucson	
2	Cathy Clark	Dick Ave, Grapevine TX	
3	JEFF SNAVELY	HEREFORD, AZ	
4	JACQUELYN JACKSON		Congresswoman Gabrielle Giffords
5	Robert L. Gent	4204 S. Hohokam Drive Sierra Vista AZ 85650	IDA and Astronomical League
6	PAUL J WINOGA	9131 N. OVERLOOK DR. TUCSON, AZ 85704	SRCF
7	JON CLARK	12 MAIN BISBEE, AZ	BISBEE REVIEW

JIM HAWKINS, OBP / TUCSON SECTOR CHIEF; 520-631-0441
Media / PIO / Public Info) 520-748-3034

BW1 FOIA CBP 001974

8	Prescott Vandervoet	Tucson, Az	Self
9	Jessica Piekielek	Tucson, AZ	—
10	Sean Sullivan	758 N. 5th Ave., STE 214 Tucson, AZ 85705	sean@sonorandesert.org Sierra Club Please put me on contact list
11	Doug Duncan	Tucson	USFWS
12	Larry Jones	Tucson	US Forest Service
13	Susan Bernal	Tucson	BLM
14	Alex Bernal	Tucson	—
15	Mike Quigley	Tucson	
16	Lucia Kurtz	MADD	
17	Linda Mariano	12601 E. Broadway Tucson AZ 85748	BLM - Gila District

18	JOHN ABLE	Tucson, Az	U.S. FOREST SERVICE
19	Ana Lopez	Tucson AZ	Border ACCION
20	Jessica Ulla	Tucson AZ	Border Action Network
21	Carmen Procado	Tucson AZ.	Border Action Network
22	Ramon Garcia		
23	Rocio Nagera	Tucson, AZ	University of Chicago, Geography
24	James M GAHA	Tucson, AZ	GRASSLANDS OBSERVATORY
25	Matt Clark	Tucson, AZ	Defenders of Wildlife
26	Juan Carlos G Bravo	Hermosillo, Sonora	NATURALIA, A.C.
27	Elizabeth A Nancy	Tucson, Az	UA Observatories

28	Mia Romano	Tucson AZ	MMT Observatory
29	Dan Brocious	Tucson, AZ	Smithsonian Astrophysical Obs,
30	Narciso Soto N	Tucson, AZ.	Border Action Network.
31	Ethel Garcia	Sells, AZ	
32	Ted Robbins	Tucson	NPR (media)
33	Buell Jannuzi	Tucson, AZ	Kitt Peak National Observatory
34	Jake Elkins	Borderlawsoal@yahoo.com Tucson	NGO
35	Craig Miller Northern Jaguar Project	cmiller@defenders.org	www.northernjaguarproject.org
36			
37			

My name is Emilie Vardaman, and I live in Naco, about three blocks from the border. I moved to the Naco-Bisbee area in 1973, and until the last 8-10 years, it has been a wonderful area to live in. Several things have negatively impacted my quality of life and that of my friends and neighbors.

One is the ugly wall that divides what was once almost considered one town. of Naco. To our neighbors to the south, it is an affront and an insult. My friends feel as though they are not liked, not respected, and not trusted. On top of that, ~~it~~ the wall interferes with long established migratory routes of many animals.

Second is the presence of the Border Patrol. The speed through our streets with no regard to the danger of driving 40, 50, and even 60 miles per hour in a 25 mile an hour zone where children are present and playing. They drive on dirt roads, kicking up dust and damaging our clean air. They drive illegally through the desert, creating new roads and again destroying the environment.

Third is the regular presence of the Nation Guard and Marines constructing walls, as well as the huge trucks and other equipment necessary to create the walls. Combined with the Border Patrol, we have more armed people than regular citizens here at times, and our town feels like a military occupied zone.

Fourth is the miles-long row of lights and camera towers along the border. Again, they are an affront to my neighbors. The lights have negatively impacted the beautiful darkness that allows us to see stars. They confuse night birds. The lights shine into the homes of my friends who live along the border road in Sonora. The cameras don't function and have been a terrible waste of money. usually

Last is the low flying helicopters. When I can ~~clearly~~ clearly see the face of a helicopter pilot as he circles around my house, he is ~~clearly~~ flying too low, too dangerously, and with no regard or respect for me. certainly

All of this is terrible enough to have to live with, and now you propose yet another way to destroy our way of life: surveillance towers. Many of us in Naco, Bisbee, and the surrounding areas are strongly opposed to the new surveillance towers planned for our area. We oppose them for several reasons.

One

The towers are unsightly, and Homeland Security has already done more than enough to make a once beautiful area unsightly. We don't want any more. destruction of our area.

~~the~~ surveillance is

Second, ~~they are~~ an invasion of privacy. It is bad enough to have members of the Border Patrol run through our yards with guns drawn and to have them peek into our windows, ~~even our bedroom windows~~. Them, at least, we can see and complain about. However, we will never know if surveillance tower cameras are pointed into our yards, watching us have a barbecue, or pointed into our bedrooms at night.

Third, installing surveillance towers along the border will open the door to installations in other areas of the country, leading to being spied upon wherever we go. We do not wish to have that door opened. We do not wish to become a "test area" for this kind of "security" in the rest of the country.

surveillance towers without constant maintenance.

Finally, ~~they~~ will not work. They will not work here for the same reasons they do not work in Iraq. They will be damaged by the high temperatures ~~and the high winds~~. We will spend millions and millions of dollars for an unreliable system that will need ~~continual~~ maintenance and costly repairs. In addition, if they are maintained and work, they will interfere with our ability to use the area. Cows, and kids on ATVs will trigger the sensors, as will ranchers, hikers, and birders. To be forcibly spied upon and have our movements monitored is a terrible invasion of privacy. Boeing will get richer, and residents of ~~the~~ our area will suffer.

+ dust

Our best defense against terrorism is the good will of our neighbors. Right now our neighbors to the south are frustrated, angry, and insulted by our fences, our rows of lighting, our cameras, and our general national attitude. Our money would be far better spent creating feelings of caring and respect along the border. Then, our neighbors ~~may~~ would be more willing to work with us to deter terrorists, should they ever decide to cross from Mexico rather than ~~simply~~ fly into the country legally. Also, if the Border Patrol would do their job, that is, patrol the border rather than gather in clusters of two, three, four, or five vehicles for an hour at a time, they would do a much better job of securing the border than surveillance ever will.

simply

July 17, 2009 Emilie Vardaman 432-1750
P O Box 177
Naco Az 85620

APPENDIX B
CORRESPONDENCE

APPENDIX B
CORRESPONDENCE

Comment Response Matrix
Draft Environmental Assessment
For the Proposed SBI*net* Ajo-1 Tower Project Ajo Station's Area of Responsibility
U.S. Border Patrol, Tucson Sector

#	Comment	Reviewer	Response
1	The NPS recognizes that it is the intent of Customs and Border Protection (CBP) to strive to minimize and reduce the level of cross border violators (CBV) and corresponding CBP off-road vehicle use in wilderness, in part by leveraging the tactical advantage of enhanced CBV detection capabilities of the proposed action and by planning for and using wilderness-friendly interdiction techniques when appropriate. The analysis repeatedly calls out indirect benefits that would result from enhanced detection capabilities associated with the proposed action. The analysis does not, however, quantify the extent to which CBV traffic and CBP traffic can reasonably be expected to be reduced. The NPS requests such a quantitative discussion that describes the anticipated reduction in off-road travel and the time frame in which these reductions are expected.	National Park Service (NPS)	Included text in resource sections indicating the success observed as part of similar operations in the Altar Valley in the Tucson Sector and Yuma Sector would be expected with the Ajo-1 project. A reduction in illegal traffic could be observed within 1 year of the towers becoming operation and accepted by USBP. Cross border violations were reduce by 70 and 95 percent in the Altar Valley and Yuma Sector, respectively. Further, the enforcement zone was reduced from 45 miles north of the international border to 0 to 10 miles north of the international border in the Altar Valley.
2	The NPS also recognizes the need for a monitoring strategy to assess whether anticipated benefits to resources do, in fact, occur following project implementation. The NPS encourages CBP to participate in the development and implementation of such a strategy. Similarly, the NPS encourages CBP to set a timeline for developing and implementing standard operating procedures (SOP) for agents operating in wilderness that will help to accomplish the important project objective of resource benefits.	NPS	Added a monitoring subsection under Section 2.3.6 that states, "USBP in coordination with USFWS has developed monitoring strategies to monitor operations associated with the SBI*net* Ajo-1 Tower Project. These strategies were developed as part of formal Section 7 consultation process pursuant to the ESA and are included as part of USFWS's biological opinion (BO [AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6]). Data collected as part of the monitoring strategy would be used to monitor the success of the SBI*net* Ajo-1 Tower Project. These data are considered law enforcement sensitive information and would not be made available to the public. Further, USBP would continue reporting procedures to land managers per the 2006 MOU (DHS 2006)."

