



ENVIRONMENTAL STEWARDSHIP SUMMARY REPORT
OF THE CONSTRUCTION, OPERATION, AND MAINTENANCE
OF TACTICAL INFRASTRUCTURE
PEDESTRIAN FENCE SEGMENTS BV-1, B-2, B-4, B-5A, AND B-5B
U.S. Border Patrol El Centro Sector,
California

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



July 2012

**ENVIRONMENTAL STEWARDSHIP SUMMARY REPORT
OF THE CONSTRUCTION, OPERATION, AND MAINTENANCE
OF TACTICAL INFRASTRUCTURE
PEDESTRIAN FENCE SEGMENTS BV-1, B-2, B-4, B-5A, AND B-5B
U.S. BORDER PATROL EL CENTRO SECTOR,
CALIFORNIA**

July 2012

Lead Agency: Department of Homeland Security
U.S. Customs & Border Protection
Office of Finance, Asset Management
1300 Pennsylvania Ave NW
Washington, DC 20229

Point of Contact: Loren Flossman
Director
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
Facilities Management & Engineering
1301 Constitution Ave NW
EPA West, Suite B-155
Washington, DC 20229

EXECUTIVE SUMMARY

U.S. Customs and Border Protection (CBP), Secure Border Initiative (SBI) built tactical infrastructure (TI) for the U.S. Border Patrol (USBP), El Centro Sector. USBP uses the term TI for the physical structures that facilitate enforcement activities; these items typically include roads, vehicle and pedestrian fences, lights, gates, and boat ramps. TI to be built under SBI's Pedestrian Fence 225 (PF 225) Program within the El Centro Sector encompasses five segments designated as BV-1, B-2, B-4, B-5A, and B-5B. TI consisted of three segments of primary pedestrian fence, lighting, and access roads (B-2, B-4, and B-5A); one segment of primary pedestrian fence and access roads (B-5B); and one segment of primary vehicle fence and access roads (BV-1). The BV-1 segment (previously designated as B-1) was originally planned as a PF 225 project, but was later changed to a vehicle fence (VF) project; however, this Environmental Stewardship Summary Report (ESSR) for the El Centro Sector PF 225 covers the BV-1 segment as well. All five segments are along the U.S./Mexico border near Calexico in Imperial County, California. A total of 44.6 miles of primary pedestrian and vehicle fence were originally planned to be built within these five segments; however, 44.97 miles were installed.

The purpose of this report is to provide a comprehensive summary of the installation of TI and assess the final design and footprint of the TI. This ESSR compares the final completed action with the originally planned installation of TI, as proposed in the May 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure, U.S. Border Patrol El Centro Sector, California*. BV-1, B-2, B-4, B-5A, and B-5B were built between July 2008 and February 2009.

CBP provided an environmental monitor during construction activities, who documented adherence to best management practices (BMPs). Any deviations from the BMPs and required corrections were noted in weekly monitoring reports and on a BMP tracking spreadsheet. The most common BMP infractions in the El Centro Sector included off-road vehicle activity, parking in undesignated areas, and accessing infrastructures by utilizing non-designated roads. Most BMP infractions involving off-road driving activity and temporary disturbances outside the project corridor did not require revegetation efforts, because little to no native vegetation was removed during these events. The exception to this was an access road cleared through dense vegetation in B-4. At the close of construction activities, most BMP infractions had been resolved either directly or indirectly. Caps have not been installed on top of all bollards, but were reported by CBP to have been installed after the final surveys. No known impacts on federally listed species were documented as resulting from the infractions. Furthermore, no additional impacts on cultural resources were noted.

After completion of the Environmental Stewardship Plan (ESP), changes were made to the alignment, design, or construction methods to facilitate construction, reduce costs or potential impacts, respond to stakeholder requests, or enhance the efficacy of the fence for enforcement purposes. These changes were reviewed and approved through CBP Headquarters, and documented in change request (CR) forms. This report also summarizes any significant modifications during construction that increased or reduced environmental impacts.

This ESSR was prepared to document the impact areas, compared with the original ESPs and the changes identified in the CR forms, for the following reasons:

1. To compare anticipated to actual impacts, so that a final new baseline is established for future maintenance and repair and any potential future actions.
2. To document success of BMPs and any changes or improvements for the future.
3. To document any changes to the planned location or type of the TI.

CBP consultants surveyed the BV-1, B-2, B-4, B-5A, and B5-B sites to inspect the final project corridor and infrastructure footprints. The survey documented any significant differences between the planned and completed actions. When changes were noted, the surveyors checked the CR forms to see whether the changes had been recorded and approved. A total of nine CRs were approved for the segments; only three had the potential to cause environmental impacts.

The post-construction surveys indicated that the permanent impacts on soils and vegetation decreased by 148 acres from the original estimate of approximately 474 acres in the ESP. The decrease was largely due to reducing the footprint width in the project corridor and access roads. The modifications and their impacts are summarized in Table ES-1 below.

Table ES-1. Summary of Area Impacted by Construction Modifications

Segment/Area	ESP Predicted Impact (acres)	Surveyed Impact (acres)	Difference (acres)
BV-1 Fence and Road	82	44	-38
B-2 Fence and Road	17	4	-13
B-4 Fence and Road	63	74	+11
B-5A Fence and Road	140	94	-46
B-5B Fence and Road	22	13	-9
Total Fence Corridor Impacts	324	229	-95
Access Roads	127*	83	-44
Staging Areas	23*	14	-9
Total Impacts	474	326	-148

*Estimate based on length and width; the actual acreage impacted was not defined in ESP

The ESP evaluated approximately 35 miles of new access road construction for the project with a total impact area of 127 acres. The post-construction survey confirmed that the total length of new access road built was 30.4 miles, with a total impact area of 83 acres. This is a decrease in access road footprint of 44 acres.

The ESP assessed 44.6 miles of new fence, which the ESP anticipated would impact a total of 324 acres of fence corridor. The post-construction survey confirmed that the footprint of the fence corridor affected only 229 acres total for all the segments, a decrease of 95 acres.

The ESP examined the installation of five staging areas: three within the BV-1 segment encompassing 8 acres, a 1-acre site in the B-4 segment, and a 15-acre area within the B-5A segment. No staging areas were planned for segments B-2 and B-5B. The post-construction survey confirmed that 2.86 acres of staging area were used in B-5B and two additional staging areas were used in B-4. However, even with the additional staging areas, the total impact footprint of the staging areas decreased from 23 acres to 14 acres.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
1.0 INTRODUCTION, OUTREACH, AND METHODS	1-1
1.1 PUBLIC AND AGENCY OUTREACH	1-3
1.2 Methods.....	1-3
1.2.1 Environmental Monitoring Process	1-3
1.2.2 Change Request Process	1-4
1.2.3 Post-Construction Survey Methods	1-4
2.0 DESCRIPTION OF THE PLANNED ACTION	2-1
2.1 BV-1 Segment.....	2-1
2.2 B-2 Segment.....	2-3
2.3 B-4 Segment.....	2-3
2.4 B-5A Segment.....	2-3
2.5 B-5B Segment.....	2-3
2.6 Monitoring	2-3
2.7 Change Request Forms	2-8
2.8 Impact Quantities Anticipated in the Environmental Stewardship Plan.....	2-8
3.0 POST-CONSTRUCTION FINDINGS.....	3-1
3.1 Results of Road Measurements.....	3-1
3.1.1 Access Roads	3-1
3.1.1.1 BV-1 Segment.....	3-1
3.1.1.2 B-2 Segment.....	3-1
3.1.1.3 B-4 Segment.....	3-1
3.1.1.4 B-5A Segment.....	3-1
3.1.1.5 B-5B Segment.....	3-7
3.2 Fence and Access Roads.....	3-7
3.2.1 BV-1 Segment.....	3-7
3.2.2 B-2 Segment.....	3-7
3.2.3 B-4 Segment.....	3-7
3.2.4 B-5A Segment.....	3-7
3.2.5 B-5B Segment.....	3-8
3.3 Staging Areas	1
3.3.1 BV-1 Segment.....	3-8
3.3.2 B-2 Segment.....	3-8
3.3.3 B-4 Segment.....	3-8
3.3.4 B-5A Segment.....	3-8
3.3.5 B-5B Segment.....	3-8
3.4 Measured Impact Quantities	3-9
3.4.1 Soils.....	3-9
3.4.2 Vegetation.....	3-9
3.4.3 Cultural Resources	3-9
3.4.4 Wetlands and Waters of the U.S.	3-9

4.0 DISCUSSION 4-1

4.1 Increased Project Footprint 4-1

4.2 Decreased Project Footprint..... 4-1

4.3 Additional Issues..... 4-1

LIST OF FIGURES

Figure 1-1. Vicinity Map 1-2

Figure 2-1. BV-1 Location Map 2-2

Figure 2-2. B-2 Location Map 2-4

Figure 2-3. B-4 Location Map 2-5

Figure 2-4. B-5A Location Map 2-6

Figure 2-5. B-5B Location Map 2-7

Figure 3-1. BV-1 Post-Construction Map 3-2

Figure 3-2. B-2 Post-Construction Map 3-3

Figure 3-3. B-4 Post-Construction Map 3-4

Figure 3-4. B-5A Post-Construction Map 3-5

Figure 3-5. B-5B Post-Construction Map..... 3-6

LIST OF TABLES

Table ES-1. Summary of Area Impacted by Construction Modifications ES-2

Table 2-1. Summary of Approved Change Requests for All Segments..... 2-8

Table 2-2. Anticipated Resource Impacts 2-9

Table 3-1. Total Area of Permanently Impacted Soils Resulting from the Installation of Tactical Infrastructure 3-9

LIST OF PHOTOGRAPHS

Photograph 3-1. VF-2 Fence..... 3-7

Photograph 3-2. P-2 Fence Style 3-7

Photograph 3-3. PV-4 Fence Type..... 3-8

SECTION 1.0
INTRODUCTION, OUTREACH, AND METHODS



1.0 INTRODUCTION, OUTREACH, AND METHODS

As part of an effort to document the installation of tactical infrastructure (TI) under the Pedestrian Fence 225 (PF 225) program, this Environmental Stewardship Summary Report (ESSR) presents a final assessment of the construction actions. It compares the final results of the construction project with the planned action proposed in the May 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure, U.S. Border Patrol El Centro Sector, California*.

A Biological Resources Plan (BRP) was prepared to identify the presence of sensitive biological resources, particularly federally protected species, and potential impacts on these resources. The BRP was provided to affected resource agencies and land managers for review and appended, where appropriate, to the Environmental Stewardship Plan (ESP). The ESP was published on the U.S. Custom and Border Protection (CBP) website, www.borderfenceplanning.com, which was subsequently changed to http://cbp.gov/xp/cgov/border_security/ti/ti_docs/sector/el_centro/.

Information in this report was compiled from an environmental monitoring report, and approved modifications were made during construction and based on a post-construction survey of the project corridor. This ESSR compares anticipated impacts described and assessed by the ESP to actual impacts after construction occurring in five segments, designated as BV-1, B-2, B-4, B-5A, and B5-B (Figure 1-1). TI consisted of three segments of primary pedestrian fence, lighting, and access roads (B-2, B-4, and B-5A); one segment of primary pedestrian fence and access roads (B-5B); and one segment of primary vehicle fence (VF) and access roads (BV-1). The BV-1 segment (previously designated as B-1) was originally planned as a PF 225 project, but was later changed to a VF project; however, this ESSR for the El Centro Sector PF 225 covers BV-1 as well.