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3	The analysis relies heavily on the assertion that the proposed engineering study will be completed and will yield mitigation measures that will be implemented. The NPS requests that the analysis more fully disclose the impacts that will occur in the intervening time between Ajo-1 Tower Project initiation and the completion of anticipated future road upgrades. The NPS also requests that CBP develop a plan and schedule for road upgrades so that it can understand when impacts from road-related activities and use will be reduced.	NPS	Additional analysis was added for soils (Section 3.3), hydrology and groundwater (Section 3.4), surface waters (Section 3.5), and floodplains to address the severity of impacts during the interim period between the completion of road activities and road upgrades. A detailed road plan will be provided to OPCNM in 2010. Currently, a schedule for road upgrades is not available.
4	The analysis of the wilderness resource examines impacts to views from designated wilderness but does not account for impacts on other wilderness characteristics defined by the Wilderness Act, such as opportunities to experience solitude, unconfined recreation, and naturalness. The NPS requests that the analysis discuss the impacts of the project, including both the presence of the towers and their monitoring functions, on such wilderness characteristics.	NPS	Added a discussion in Section 3.2 indicating the proposed project would have a long-term, moderate adverse affect on wilderness qualities such as opportunities to experience solitude, unconfined recreation, and naturalness.
5	The analysis describes impacts to 18.8 acres of soils but fails to indicate that the project will consist of numerous linear road features distributed over a large geographic area with impacts that will be different and more difficult to mitigate than those on a single site. The NPS requests that the analysis be modified to reflect this fact. The NPS requests that the document be modified to indicate that the described erosion hazard classifications are for *undisturbed* soils and that BMP's will not be sufficient to mitigate impacts of the access route to Tower TCA-AJO-310. The NPS requests that the document indicate that erosion, once triggered on Antho, Gilman, and Laveen soils, would progress for many decades.	NPS	Added text in Section 3.3 addressing the geographic extent of road impacts and difficulties of mitigation. Also added language that erosion hazards presented are for undisturbed soils and Antho, Gilman, and Laveen soils are susceptible to erosion when disturbed. Added language that erosion could be long-term on Antho, Gilman, and Laveen soils once erosion is inititated.
6	The NPS requests that the analysis specifically discuss the impacts of Tower TCA-AJO-310 on floodplains. The southern section of the access route passes through soils that are susceptible to erosion and there are signs of floodplain instability from current and previous disturbances.	NPS	Expanded the analysis in Section 3.6 to discuss impacts on floodplains especially in the vicinity of the new road to TCA-AJO-310.

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7	The NPS requests that the impacts of past, present, and reasonably foreseeable future expansions of CBP agents working in the project area be more explicitly accounted for in the cumulative impacts analysis. The NPS requests that the cumulative impacts analysis more thoroughly discuss the impacts of off-road and on-road CBP traffic on NPS resources including soils, hydrology, vegetation, wildlife and wildlife habitat, floodplains, and cultural resources.	NPS	Additional analysis regarding CBP operations associated with the proposed towers was added to soils (Section 3.3), hydrology (Section 3.4), vegetation (Section 3.7), wildlife and wildlife habitat (Section 3.8), floodplains (Section 3.6), and cultural resources (Section 3.10).
8	The NPS requests that the cumulative impacts analysis be expanded to include discussion of cumulative impacts on wilderness and hydrology, as these topics are not addressed in the cumulative impacts section of the document.	NPS	Cumulative impacts associated with wilderness (Section 4.4.2) and hydrology (Section 4.4.4) has been added to the document.
9	Given the size and scope of the Ajo-1 Tower Project, and its proximity to the Organ Pipe Cactus National Monument (OPCNM) and the sensitive species and resources therein, it is necessary to conduct a full Environmental Impact Statement (EIS) in accordance with the process established under the National Environmental Policy Act (NEPA). The waiver of 36 federal laws, including NEPA, issued April 1, 2008, by former DHS Secretary Chertoff, applies only to barriers and roads. Therefore, the Ajo-1 Tower Project and its associated infrastructure must be subject to the NEPA process and a full EIS must be produced.	Defenders of Wildlife (DOW), National Parks Conservation Association (NPCA), Sierra Club (SC)	CBP has determined that there is insufficient cause for a full EIS due to the lack of significant impacts to any identified resource within the proposed project area or its region of influence.
10	The DEA of the Ajo-1 Tower Project fails to address the issue of operations, which is of primary importance to the mitigation of impact to the resources of OPCNM. For the Ajo-1 Tower Project to function in a manner compatible with the preservation of these resources, it must be demonstrated that the project will allow for the reduction of operational impacts to the OPCNM by shifting the field of operational engagement elsewhere. Operational impacts, including cross-country driving, abuse of off-road vehicles, disturbance of sensitive resources, etc, may be reduced if the field of operations is shifted beyond the bounds of the OPCNM. Examples within the bounds of OPCNM include: crossers are deterred from crossing the border at all, crossers are apprehended closer to the border, crossers are tracked to a location (such as a road) where their apprehension can occur with minimal impact to the OPCNM. Furthermore, successful operation of this system should reduce the overall need for operational manpower, specifically at the operational outpost currently located at Bates Well but scheduled for relocation to the Cabeza Prieta National Wildlife Refuge/OPCNM border.	DOW, NPCA & SC	Border Patrol Operations as they relate to the Ajo-1 Tower Project are discussed extensively in the Final EA (Section 2.0). All offsetting and conservation measures identified in USFWS's BO are included in Section 5 of the Final EA. Two examples were given to demonstrate how the project will allow for the reduction of operational impacts to the OPCNM. These examples are identified as the Yuma Sector example and the Altar Valley example in Section 2.3.6 of the draft EA. These examples were further added to individual resources sections per Comment 3. Operational impacts are also identified and discussed in Section 2.3.6 under sub-sections " Focused Operations," "Patrol Activies," "Interdiction Activities," and "Off-Road Vehicle Use." CBP agrees

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10, cont.			that the successful operation of the SBInet Ajo Project would reduce the need for operational manpower; however, technology is only a force multiplier, not a force replacement. The Forward Operating Base (FOB) on the CPNWR/OPCNM border will continue to be staffed as long as it is considered necessary to meet mission goals.
11	Given that the proposed tower locations will be permanent in nature, it is imperative that the sites are carefully selected to minimize foreseeable impacts, and that further research is done to assess the nature of these impacts, especially in wildland settings. Formal consultation with the U.S Fish and Wildlife Service (USFWS) regarding impacts to threatened and endangered species is required by the Endangered Species Act, and should have been conducted prior to the release of a DEA. The Endangered Species Act was enacted to stop the extinction of species and to provide a "means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . .[and] to provide a program for the conservation of such endangered species and threatened species . . . "(16 U.S.C. § 1531(b). Section 2(c) of the ESA establishes that it is "the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purpose of this Act." (16 U.S.C. § 1531(c)(1). The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." 16 U.S.C. § 1532(3). To ensure federal agencies fulfill the substantive purposes of the ESA section 7, the statute requires that they engage in consultation with the Services to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species . . . determined . . . to be critical . . ."(16 U.S.C.§ 1536(a)(2) ("section 7 consultation"). Section 7 consultation is required for "any action [that] may affect listed species or	DOW, NPCA & SC	Formal Section 7 consultation (AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6) was completed with USFWS and a BO was issued USFWS on December 9, 2009.