Before installing TI, CBP performed an environmental review of the fencing projects and published the results in multiple ESPs, including mitigation and best management practices (BMP) developed to minimize adverse effects on the environment. These ESPs were drafted for each TI segment under the waiver. Some ESPs addressed specific TI segments, while others, such as the ESP for the El Centro Sector, addressed all of the PF 225 segments planned for the El Centro Sector in a single document. Professional biologists and archaeologists conducted field surveys of all project corridors during the planning process before construction. The results of the surveys were provided to the affected resources agencies, such as the U.S. Fish and Wildlife Service [USFWS] and State Historic Preservation Office, for review and comment. Conservation measures and other BMPs identified in the ESP were made part of the request for proposals (RFP) issued to commercial construction contractors and were also incorporated into the contract upon award.

This ESSR was prepared to document the impact areas, and compared with the original ESPs, and the changes were identified in the CR forms, for the following reasons:

1. To compare anticipated to actual impacts, so that a final new baseline is established for future maintenance and repair and any potential future actions.

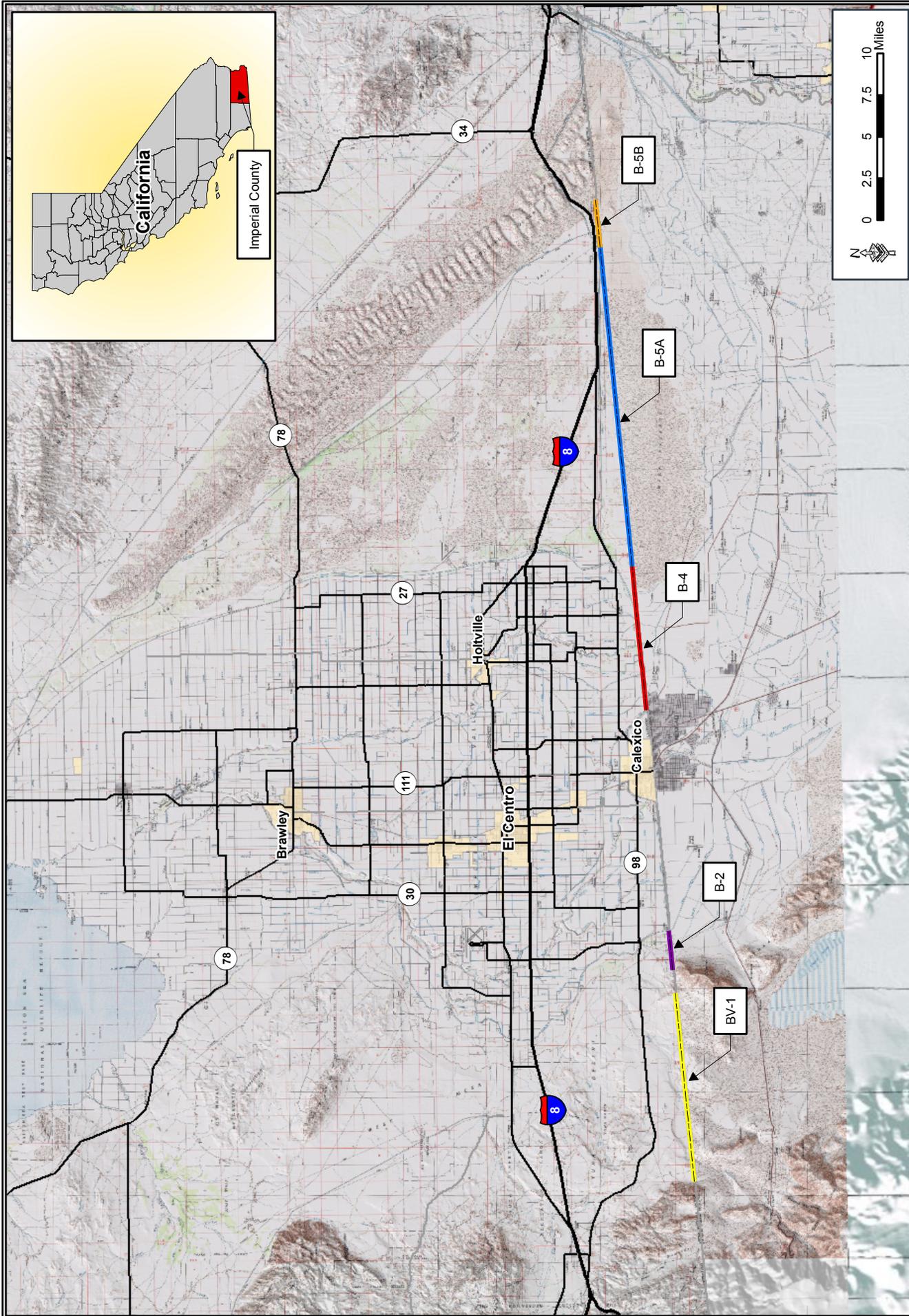


Figure 1-1: Vicinity Map

2. To document success of BMPs and any changes or improvements for the future.
3. To document any changes to the planned location or type of the TI.

1.1 PUBLIC AND AGENCY OUTREACH

Before developing the ESP, CBP prepared an environmental assessment (EA), mailed copies to interested parties, posted it on a public website, and announced a 30-day public review and comment period. A public open house was advertised and held at the Imperial Valley Expo in Imperial, California, on January 9, 2008. The open house was attended by four people.

After the Secretary of Homeland Security waived compliance with certain environmental laws and requirements in April 2008, CBP reviewed, considered, and incorporated comments on the draft EA received from the public and other Federal, state, and local agencies, as appropriate, while preparing the ESP. Results of public and agency coordination efforts for the draft EA were addressed and incorporated into the ESP and posted for the public.

In addition to the past public involvement and outreach program, CBP continued to coordinate with various Federal and state agencies while developing the ESP and during construction. Those agencies include but are not limited to the following:

U.S. Section, International Boundary and Water Commission (USIBWC) - CBP coordinated with USIBWC to ensure that any construction along the international border did not adversely affect international boundary monuments or substantially impede floodwater conveyance within international drainages.

U.S. Army Corps of Engineers (USACE), Los Angeles District - CBP coordinated all activities with USACE to identify potential jurisdictional Waters of the U.S. (WUS), including wetlands, and to develop measures to avoid, minimize, or compensate for losses to these resources.

U.S. Fish and Wildlife Service (USFWS) - CBP coordinated with USFWS to identify listed species that could inhabit the project area, identify potential effects on listed species, and develop BMPs.

U.S. Department of the Interior (DOI) - CBP coordinated with the U.S. Bureau of Land Management (BLM) and U.S. Bureau of Reclamation (Reclamation), since portions of the planned section were located within BLM's Algodones Dunes Recreation Area and along Reclamation's Salinity Canal.

1.2 METHODS

1.2.1 Environmental Monitoring Process

CBP provided an environmental monitor during construction activity in areas where federally protected species were known or presumed to occur near the project corridor. Duties of the designated environmental monitor included documenting impacts beyond those described in the ESP, advising onsite construction managers regarding implementation of the BMPs and other environmental issues as they arise, and ensuring implementation of the appropriate BMPs.

Environmental monitors recorded observations daily and compiled weekly reports that they submitted to CBP and the USACE. Following completion of construction, a monitoring summary report was compiled.

The designated environmental monitor was to notify the construction manager of any activities that could harm or harass a federally listed species or any other environmental issue that was identified. Upon such notification, the construction manager was to temporarily suspend activities in the vicinity of the federally listed species and notify the contracting officer, the Administrative contracting officer, and the contracting officer's representative of the suspension so that the key USACE personnel could be notified and apprised of the situation for resolution. In addition, CBP notified the USFWS Carlsbad Field Office in the event that any federally listed species were directly impacted during construction activities. CBP maintained open coordination with USFWS during construction to discuss implementation and effectiveness of BMPs to avoid adverse impacts on federally listed species.

1.2.2 Change Request Process

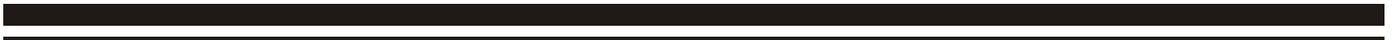
During construction, CBP identified potential modifications that could improve the effectiveness of the TI; reduce construction cost, schedule, or environmental impacts; enhance long-term maintenance requirements; address stakeholder concerns; or reduce risk to U.S. Border Patrol (USBP) agents' health and safety. These changes were reviewed and approved through CBP Headquarters, and documented in change request (CR) forms. Each CR form described the proposed change or modification, justification of the change, anticipated effects to construction costs and schedule, and any other extenuating circumstances that would help to clarify the change. Each proposed change was carefully vetted across CBP to evaluate potential impacts before final CBP Headquarters approval.

1.2.3 Post-Construction Survey Methods

The objective of the post-construction survey was to locate, identify, photograph, and record the installation of the TI, including types of fence and width of access road and project corridor. In addition, the surveys recorded biological communities, wetlands, and other environmental conditions in and adjacent to the project corridor. Surveys also recorded any other observed unusual conditions (such as fence failure, significant erosion, hazardous waste, or construction debris).

Before the field survey, CBP produced maps of the project corridor as described in the ESP. The ESP was reviewed for the description of location and type of fence to be installed, location and width of access and maintenance areas, and location and size of staging areas. Approved CR forms were also produced and used in the field to document approved changes. Surveyors examined the entire BV-1, B-2, B-4, B-5A, and B5-B project corridor and recorded the center line, length, and width of construction and access road alignments using a Trimble Global Positioning System (GPS). Surveyors took periodic GPS coordinates of the temporary and permanent construction footprint, especially when the corridor appeared to be expanded or reduced. They also recorded the perimeter of staging areas using GPS, as well as the start and stop coordinates for various fence types.

SECTION 2.0
DESCRIPTION OF THE PLANNED ACTION



2.0 DESCRIPTION OF THE PLANNED ACTION

The ESP addressed the construction, maintenance, and operation of a total of 44.6 miles of TI in the USBP El Centro Sector along the U.S./Mexico border in Imperial County, California, comprising five different segments designated as BV-1, B-2, B-4, B-5A, and B-5B. The project corridor for all segments is in Imperial County. The BV-1 segment begins west of Pinto and extends approximately 11.3 miles to the east to international border monument 225. The B-2 segment begins near international border monument 225 and extends approximately 2.4 miles east. The B-4 segment begins just east of Calexico and extends east for approximately 8.6 miles. The B-5A segment begins where segment B-4 ends and extends approximately 19.3 miles east. The B-5B segment begins where segment B-5A ends and extends approximately 3.0 miles to the east to international border monument 210. Most of the B-5A and B-5B segments are within the Imperial (Algodones) Sand Dunes Recreation Area, which consists of public lands managed by the BLM. Specific descriptions regarding the TI are presented in the following paragraphs. It should be noted that the ESP did not provide quantifications of access roads or staging areas. However, CBP's Facilities and Infrastructure Tracking Tool (FITT) Geographic Information System (GIS) data files included the location and footprint of these infrastructures. Therefore, the FITT was also used while preparing the ESSR to determine what was planned to be used or built.

Maintenance will include removing any debris accumulated on the fence after rain to avoid potential future flooding. It is anticipated that the Normandy-style fence placed within the washes will sufficiently allow water and debris through during storms. Following storms, the washes will be patrolled for large debris, and the debris will be removed. Normandy-style fence was securely anchored to the bottom and sides of washes. Sand that builds up against the fence and brush near the fence will be removed, as needed. Brush removal could include mowing, removal of small trees, and application of U.S. Environmental Protection Agency (USEPA) and U.S. Department of Agriculture (USDA) approved herbicide, if needed. Any destruction or breaches of the fence will be repaired, as needed. Additionally, access roads will be maintained or potentially upgraded to ensure year-round access for fence maintenance. Access road maintenance activities could include the periodic grading or repairing of eroded areas.