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11, cont.	critical habitat." (50 C.F.R. § 402.14). Under the ESA's implementing regulations, an agency "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to . . .(d) actions directly or indirectly causing modifications to the land, water, or air." (50 C.F.R. § 402.02). Through section 7 consultation, FWS determines whether a federal agency's action is likely to jeopardize terrestrial species or their critical habitats. This determination is made after FWS completes a biological assessment, biological opinion, or in some cases, both. If the biological opinion concludes that the agency's action is likely to jeopardize a species; then it may specify reasonable and prudent alternatives that will avoid jeopardy and allow the agency to proceed with the action.		
12	Road improvement and maintenance should be planned and engineered for sustainable use in operation and maintenance of the towers, so that increased traffic on what are currently old ranch roads does not result in further damage at wash crossings, erosion and sedimentation problems.	DOW, NPCA & SC	In Section 2.3.4 of the Final EA, all roads and corridors proposed for construction, repair, improvement, and maintenance are identified. The last sentence of the first paragraph of Section 2.3.4 states that "All authorized roads and the authorized corridor would be maintained to allow access for routine tower maintenance activities". Further, SBI*net* has developed a road construction and maintenance plan for authorized road and corridor segments associated with the SBInet Ajo-1 Tower Project. The road construction and maintenance plan is provided on page 45 of the Final EA.

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13	Our review of the DEA has led us to conclude that it is unlawfully narrow because it fails to thoroughly consider any action alternatives of the various tower array configurations. In addition, the DEA provides a very shallow analysis of cumulative and synergistic effects of the proposed action and other ongoing border security infrastructure projects in the project area. The piecemeal Environmental Assessments completed by DHS/CBP in southern Arizona have been inadequate to assess the collective impacts of these related and other foreseeable federal actions. Importantly, this DEA does not analyze, but rather merely mentions, the predictable redirection of illegal activities into adjacent lands resulting from construction of surveillance tower arrays; nor does it properly examine the cumulative impacts of such infrastructure upon sensitive species, or the impacts due to the introduction and colonization of invasive vegetation resulting from extensive land disturbance and construction activities. We continue to argue that conducting a regional Environmental Impact Statement for all SBInet "tactical infrastructure" is the only appropriate course of action if DHS desires to comply with the National Environmental Policy Act (NEPA).	DOW, NPCA & SC	Various tower array configurations were considered, but eventually eliminated from further consideration due to reasons identified in Section 2.5. Cumulative impacts were discussed in Section 4.0. CBP disagrees with the statement that this is a "piecemeal EA." This Final EA is a comprehensive planning document for activities in the project area within the foreseeable future. CBP also disagrees with the statement that the "draft EA does not analyze the predictable redirection of illegal activities." Section 2.3.6 USBP Operations, subsections "Illegal Traffic Patterns" and "Traffic Shifts" discuss the impact of using technology and tactical infrastructure to deter crossings, but it is extremely difficult to predict where along the border the traffic will move to avoid detection. Cumulative impacts on sensitive species (i.e., Sonoran Pronghorn and lesser long-nosed bat) are discussed in sections 4.4.9.1 and 4.4.9.2 of the Final EA. Potential impacts due to invasive and non-native species are also discussed cumulatively in Section 4.4.7. In addition, mitigation measures were identified to protect against the spread of invasive and non-native species. These measures are identified in Section 5.5.

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14	Because the DEA fails to adequately disclose and analyze the proposed project's anticipated effects to wildlife and natural resources, nor does it adequately assess reasonable alternatives and cumulative impacts from ongoing and related border security infrastructure projects, we conclude that a regional Environmental Impact Statement (EIS) that includes a lawful analysis of environmental impacts and alternatives is required. The proposed federal project warrants a much more detailed analysis than is provided in the DEA.	DOW, NPCA & SC	CBP has determined that the analyses of wildlife (Section 3.9) and other natural resources (sections 3.2 [land use], 3.3 [wilderness], 3.4 [geology and soils], 3.5 [hydrology and groundwater], 3.6 [surface water and waters of the U.S.], 3.7 [floodplains], 3.8 [vegetation], 3.10 [protected species], and 3.12 [air quality]) are complete, correct, and adequate for the scope of this proposed project. Alternatives were considered and are presented in the document in sections 2.3 and 2.4, and other border infrastructure projects were analyzed in cumulative impacts. CBP has determined that a FONSI is the correct decision document resultant of this Final EA. All potential impacts both adverse and beneficial to threatened and endangered species are identified in both Section 3.10 of this EA and in USFWS's BO. CBP finds that this Final EA completely analyzes all foreseeable USBP projects within the project area.

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15	Rather than presenting a purpose and need statement that reflects the larger goal of improving border security, and then evaluating different means to achieve that goal, DHS in this case had instead defined "construction of technological infrastructure" itself as the goal. The Proposed Finding of No Significant Impact states: "Two alternatives were considered: No Action Alternative, and Proposed Action Alternative. Other alternatives considered but rejected and not further analyzed in this EA were the use of: Unmanned air vehicles; Remote sensing satellites; Unattended ground sensors; Increased workforce; and Increased aerial reconnaissance/operations." However, because the DEA does not evaluate alternatives with various surveillance tower site locations and configurations, there is not an action alternative to compare the preferred alternative against. Thus, the DEA has completely failed to develop or analyze the range of reasonable alternatives, which is required by NEPA. We encourage DHS to consider alternative locations of towers proposed in and adjacent to threatened and endangered designated critical habitat, roadless areas, wilderness areas, known nesting sites, etc. We appreciate the apparent effort to locate certain towers along existing roads and impacted areas to minimize the need for new road construction.	DOW, NPCA & SC	Alternatives were developed and are presented in Section 2.0 of the Final EA. Alternative tower sites were identified during the initial tower site selection process. This process is described in great detail in Section 2.2. Table 2-1 lists potential alternate tower sites that were identified, but were eventually eliminated due to operational, technical, constructability, environmental, or real estate issues.
16	Despite an effort to catalog various DHS and other foreseeable agency projects in the project area, the DEA falls short of **analyzing the cumulative effects** of these projects. In other words, the laundry list of projects catalogued does not provide the project proponent of the public with enough information to understand how these projects have additive, synergistic and cumulative impacts upon the human environment and the sensitive ecology of the Sonoran Desert and Sky Island mountain ranges where the project is proposed. For instance, how are surveillance towers, in conjunction with hundreds of miles of newly constructed walls and vehicle barriers anticipated to impact illegal activities, habitat suitability and cross-border habitat connectivity, etc.? How are surveillance towers, and the information they gain, anticipated to impact the location, frequency and duration of enforcement activities in the surrounding areas? If the location of towers pushes traffic deeper into mountain and canyon country, this indirect impact will be almost immediate and have severe consequences for ecologically sensitive areas. On the other hand, if surveillance towers and enforcement activities effectively act as deterrents to illegal entry, it is possible some of these impacts could be beneficial not only for security, but to wildlife habitat. However, without an analysis of what can be reasonably anticipated, project proponents are left without sufficient information to inform their decision.	DOW, NPCA & SC	CBP feels the cumulative analysis complete and provides decision makers with adequate information.

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17	Organ Pipe Cactus National Monument (OPCNM) was established by Presidential Proclamation in 1937 to preserve approximately 330,689 acres of Sonoran Desert for the public interest. In 1978, 312,600 acres of the monument was designated as wilderness by Congress. The National Park Service has recently described their strategic purpose at OPCNM "is to manage the monument in accordance with the National Park Service Organic Act and to: • Perpetuate for future generations a representative sample of the natural and cultural resources of the Sonoran Desert and provide for public understanding, safe use, and enjoyment of the same. • Serve as a natural laboratory for understanding and managing the Sonoran Desert ecosystem. • Serve as a baseline indicator against which environmental changes can be identified. • Preserve for future use and enjoyment the character and values of the designated wilderness. • Preserve objects of historic and scientific interest including Historic Landmarks. • Prohibit the taking, injuring, or destroying of any park feature and establishment of homesteads. • Allow for the cactus fruit harvest by O'odham nation. • Provide for a public water reserve at Quitobaquito. • Manage a 60-ft right of way along the international boundary." (NPS 2007) The National Park Service Organic Act mandates that NPS "shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations." (16 U.S.C. 1 2 3, and 4). An Environmental Assessment is inadequate to inform federal decision-makers of the impacts of a project as significant as this tower project on the resources of a National Monument—another reason why a full Environmental Impact Statement should be prepared.	DOW, NPCA & SC	Decision makers from the Department of the Interior, the National Park Service, and local representatives from the OPCNM have been involved and included in the planning of this project. These decision makers have reviewed all versions of the EA. CBP and DOI have determined that through the successful deployment of the SBI*net* technology, the effectiveness of USBP agents would increase, thus improving the protection of the natural and cultural resources of the project area. CBP has determined that through the analyses presented in this Final EA, a FONSI is the correct and appropriate decision document for this proposed project. An EIS is not necessary for the SBInet Ajo 1 Project.