2.1 BV-1 SEGMENT

The analysis presented in the ESP anticipated that the BV-1 TI would include approximately 11.3 miles of primary vehicle fence and access roads within a 60-foot-wide corridor on the Roosevelt Reservation¹ (Figure 2-1). The ESP discussed the possibility of using Normandy type VF (VF-2) within this segment. Seven access roads were planned for this segment. The ESP identified three staging areas and anticipated that they would encompass approximately eight acres. The first two were along access roads, and the third was planned to be near the eastern terminus of the BV-1 segment.

¹ The Roosevelt Reservation is a 60-foot-wide corridor that parallels most of the southwestern land border. It was set aside in 1907 by President Roosevelt as a border enforcement zone. A 2006 Memorandum of Understanding (MOU) among CBP and the U.S. Departments of Agriculture and Interior stipulates that CBP operations and TI construction within the 60-foot Roosevelt Reservation are consistent with its purpose.

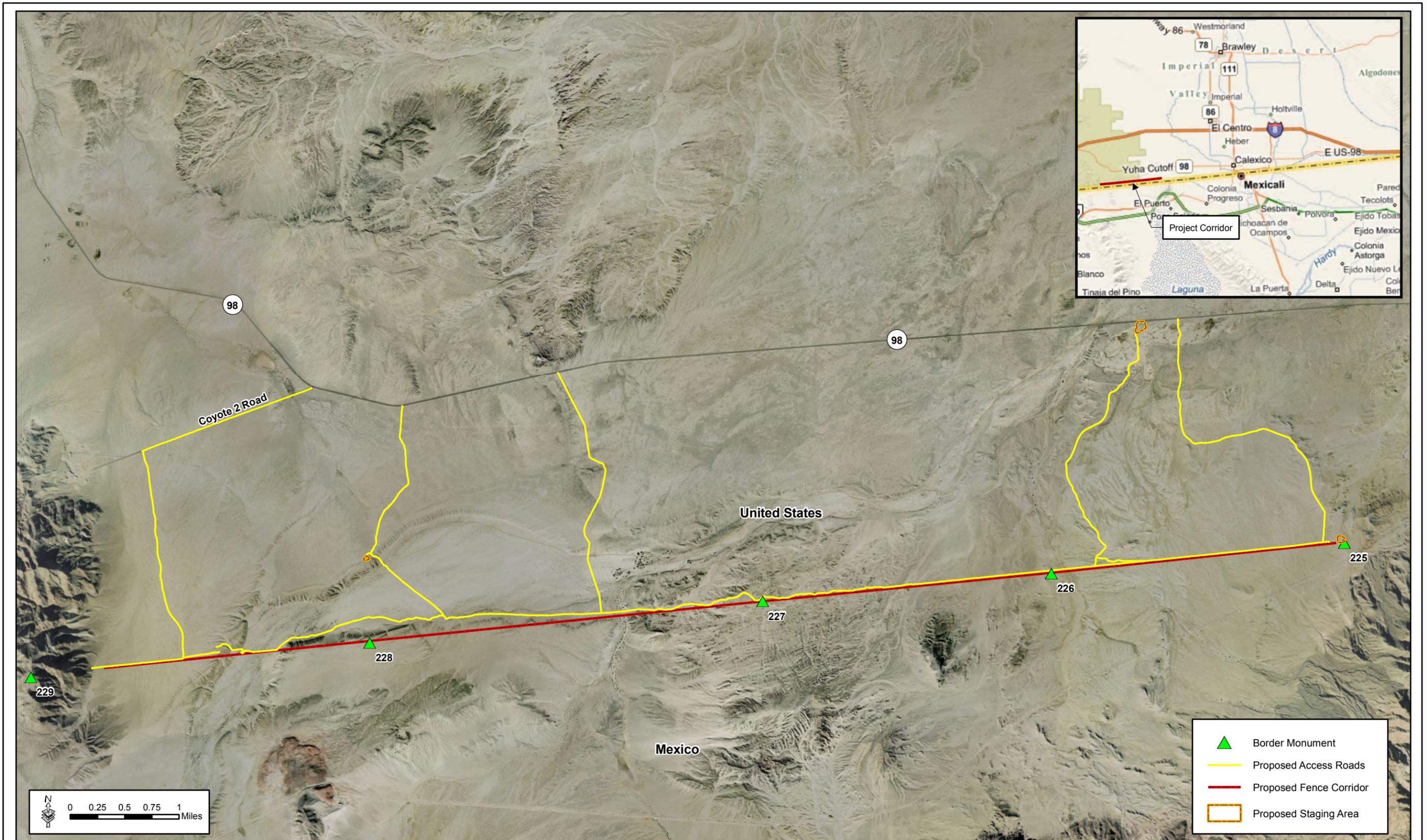


Figure 2-1: BV-1 Location Map

2.2 B-2 SEGMENT

The B-2 project corridor is 2.4 miles long and is west of Calexico on lands managed by the BLM (Figure 2-2). The ESP stated that a primary pedestrian fence (PV-1) would be installed in this segment. It also stated that five access roads were planned and no staging areas would be within the B-2 project corridor.

2.3 B-4 SEGMENT

The B-4 project corridor is 8.6 miles long and is east of Calexico (Figure 2-3). The ESP stated that a primary pedestrian fence (PV-1) would be installed in this segment. Two access roads were planned, one near the eastern end of the corridor and one near the western end. The ESP stated that a 1-acre staging area would be on the west end of the segment corridor.

2.4 B-5A SEGMENT

The B-5A project corridor is approximately 19.3 miles long and is east of Calexico within the Imperial Sand Dunes Recreation Area (Figure 2-4). The ESP stated that a primary pedestrian fence (PV-1) would be installed in this segment. Three access roads were planned. The ESP stated that an approximately 15-acre staging area would be on the east end of the B-5A project corridor. The eastern terminus connects with segment B-5B.