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18	Despite the importance of the large project area to a diversity of plants and other organisms, the DEA's analysis of potential impacts to them by construction of the proposed surveillance towers and supporting infrastructure is insufficient. This is in part because DHS has chosen to conduct a lesser Environmental Assessment instead of beginning with a more thorough Environmental Impact Statement. This is especially apparent with respect to the DEA's analysis of impacts on special status species, including species listed as threatened or endangered pursuant to the Endangered Species Act ("ESA"). By its nature, the impact of the proposed project will extend well beyond the confines of the footprint of the surveillance towers and supporting access infrastructure. First, the predictable redirection of illegal activities away from the towers is discussed, but not analyzed. Second, an increase of enforcement activities within the visible range of the surveillance towers in response to the realtime information they obtain is discussed, but not analyzed. Third, the long-term impacts and disturbance from noise, lights, maintenance, and interdiction activities upon wildlife and habitat quality briefly discussed, but not analyzed. The fact that all of these impacts have been noted in the DEA, but not analyzed so as to provide the project proponent or the public sufficient quantitative information regarding the nature and severity of such impacts, is further evidence that the DEA is insufficient and should have triggered and Environmental Impact Statement to be conducted. Expediency simply cannot be equated with compliance.	DOW, NPCA & SC	CBP disagrees with the statement that the analyses of potential impacts on plants and other organisms and especially special status species, including those listed as threatened or endangered are insufficient. CBP has completed formal Section 7 consultation with USFWS (AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6) and USFWS issued a BO on December 9, 2009. The Action Area in the USFWS's BO includes the entire range of the Sonoran pronghorn. For instance, impacts to pronghorn habitat quality caused by generator noise are discussed in the Noise section of the final EA (Section 3.13). Generator noise would be abated to 35 dBA at a distance of 492 feet from the generator (page 143). In addition, conservation measures are identified in USFWS's BO to reduce generator noise to 35 dBA at a distance of 492 feet from the generator/noise source (Section 5.7, subsection "Sonoran Pronghorn").
19	The Sonoran pronghorn (*Antilocapra americana sonoriensis*) is one of the most endangered land mammals in North America. The historic range of the Sonoran pronghorn is well within the DEA project area. While the current range of the extant population in the U.S. lies to the west of the project area, there is indeed potential pronghorn habitat and the potential for pronghorn to expand their range into the project area as the extant pronghorn population recovers in numbers. Therefore, formal consultation with the USFWS is necessary. Pronghorn are particularly sensitive to human disturbance, including noise and activity associated with maintenance vehicles, military aircraft and machines such as generators that will be used to power the surveillance towers. A study conducted from 1994-1998 found that "In general, pronghorn used areas with lower levels of noise (<45 decibels [db]) more than expected and areas with higher levels (≥55 dB) less than expected" (Landon et al. 2003). The USFWS has expressed serious concern with regard to the potential adverse impacts from new surveillance towers in the region, particularly from the disturbance associated with tower generator noise, and from disturbance associated with regular maintenance activities. In fact, a letter sent from USFWS Regional Director Benjamin Tuggle to Executive Director of SBI Gregory Giddens, stated unequivocally that the anticipated disturbance associated with proposed towers—in particular noise and disturbance – could potentially extirpate Sonoran	DOW, NPCA & SC	Formal Section 7 consultation (AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6) has been completed with USFWS and USFWS issued a BO on December 9, 2009. The indirect effect of generator noise was addressed in the Final EA and CBP will mitigating noise to 35 dBA at 492 feet to minimize impacts to Sonoran pronghorn beyond that distance.

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20	Therefore, we urge DHS to assess the potential impact of proposed tower and infrastructure development, maintenance and associated interdiction activities upon this imperiled species in conjunction with the USFWS and the AZGFD. Research conducted on the Organ Pipe Cactus National Monument (OPCNM) illustrates the disruptive effects of the border related activities to pygmy-owls at numerous occupied sites at OPCNM (Snyder 2005, Table 1). Snyder (2005) states that the most notable issue at OPCNM "is the increasing drug smuggling, illegal immigrants and law enforcement activity which results in much greater human disturbance to the birds". The National Park Service (NPS) believes "that cactus ferruginous pygmy-owls within the monument have been subject to repeated disturbance events and some critical habitat degraded as a result of a long-term drought and impacts associated with illegal migration, drug smuggling, and law enforcement interdiction efforts" (Snyder 2005). The Biological Assessment for the	DOW, NPCA & SC	Cactus ferruginous pygmy owl is not a Federally listed species. If the species becomes listed as threatened or endangered, Section 7 consultation with USFWS will be re-initiated to determine the severity of impacts to this species and what if any offsetting or conservation measures should be employed to avoid such impacts.

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20, cont.	vehicle barrier at OPCNM states that, with so many roads sprouting up due to border issues, ". . . crosscountry travel has physically damaged three recently-occupied territories of the endangered cactus ferruginous pygmy-owl." The potential for the proposed project, including ongoing maintenance, to impact this species and their habitat long-term is a strong likelihood, and as such should not be omitted from the DEA or EIS. Surveys for pygmy-owls should be conducted in the vicinity prior to any construction activities commencing. (Please see discussion under Lesser long-nosed bat section for potential radio frequency and electromagnetic radiation impacts to birds.)		
21	The potential impact of towers for strikes and of radar and electromagnetic frequencies emitted by surveillance and communications towers upon bats and avifauna is only superficially discussed, but not analyzed in the DEA, despite this concern being raised in previous comments (see Defenders of Wildlife comments on Tucson West Project DEA). The potential impact of bird strikes on communication towers and other vertical obstructions is well established in the scientific literature, yet there is no mention of any of these studies in the DEA, more or less any analysis of the anticipated level of impact, species anticipated to be impacted, etc. Animals, such as migratory birds, bats, and certain fish and insects that are strongly dependent on magnetic fields for orientation or migration are likely to be disproportionately impacted by EMF radiation. Nichols and Racry (2007) demonstrated that bat activity is reduced in habitats exposed to electromagnetic radiation when compared with matched sites where no such radiation can be detected: "Bat activity was significantly reduced in habitats exposed to an EMF strength of greater than 2 v/m when compared to matched sites registering EMF levels of zero. The reduction in bat activity was not significantly different at lower levels of EMF strength within 400 m of the radar." Certain electromagnetic frequencies have been documented to irritate bat's nervous systems, interfere with communicating and flying – such applications are being considered for applications to deter bats away from areas where conflicts with aviation and wind turbines exist (Nichols and Racey 2007) and have also been used in "pest control" applications. It is clear that the best available science was not thoroughly investigated with regard to this impact in the DEA.	DOW, NPCA & SC	Additional information discussing the potential affects of EMF radiation on migratory birds and bats was added in Sections 3.9.2.2 (second paragraph) and 3.10.4.2 (lesser long-nosed bat) in the Final EA.

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22	Lastly, potential indirect effects upon the endangered desert pupfish, and species petitioned for listing under the ESA (i.e. Acuna cactus and Sonoita mud turtle) – and the habitats that sustain them – are not analyzed in the DEA. Indirect impacts of greatest concern relate to the potential for the presence of towers to redirect illegal traffic and enforcement activities into new areas.	DOW, NPCA & SC	Although illegal traffic may move in response to USBP activities, they can not be quantified because USBP does not know where illegal traffic may move.
23	Assuming the project moves forward, we strongly support the mitigation measures for the Sonoran pronghorn and the lesser long-nose bat as described in the draft finding of no significant impact. Additional mitigation measure should be considered to dampen the noise level from generators to reduce impacts to sensitive species and the wilderness characteristics of the monument.	DOW, NPCA & SC	All of the mitigation measures, conservation measures, and off-setting measures identified in the Final EA and FONSI will be used, as the majority of these measures are also identified in USFWS's BO. Included in these measures are noise reduction measures as identified in sections 3.13.2.2 (Long-Term Noise Emission from Tower Operations) and 5.7, subsection "Sonoran Pronghorn." These measures were identified and developed in coordination with affected Department of Interior agencies and land managers.
24	While the nature of the impacts of remote surveillance towers are likely to be less for terrestrial species than tactical infrastructure such as border walls, there are numerous potential impacts of the proposed Ajo-1 Tower Project that have been ignored, or only briefly mentioned, and may disproportionately impact species of flight. The potential environmental impacts, both direct and indirect, of the proposed action are significant enough both in scale and in terms of their ecologically-sensitive locations, to merit a regional Environmental Impact Statement with alternatives that include various tower array locations and configurations. The minimalist approach DHS has taken, to conduct piecemeal EAs with FONSIs on projects to build extensive mileages of border walls vehicle barriers, patrol and access roads, and surveillance towers is unacceptable and is not only in violation of NEPA, it had undermined DHS'/CBP's own ability to comprehend the full magnitude and nature of its numerous actions upon the human environment.	DOW, NPCA & SC	CBP has determined that the analyses of wildlife (Section 3.9) are complete, correct, and adequate for the scope of this proposed project. This Final EA is a comprehensive planning document for activities in the project area within the foreseeable future. CBP has determined that a FONSI is the correct decision document resultant of this Final EA.
25	We urge a formal Section 7 Consultation be initiated to assess, minimize and offset impacts to all of the threatened and endangered species that will potentially be impacted. Many of the conservation/mitigation measures identified in the DEA appear to be salient. However, formal consultation with the USFWS will likely identify other important measures that have not yet been considered in the DEA.	DOW, NPCA & SC	Formal Section 7 consultation (AESO/SE 22410-F-2009-0089 and 22410-1989-0078-R6) has been completed and USFWS issued a BO on December 9, 2009.

Comment Response Matrix
Draft Environmental Assessment
For the Proposed SBI*net* Ajo-1 Tower Project Ajo Station's Area of Responsibility
U.S. Border Patrol, Tucson Sector

#	Comment	Reviewer	Response
26	Surveillance infrastructure comes with its own set of potential impacts, both direct and indirect, which must be properly assessed and mitigated for. We continue to see the potential for remote surveillance towers to capture information identifying wildlife of conservation concern. This potential benefit to science and wildlife conservation was not addressed in the DEA. We hope that if detected, such information will be shared with wildlife management agencies, researchers and concerned non-governmental organizations. Such information is valuable in building our collective understanding of the occurrence, distribution and movements of wildlife in the remote borderlands region.	DOW, NPCA & SC	Any pronghorn or other significant wildlife sightings captured by the surveillance technology will be shared with USFWS, AZGFD, and OPCNM.

Defenders of Wildlife * National Parks Conservation Association * Sierra Club

October 10, 2009

Submitted by **fax to: (225) 761-8077** (Attention: Mr. Howard Nass)

Ms. Patience E. Patterson
RPA, US. Department of Homeland Security
SBInet Program Management Office
1901 S. Bell Street, Room 7-090
Arlington, VA 22202

RE: Draft Environmental Assessment for Proposed SBInet Ajo-1 Tower Project, U.S. Border Patrol, Tucson Sector

To Whom It May Concern:

Please accept the following comments on the Draft Environmental Assessment (DEA) for the Department of Homeland Security's ("DHS") Proposed SBInet Ajo-1 Tower Project, U.S. Border Patrol, Tucson Sector.

Defenders of Wildlife (Defenders) is a national, not-for-profit conservation organization with over 522,000 members, including more than 16,500 members and activists that reside in Arizona. Defenders is dedicated to the protection of all native wild animals and plants in their natural communities. With offices throughout the United States as well as in Canada and Mexico, we work to protect and restore North America's native wildlife, safeguard habitat, resolve conflicts, work across international borders and educate and mobilize the public. Defenders has a long history of proactive work on public lands and border policy along the U.S.-Mexico border, and thus are uniquely positioned to substantively engage on the challenging issue of safeguarding irreplaceable natural and cultural resources while also securing our southern boundary.

Founded in 1892, the Sierra Club is the oldest and largest conservation organization in the United States, with over 1.3 million members and supporters, including 12,000 here in Arizona. The purposes of the Sierra Club are to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives. We have been campaigning with a specific focus on the protection and preservation of the U.S.-Mexico borderlands in southern Arizona since 2006, and our

nationally-organized Borderlands Team works to educate lawmakers, members, and the public at large about border environmental issues.

National Parks Conservation Association (NPCA) has for more than 85 years worked to protect and enhance America's National Park System for present and future generations. With 325,000 members nationwide and 8,000 in Arizona, NPCA acts as the catalyst, leader, and advocate of a national parks movement to protect these special places and improve the visitor experience.

INTRODUCTION

While the physical footprint of remote surveillance towers and access roads is significantly less than that of border walls and high-speed patrol roads, they do have their own unique set of impacts. Their level of impact to sensitive resources and species will depend upon the locations of th towers, how Border Patrol operations are conducted on the ground, and, most importantly, the level of environmental planning, assessment, and mitigation undertaken by DHS.

Given the size and scope of the Ajo-1 Tower Project, and its proximity to the Organ Pipe Cactus National Monument (OPCNM) and the sensitive species and resources therein, it is necessary to conduct a full Environmental Impact Statement (EIS) in accordance with the process established under the National Environmental Policy Act (NEPA). The waiver of 36 federal laws, including NEPA, issued April 1, 2008, by former DHS Secretary Chertoff, applies only to barriers and roads. Therefore, the Ajo-1 Tower Project and its associated infrastructure must be subject to the NEPA process and a full EIS must be produced.

The DEA of the Ajo-1 Tower Project fails to address the issue of operations, which is of primary importance to the mitigation of impact to the resources of OPCNM. For the Ajo-1 Tower Project to function in a manner compatible with the preservation of these resources, it must be demonstrated that the project will allow for the reduction of operational impacts to the OPCNM by shifting the field of operational engagement elsewhere. Operational impacts, including cross-country driving, abuse of off-road vehicles, disturbance of sensitive resources, etc, may be reduced if the field of operations is shifted beyond the bounds of the OPCNM. Examples within the bounds of OPCNM include: crossers are deterred from crossing the border at all, crossers are apprehended closer to the border, crossers are tracked to a location (such as a road) where their apprehension can occur with minimal impact to the OPCNM. Furthermore, successful operation of this system should reduce the overall need for operational manpower, specifically at the operational outpost currently located at Bates Well but scheduled for relocation to the Cabeza Prieta National Wildlife Refuge/OPCNM border.

Given that the proposed tower locations will be permanent in nature, it is imperative that the sites are carefully selected to minimize foreseeable impacts, and that further research is done to assess the nature of these impacts, especially in wildland settings. Formal consultation with the U.S. Fish and Wildlife Service (USFWS) regarding impacts to threatened and endangered species is required by the Endangered Species Act, and should have been conducted prior to the release of a DEA.

The Endangered Species Act was enacted to stop the extinction of species and to provide a "means whereby the ecosystems upon which endangered species and threatened species depend may be conserved ... [and] to provide a program for the conservation of such endangered species and

threatened species ...."(16 U.S.C. § 1531(b). Section 2(c) of the ESA establishes that it is "the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act."(16 U.S.C. § 1531(c)(1). The ESA defines "conservation" to mean "the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary." 16 U.S.C. § 1532(3).

To ensure federal agencies fulfill the substantive purposes of the ESA section 7, the statute requires that they engage in consultation with the Services to "insure that any action authorized, funded, or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the adverse modification of habitat of such species ... determined ... to be critical ...." (16 U.S.C. § 1536(a)(2) ("section 7 consultation").

Section 7 consultation is required for "any action [that] may affect listed species or critical habitat." (50 C.F.R. § 402.14). Under the ESA's implementing regulations, an agency "action" means "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to ... (d) actions directly or indirectly causing modifications to the land, water, or air." (50 C.F.R. § 402.02). Through section 7 consultation, FWS determines whether a federal agency's action is likely to jeopardize terrestrial species or their critical habitats. This determination is made after FWS completes a biological assessment, biological opinion, or in some cases, both. If the biological opinion concludes that the agency's action is likely to jeopardize a species, then it may specify reasonable and prudent alternatives that will avoid jeopardy and allow the agency to proceed with the action.

Valuable information that would have been generated from a Biological Assessment and Biological Opinion is currently not available to inform our collective understanding of potential impacts to threatened and endangered species by the proposed action.

Road improvement and maintenance should be planned and engineered for sustainable use in operation and maintenance of the towers, so that increased traffic on what are currently old ranch roads does not result in further damage at wash crossings, erosion and sedimentation problems.

Our review of the DEA has led us to conclude that it is unlawfully narrow because it fails to thoroughly consider any action alternatives of the various tower array configurations. In addition, the DEA provides a very shallow analysis of cumulative and synergistic effects of the proposed action and other ongoing border security infrastructure projects in the project area. The piecemeal Environmental Assessments completed by DHS/CBP in southern Arizona have been inadequate to assess the collective impacts of these related and other foreseeable federal actions. Importantly, this DEA does not analyze, but rather merely mentions, the predictable redirection of illegal activities into adjacent lands resulting from construction of surveillance tower arrays; nor does it properly examine the cumulative impacts of such infrastructure upon sensitive species, or the impacts due to the introduction and colonization of invasive vegetation resulting from extensive land disturbance and construction activities. We continue to argue that conducting a regional Environmental Impact

Statement for all SBInet "tactical infrastructure" is the only appropriate course of action if DHS desires to comply with the National Environmental Policy Act (NEPA).

A REGIONAL ENVIRONMENTAL IMPACT STATEMENT IS REQUIRED

Because the DEA fails to adequately disclose and analyze the proposed project's anticipated effects to wildlife and natural resources, nor does it adequately assess reasonable alternatives and cumulative impacts from ongoing and related border security infrastructure projects, we conclude that a regional Environmental Impact Statement (EIS) that includes a lawful analysis of environmental impacts and alternatives is required. This proposed federal project warrants a much more detailed analysis than is provided in the DEA.

Despite some thoughtful conservation measures, a "Finding of No Significant Impact" is not appropriate given the scale of the project and the ecologically sensitive areas that will be directly and indirectly impacted. In addition, there are several glaring omissions with regard to threatened and endangered species that must be addressed. These deficiencies indicate a need for a significantly more detailed analysis generally not afforded by Environmental Assessments.

As such, the DEA does not inadequately consider nor disclose the potential environmental impacts of the proposed actions within the Ajo-1 Tower Project area. Among other flaws, the DEA fails to consider adequately impacts on sensitive wildlife, which is elaborated upon within these comments. Furthermore, the DEA has failed to consider the likely and foreseeable cumulative impacts that the proposed construction will have, especially when taken together with other proposed and constructed walls, fences, barriers, and related infrastructure along the U.S.-Mexico border in the State of Arizona, on sensitive wildlife and other natural resources in the region that are collectively a part of the ongoing and rapid DHS tactical infrastructure build-up, of which this project is a part. The arbitrary segmentation of concurrent border security infrastructure projects is in violation of NEPA.

A REASONABLE RANGE OF ALTERNATIVES HAS NOT BEEN CONSIDERED

The National Environmental Policy Act ("NEPA") requires a discussion of the "alternatives to the proposed action." 42 U.S.C. §§ 4332(C)(iii),(E). This alternatives analysis is "the heart" of the NEPA process, and is intended to provide a "clear basis for choice among options by the decision maker and the public." 40 C.F.R. 1502.14; *Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985) (EIS must consider "every" reasonable alternative). An agency's failure to consider a reasonable alternative is thus fatal to its NEPA analysis of a proposed action. *See Idaho Conservation League v. Mumma*, 956 F.2d 1508, 1519-20 (9th Cir. 1992) ("The existence of a viable, but unexamined alternative renders an environmental impact statement inadequate."); Forty Most Asked Questions Concerning CEQ's NEPA Regulations, 48 Fed. Reg. 18,026 (March 16, 1981)("In determining the scope of alternatives to be considered, the emphasis is on what is 'reasonable' rather than on whether the proponent or applicant likes or is itself capable of carrying out the particular alternative. Reasonable alternatives include those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.").

Rather than presenting a purpose and need statement that reflects the larger goal of improving border security, and then evaluating different means to achieve that goal, DHS in this case has instead defined "construction of technological infrastructure" itself as the goal. The Proposed Finding of No Significant Impact states: "Two alternatives were considered: No Action Alternative, and Proposed Action Alternative. Other alternatives considered but rejected and not further analyzed in this EA were the use of: Unmanned air vehicles; Remote sensing satellites; Unattended ground sensors; Increased workforce; and Increased aerial reconnaissance/operations." However, because the DEA does not evaluate alternatives with various surveillance tower site locations and configurations, there is not an action alternative to compare the preferred alternative against. Thus, the DEA has completely failed to develop or analyze the range of reasonable alternatives, which is required by NEPA. We encourage DHS to consider alternative locations of towers proposed in and adjacent to threatened and endangered designated critical habitat, roadless areas, wilderness areas, known nesting sites, etc. We appreciate the apparent effort to locate certain towers along existing roads and impacted areas to minimize the need for new road construction.

CUMULATIVE EFFECTS HAVE NOT BEEN SUFFICIENTLY ANALYZED

In determining the proper scope of a NEPA analysis, federal agencies must broadly consider the environmental impacts of their actions and related actions. Federal agencies must not only review the direct and indirect impacts of their actions, but also analyze the cumulative impacts. Indirect effects are those "caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable."(40 C.F.R. § 1508.8(b)). Cumulative impacts include impacts of "other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 C.F.R. § 1507).

Despite an effort to catalog various DHS and other foreseeable agency projects in the project area, the DEA falls short of **analyzing the cumulative effects** of these projects. In other words, the laundry list of projects catalogued does not provide the project proponent or the public with enough information to understand how these projects have additive, synergistic and cumulative impacts upon the human environment and the sensitive ecology of the Sonoran Desert and Sky Island mountain ranges where the project is proposed. For instance, how are surveillance towers, in conjunction with hundreds of miles of newly constructed walls and vehicle barriers anticipated to impact illegal activities, habitat suitability and cross-border habitat connectivity, etc.? How are surveillance towers, and the information they gain, anticipated to impact the location, frequency and duration of enforcement activities in the surrounding areas? If the location of towers pushes traffic deeper into mountain and canyon country, this indirect impact will be almost immediate and have severe consequences for ecologically sensitive areas. On the other hand, if surveillance towers and enforcement activities effectively act as deterrents to illegal entry, it is possible some of these impacts could be beneficial not only for security, but to wildlife habitat. However, without an analysis of what can be reasonably anticipated, project proponents are left without sufficient information to inform their decisions.

NEPA requires federal agencies proposing to undertake comprehensive actions for development of a region, or proposing to undertake a series of related actions within a region that will have cumulative and synergistic impacts on the environment, to consider and disclose the environmental impacts of such actions in a comprehensive EIS. If DHS fails to prepare a comprehensive EIS that

analyzes and discloses the individual, cumulative and synergistic impacts of these interrelated projects, it will be in violation of NEPA.

A Special Area Requires Special Consideration

Organ Pipe Cactus National Monument (OPCNM) was established by Presidential Proclamation in 1937 to preserve approximately 330,689 acres of Sonoran Desert for the public interest. In 1978, 312,600 acres of the monument was designated as wilderness by Congress. The National Park Service has recently described their strategic purpose at OPCNM "is to manage the monument in accordance with the National Park Service Organic Act and to:

- Perpetuate for future generations a representative sample of the natural and cultural resources of the Sonoran Desert and provide for public understanding, safe use, and enjoyment of the same.
- Serve as a natural laboratory for understanding and managing the Sonoran Desert ecosystem.
- Serve as a baseline indicator against which environmental changes can be identified.
- Preserve for future use and enjoyment the character and values of the designated wilderness.
- Preserve objects of historic and scientific interest including Historic Landmarks.
- Prohibit the taking injuring, or destroying of any park feature and establishment of homesteads.
- Allow for the cactus fruit harvest by O'odham nation.
- Provide for a public water reserve at Quitobaquito.
- Manage a 60-ft right of way along the international boundary." (NPS 2007)

The National Park Service Organic Act mandates that NPS "shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." (16 U.S.C. 1 2 3, and 4).

An Environmental Assessment is inadequate to inform federal decision-makers of the impacts of a project as significant as this tower project on the resources of a National Monument -- another reason why a full Environmental Impact Statement should be prepared.

Analysis Of Potential Impacts To Threatened and Endangered Species Is Inadequate

Despite the importance of the large project area to a diversity of plants and other organisms, the DEA's analysis of potential impacts to them by construction of the proposed surveillance towers and supporting infrastructure is insufficient. This is in part because DHS has chosen to conduct a lesser Environmental Assessment instead of beginning with a more thorough Environmental Impact Statement. This is especially apparent with respect to the DEA's analysis of impacts on special status species, including species listed as threatened or endangered pursuant to the Endangered Species Act ("ESA").

By its nature, the impact of the proposed project will extend well beyond the confines of the footprint of the surveillance towers and supporting access infrastructure. First, the predictable re-direction of illegal activities away from the towers is discussed, but not analyzed. Second, an increase of enforcement activities within the visible range of the surveillance towers in response to the real-time information they obtain is discussed, but not analyzed. Third, the long-term impacts and disturbance from of noise, lights, maintenance, and interdiction activities upon wildlife and habitat quality briefly discussed, but not analyzed. The fact that all of these impacts have been noted in the DEA, but not analyzed so as to provide the project proponent or the public sufficient quantitative information regarding the nature and severity of such impacts, is further evidence that the DEA is insufficient and should have triggered and Environmental Impact Statement to be conducted. Expediency simply cannot be equated with compliance.

Threatened, Endangered and Imperiled Species:

Sonoran pronghorn

The Sonoran pronghorn *(Antilocapra americana sonoriensis)* is one of the most endangered land mammals in North America. The historic range of the Sonoran pronghorn is well within the DEA project area. While the current range of the extant population in the U.S. lies to the west of the project area, there is indeed potential pronghorn habitat and the potential for pronghorn to expand their range into the project area as the extant pronghorn population recovers in numbers. Therefore, formal consultation with the USFWS is necessary. Pronghorn are particularly sensitive to human disturbance, including noise and activity associated with maintenance vehicles, military aircraft and machines such as generators that will be used to power the surveillance towers. A study conducted from 1994-1998 found that "In general, pronghorn used areas with lower levels of noise (<45 decibels [dB]) more than expected and areas with higher levels (≥55 dB) less than expected" (Landon et al. 2003).

The USFWS has expressed serious concern with regard to the potential adverse impacts from new surveillance towers in the region, particularly from the disturbance associated with tower generator noise, and from disturbance associated with regular maintenance activities. In fact, a letter sent from USFWS Regional Director Benjamin Tuggle to Executive Director of SBI Gregory Giddens, stated unequivocally that the anticipated disturbance associated with proposed towers -- in particular noise and disturbance -- could potentially extirpate Sonoran pronghorn from the Cabeza Prieta NWR. The letter, dated April 4, 2008, states:

> "I write to express my seious concerns that the project as proposed may significantly impair the likelihood for both the recovery and survival of the Sonoran pronghorn (pronghorn)…On March 24, 2008, we hosted an interagency meeting to discuss the planned SBINet project and potential impacts to pronghorn. In attendance were resource specialists representing a wide array of State and Federal agencies. Those in attendance are the most knowledgeable individuals in pronghorn biology and recovery. All of the participants agreed the CBP proposal would result in significant adverse effects to pronghorn. The group determined the project would result in lower recruitment of pronghorn fawns in the area and over time, may ultimately lead to the eventual extinction of the species".

While we recognize this letter was in reference to a different proposed SBInet surveillance tower project centered in occupied pronghorn habitat located just west of the Ajo 1 proposed project on the Cabeza Prieta NWR, it nonetheless demonstrates the potential for long-term adverse impacts to pronghorn and the propensity for such projects to reduce the suitability of habitat for Sonoran pronghorn. However, as noted above, the Ajo 1 proposed project is in historic Sonoran pronghorn habitat, and is a connected action to both the Tucson West Project and future SBInet project planned on the Cabeza Prieta NWR.

Lastly, indirect effects due to tower avoidance by undocumented migrants and smugglers and the concomitant interdiction activities could result in additional disturbance to this species. Neither the direct nor indirect effects upon the Sonoran pronghorn are sufficiently analyzed in the DEA. For instance, what is the anticipated distance from which direct effects caused by generator noise is anticipated to degrade pronghorn habitat quality?

Cactus ferruginous pygmy-owl

The Cactus ferruginous pygmy-owl (pygmy-owl) (*Glaucidium ridgwayi cactorum* - proposed reclassification) is an imperiled species found in the project area. This species was listed as an endangered species in 1997 and was delisted in 2006. The decision to delist the pygmy owl has been appealed to the Ninth Circuit Court of Appeals and is currently pending. The pygmy owl was not delisted because it had been "recovered", but rather based upon legal technicalities. Since being delisted, this species has continued to decline throughout its range due to prolonged drought (Flesch 2008), development of its habitat, and numerous other threats. Concurrent with pending legal challenges to the delisting, the pygmy owl has been petitioned for relisting based upon new taxonomic information (Proudfoot et al. 2006), classifying the pygmy-owl occurring in the project area as *Glaucidium ridgwayi cactorum*, as well as new threats such as border security infrastructure that has been constructed since delisting. The status of the pygmy-owl is currently being reviewed by the USFWS this year. There is a strong likelihood this species will be re-listed as an endangered species. This decision may even be made prior to construction beginning on the proposed SBInet project.

Therefore, we urge DHS to assess the potential impact of proposed tower and infrastructure development, maintenance and associated interdiction activities upon this imperiled species in conjunction with the USFWS and the AZGFD.

Research conducted on the Organ Pipe Cactus National Monument (OPCNM) illustrates the disruptive effects of border related activities to pygmy-owls at numerous occupied sites at OPCNM (Snyder 2005, Table 1). Snyder (2005) states that the most notable issue at OPCNM "is the increasing drug smuggling, illegal immigrants and law enforcement activity which results in much greater human disturbance to the birds". The National Park Service (NPS) believes "that cactus ferruginous pygmy-owls within the monument have been subject to repeated disturbance events and some critical habitat degraded as a result of a long-term drought and impacts associated with illegal migration, drug smuggling, and law enforcement interdiction efforts" (Snyder 2005). The Biological Assessment for the vehicle barrier at OPCNM states that, with so many roads sprouting up due to border issues, "... crosscountry travel has physically damaged three recently-occupied territories of the endangered cactus ferruginous pygmy-owl."

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The potential for the proposed project, including ongoing maintenance, to impact this species and their habitat long-term is a strong likelihood, and as such should not be omitted from the DEA or EIS. Surveys for pygmy-owls should be conducted in the vicinity prior to any construction activities commencing. (Please see discussion under Lesser long-nosed bat section for potential radio frequency and electromagnetic radiation impacts to birds.)

Lesser long-nosed bat

The potential impact of towers for strikes and of radar and electromagnetic frequencies emitted by surveillance and communications towers upon bats and avifauna is only superficially discussed, but not analyzed in the DEA, despite this concern being raised in previous comments (see Defenders of Wildlife comments on Tucson West Project DEA). The potential impact of bird strikes on communication towers and other vertical obstructions is well established in the scientific literature, yet there is no mention of any of these studies in the DEA, more or less any analysis of the anticipated level of impact, species anticipated to be impacted, etc.

Animals, such as migratory birds, bats, and certain fish and insects that are strongly dependent on magnetic fields for orientation or migration are likely to be disproportionately impacted by EMF radiation. Nichols and Racey (2007) demonstrated that bat activity is reduced in habitats exposed to electromagnetic radiation when compared with matched sites where no such radiation can be detected: "Bat activity was significantly reduced in habitats exposed to an EMF strength of greater than 2 v/m when compared to matched sites registering EMF levels of zero. The reduction in bat activity was not significantly different at lower levels of EMF strength within 400 m of the radar." Certain electromagnetic frequencies have been documented to irritate bat's nervous systems, interfere with communicating and flying – such applications are being considered for applications to deter bats away from areas where conflicts with aviation and wind turbines exist (Nichols and Racey 2007) and have also been used in "pest control" applications. It is clear that the best available science was not thoroughly investigated with regard to this impact in the DEA:

> "Though greater research is required to have a better understanding of the effects of RF energy on the avian brain, the potential effects on passing birds is expected to be negligible as well. Any disorientating effect, if experienced, would be temporary and would occur only at close distances to the antennas....the RF environment created by the installation, operation and maintenance of the communication and radar systems on the proposed towers would have a long-term, negligible adverse impact on observatories, human safety or the natural and biological environment." (DEA pg. 188).

This statement makes two unsubstantiated assumptions: 1) birds and/or bats will always be "passing" and will not perch or otherwise encounter surveillance towers and 2)that the impact would be temporary. Thus, the claim of insignificance is equally unsubstantiated. Several studies in the past four decades shed some light on potential impacts related to EMF, but the impacts of the proposed action must analyze the potential impacts given the context of the proposed equipment, site locations, species, etc. The following are a few examples: Bigu (1973): "Interaction of electromagnetic fields and living systems with special reference to birds." In this study, the mortality rate of the radiated colony was almost double that of the control colony. Tanner (1969) "Effects of microwave radiation on Parakeets in Flight". The results obtained in this experiment indicates that

BW1 FOIA CBP 002007

microwave radiation has an aversive effect on birds in flight comparable to that previously observed in caged birds. Kleinhaus et al. (1995) "Thermal Effects of Short Radio Waves on Migrating Birds". This study concluded that large birds landing on antenna structures might become vulnerable to overheating, but it is likely that these birds would depart rather than remain where they are uncomfortably hot.

One of the few scientific review articles published on the environmental impacts of electromagnetic frequencies is not even mentioned in the DEA: "Health and safety implications of exposure to electromagnetic fields in the frequency range 300 Hz to 10 MHz. (Litvak, Foster and Repacholi 2002). Furthermore, much information in the gray literature, specifically in other Environmental Assessments and Environmental Impact Statements for communication towers and other vertical obstructions such as wind turbines, are not referenced in the DEA at all. This leads us to conclude that the DEA is sorely insufficient with regard to assessing the impacts of communication and surveillance towers, emitting various EMF frequencies, most of which are proposed to be located in sensitive wildland environments. Most importantly, the DEA fails to include any information regarding the EMF or RF energy **strength** of the proposed tower's equipment, which is a key determinant in assessing the level and proximity within which the environment will be impacted for sensitive species.

There is one reference to a "safe operating distance for these systems (*i.e.*, 17 feet)", but the basis for this is distance is not quantified, nor substantiated. While humans and terrestrial animals will likely stay out of this proximity due to fences and the height of equipment, both birds and bats will almost certainly come within 17 feet of tower equipment on a regular basis. Given that such little research has been done to quantify impacts of such invisible emissions upon birds and bats, and the one and only attempt to substantiate the above claim of insignificance is based upon a workshop presentation given nearly a decade ago "Beason (1999)" (not a peer-reviewed journal article), the statement that the proposed towers would not result in significant adverse impacts to the biological environment is baseless. This "invisible" potential impact merits further scientific study, which should be funded by DHS and cooperating agencies via mitigation money, and highlights the importance of locating towers well away from known avian nests, flyways, bat roosts and foraging areas.

Lastly, potential indirect effects upon the endangered desert pupfish, and species petitioned for listing under the ESA (i.e. Acuna cactus and Sonoyta mud turtle) – and the habitats that sustain them – are not analyzed in the DEA. Indirect impacts of greatest concern relate to the potential for the presence of towers to redirect illegal traffic and enforcement activities into new areas.

MITIGATION MEASURES

Assuming the project moves forward, we strongly support the mitigation measures for the Sonoran pronghorn and the lesser long-nose bat as described in the draft finding of no significant impact. Additional mitigation measure should be considered to dampen the noise level from generators to reduce impacts to sensitive species and the wilderness characteristics of the monument.

CONCLUSION

While the nature of the impacts of remote surveillance towers are likely to be less for terrestrial species than tactical infrastructure such as border walls, there are numerous potential impacts of the proposed Ajo-1 Tower Project that have been ignored, or only briefly mentioned, and may disproportionately impact species of flight. The potential environmental impacts, both direct and indirect, of the proposed action are significant enough both in scale and in terms of their ecologically-sensitive locations, to merit a regional Environmental Impact Statement with alternatives that include various tower array locations and configurations. The minimalist approach DHS has taken, to conduct piecemeal EAs with FONSIs on projects to build extensive mileages of border walls vehicle barriers, patrol and access roads, and surveillance towers is unacceptable and is not only in violation of NEPA, it has undermined DHS'/CBP's own ability to comprehend the full magnitude and nature of its numerous actions upon the human environment.

We urge a formal Section 7 Consultation be initiated to assess, minimize and offset impacts to all of the threatened and endangered species that will potentially be impacted. Many of the conservation/mitigation measures identified in the DEA appear to be salient. However, formal consultation with the USFWS will likely identify other important measures that have not yet been considered in the DEA.

Surveillance infrastructure comes with its own set of potential impacts, both direct and indirect, which must be properly assessed and mitigated for. We continue to see the potential for remote surveillance towers to capture information identifying wildlife of conservation concern. This potential benefit to science and wildlife conservation was not addressed in the DEA. We hope that if detected, such information will be shared with wildlife management agencies, researchers and concerned non-governmental organizations. Such information is valuable in building our collective understanding of the occurrence, distribution and movements of wildlife in the remote borderlands region.

Sincerely,

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October 9, 2009

(2310)

Mr. David C. Guzewich
Director, Environmental Planning and Real Estate Center
Facilities Management and Engineering
Border Patrol Program Management Office
1300 Pennsylvania Avenue, NW, Room 7.2C
Washington, DC 20229

Subject: **Draft Environmental Assessment for the Proposed SBI*net* Ajo-1 Tower Project, September 2009**

The National Park Service (NPS) has reviewed the Department of Homeland Security's Draft Environmental Assessment for the proposed SBI*net* Ajo-1 Tower Project and respectfully submits the comments below, organized by subject.

Indirect benefits of enhanced detection – The NPS recognizes that it is the intent of Customs and Border Protection (CBP) to strive to minimize and reduce the level of cross border violators (CBV) and corresponding CBP off-road vehicle use in wilderness, in part by leveraging the tactical advantage of enhanced CBV detection capabilities of the proposed action and by planning for and using wilderness-friendly interdiction techniques when appropriate. The analysis repeatedly calls out indirect benefits that would result from enhanced detection capabilities associated with the proposed action. The analysis does not, however, quantify the extent to which CBV traffic and CBP traffic can reasonably be expected to be reduced. The NPS requests such a quantitative discussion that describes the anticipated reduction in off-road travel and the time frame in which these reductions are expected.

The NPS also recognizes the need for a monitoring strategy to assess whether anticipated benefits to resources do, in fact, occur following project implementation. The NPS encourages CBP to participate in the development and implementation of such a strategy. Similarly, the NPS encourages CBP to set a timeline for developing and implementing standard operating procedures (SOP) for agents operating in wilderness that will help to accomplish the important project objective of resource benefits.

Engineering study – The analysis relies heavily on the assertion that the proposed engineering study will be completed and will yield mitigation measures that will be implemented. The NPS requests that the analysis more fully disclose the impacts that will occur in the intervening time between Ajo-1 Tower Project initiation and the completion of anticipated future road upgrades. The NPS also requests that CBP develop a plan and schedule for road upgrades so that it can understand when impacts from road-related activities and use will be reduced.

Wilderness – The analysis of the wilderness resource examines impacts to views from designated wilderness but does not account for impacts on other wilderness characteristics defined by the Wilderness Act, such as opportunities to experience solitude, unconfined recreation, and naturalness. The NPS requests that the analysis discuss the impacts of the project, including both the presence of the towers and their monitoring functions, on such wilderness characteristics.

Soils and Geology – The analysis describes impacts to 18.8 acres of soils but fails to indicate that the project will consist of numerous linear road features distributed over a large geographic area with impacts that will be different and more difficult to mitigate than those on a single site. The NPS requests that the analysis be modified to reflect this fact.

The NPS requests that the document be modified to indicate that described erosion hazard classifications are for *undisturbed* soils and that BMPs will not be sufficient to mitigate impacts of the access route to Tower TCA-AJO-310.

The NPS requests that the document indicate that erosion, once triggered on Antho, Gilman, and Laveen soils, would progress for many decades.

Foodplains – The document states that road construction or improvements will cross 69 washes. The NPS requests that the analysis more clearly describe the impacts to these drainages and floodplains.

The NPS requests that the analysis specifically discuss the impacts of Tower TCA-AJO-310 on floodplains. The southern section of the access route passes through soils that are susceptible to erosion and there are signs of floodplain instability from current and previous disturbances.

Cumulative impacts – The NPS requests that the impacts of past, present, and reasonably foreseeable future expansions of CBP agents working in the project area be more explicitly accounted for in the cumulative impacts analysis. The NPS requests that the cumulative impacts analysis more thoroughly discuss the impacts of off-road and on-road CBP traffic on NPS resources including soils, hydrology, vegetation, wildlife and wildlife habitat, floodplains, and cultural resources.

The NPS requests that the cumulative impacts analysis be expanded to include discussion of cumulative impacts on wilderness and hydrology, as these topics are not addressed in the cumulative impacts section of the document.

If you have any questions regarding the above comments or require clarification, please contact Thomas Flanagan of my staff at (303) 969-2691.

/s/ Tammy Whittington

Cc: NPS - ORPI (Baiza, Sturm)
NPS EQD (Flanagan)
NPS IMR (Snyder, Joss, Girard)
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