2.5 B-5B SEGMENT

The B-5B project corridor is 3.0 miles long, begins at the eastern terminus of segment B-5A, and ends at monument 210. A portion of B-5B is within the Imperial Sand Dunes Recreation Area. The ESP stated that a primary pedestrian fence of special design for dune conditions (PV-4) would be installed in this segment. No access roads or staging areas were planned for this segment (Figure 2-5). The PV-4 design is a “floating” fence style designed specifically for dune areas. It facilitates maintenance by allowing fence sections to be lifted with a forklift and repositioned on the sand surface whenever sand accumulates along the fence.

2.6 MONITORING

Through the course of construction, unexpected field conditions required practical changes to the planned action during construction. In these situations, CBP conducted the appropriate field surveys to document the potential environmental impacts that these changes could cause. CBP further coordinated with stakeholders to develop BMPs specific to changes required in the construction footprint.

The most common BMP infractions in the El Centro Sector included off-road vehicle activity, parking in undesignated areas, and accessing infrastructures via non-designated roads. Most infractions related to off-road driving and temporary disturbances outside the project corridor, which did not require revegetation efforts because they removed little or no native vegetation. The exception was an access road cleared through dense vegetation in fence segment B-4. No known impacts on federally listed species were documented as a result of the infractions, and

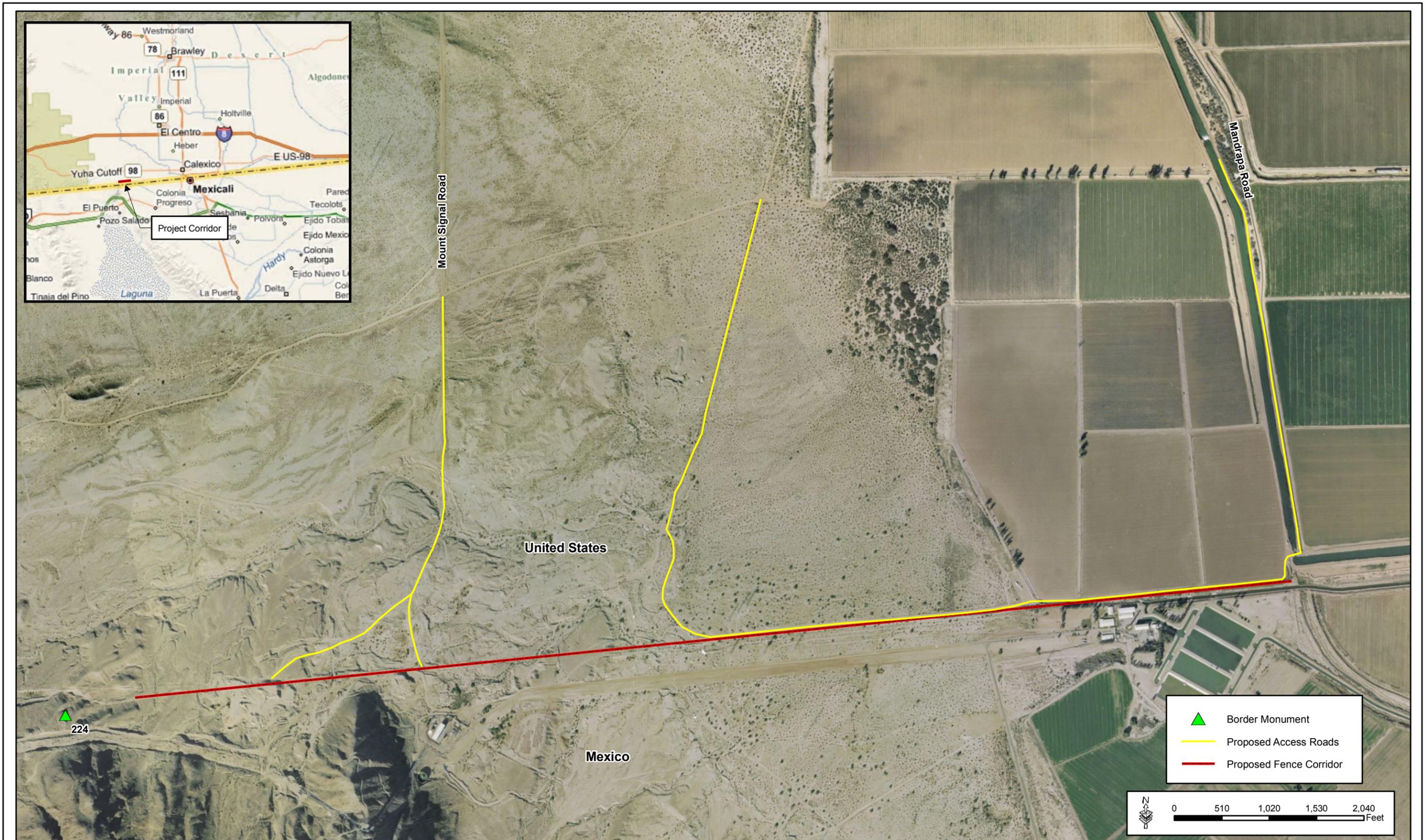


Figure 2-2: B-2 Location Map

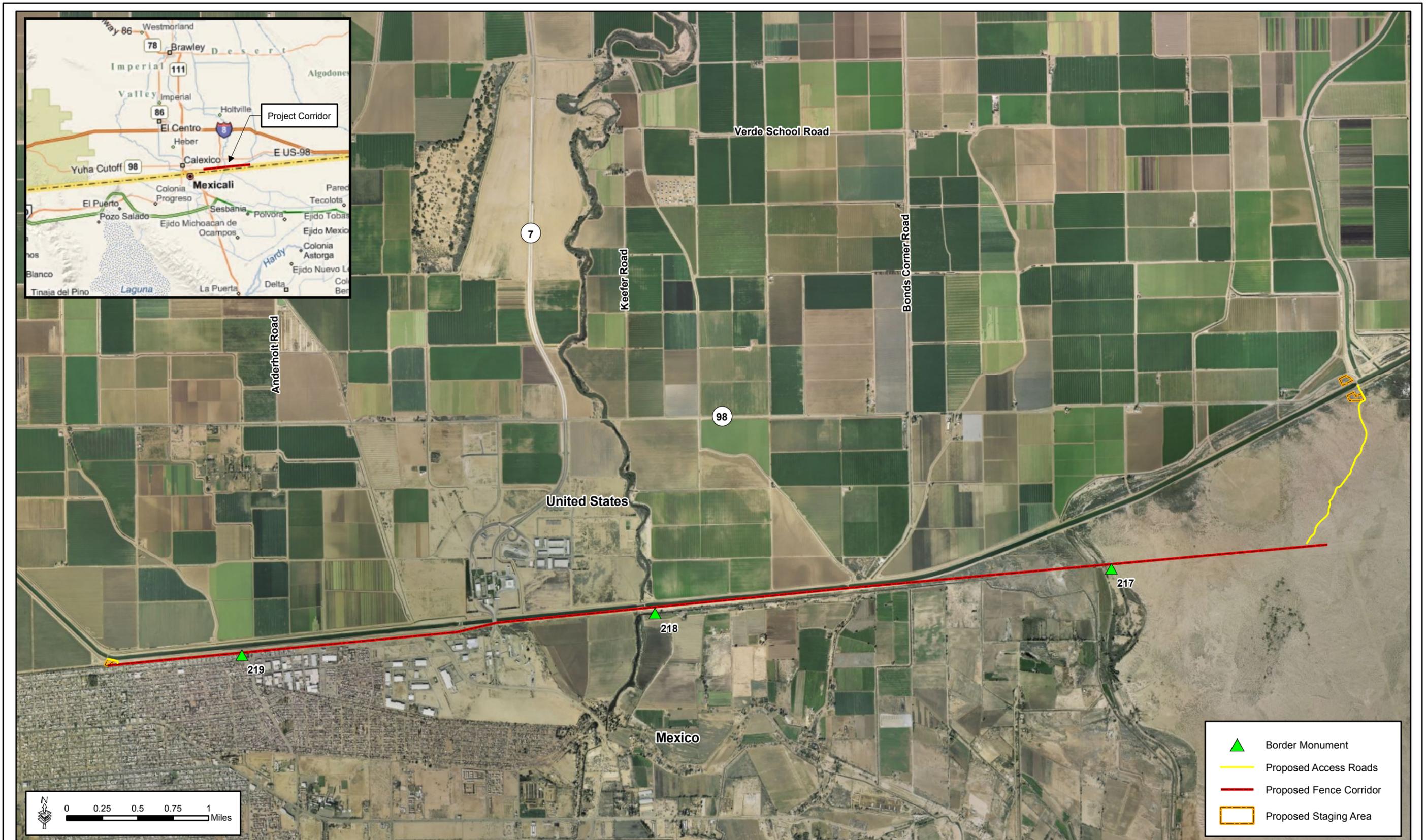


Figure 2-3: B-4 Location Map

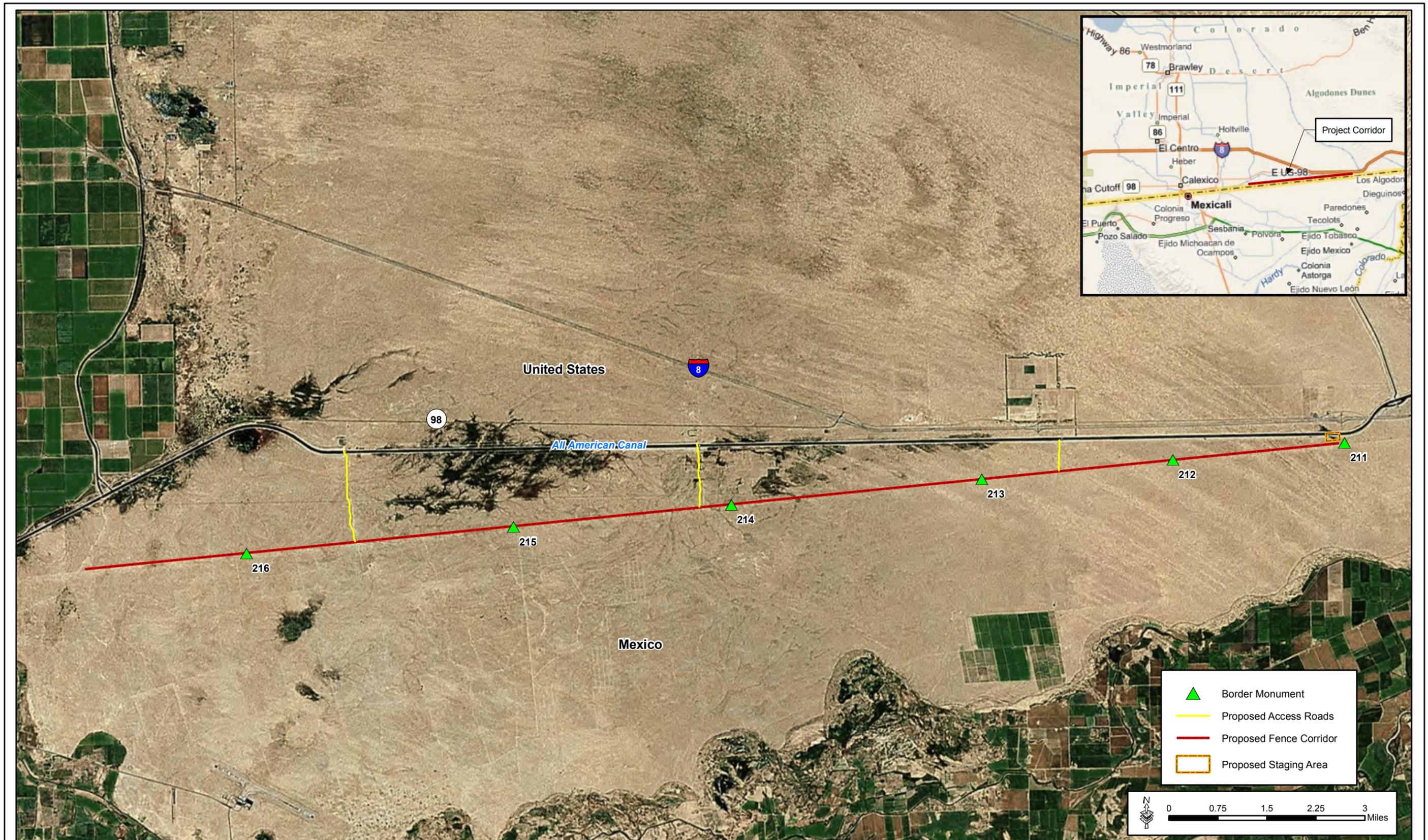


Figure 2-4: B-5A Location Map

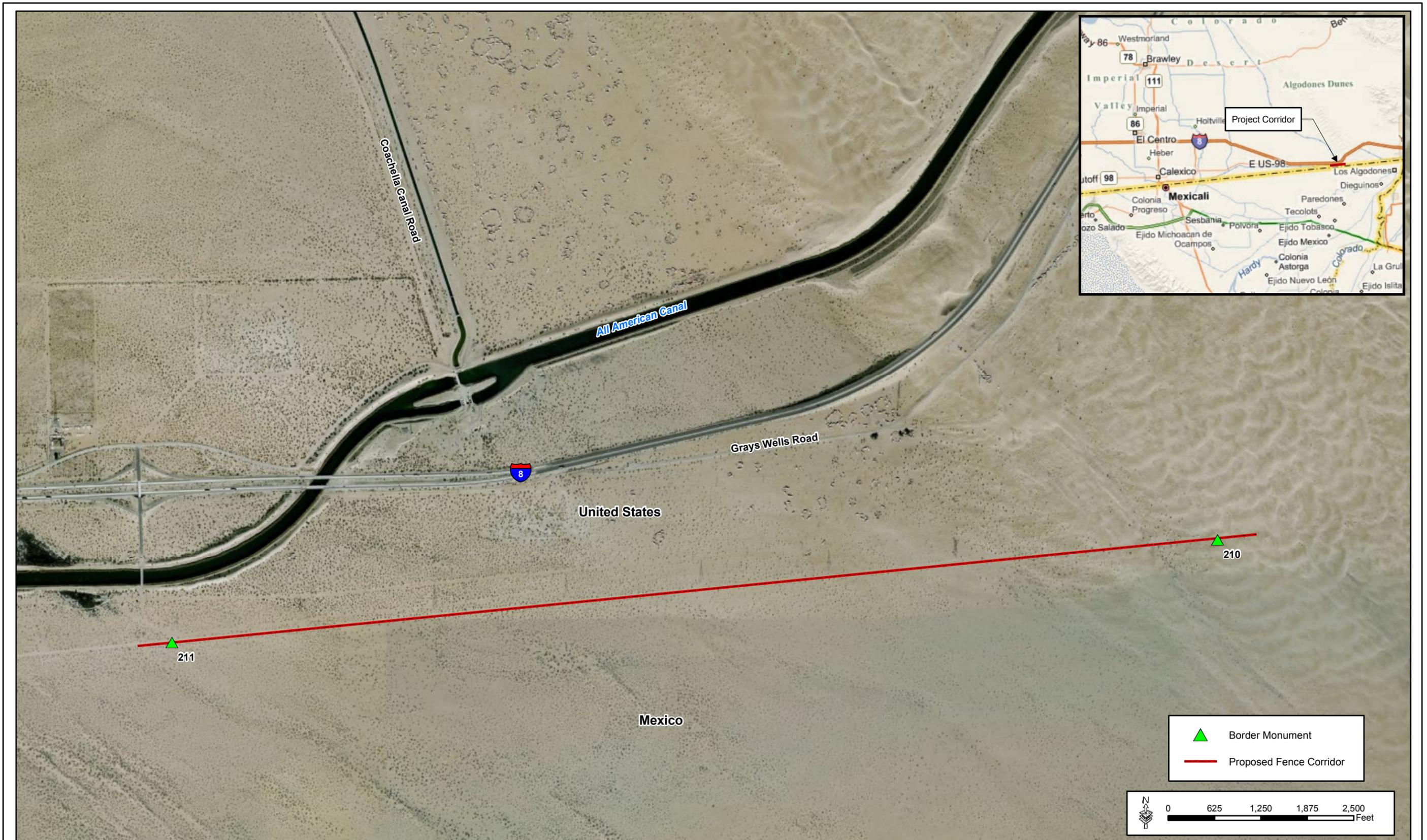


Figure 2-5: B-5B Location Map

there were no predicted or actual impacts on threatened or endangered species or their habitat in the El Centro Sector.

2.7 CHANGE REQUEST FORMS

Nine CR forms were approved during construction. However, only three modifications had the potential to affect the construction footprint and, thus, cause changes in environmental impacts. Table 2-1 summarizes the project modifications determined to have the potential to change the environmental effects anticipated in the project ESP.

Table 2-1. Summary of Approved CRs for All Segments

Approval Date	Summary Description	Potential Environmental Impact
Segments B-2 and B-4		
June 30, 2008	Project mileages have been refined. Based on the plan and profile sheets, the mileages have been calculated. Segment B-2 changed from 8.59 to 8.65 miles. Segment B-4 changed from 2.36 to 2.41 miles.	Increases project footprint
Segment B-5A		
July 23, 2008	Project mileages have been refined. The total mileage for B-5A was increased from 19.16 to 19.27 miles.	Increases project footprint
Segment BV-1		
July 31, 2008	Project mileages have been refined. Existing barriers in BV-1 were planned to be replaced but were later determined to be sufficient. The total mileage for new vehicle fence was changed from 6.41 to 6.46 miles.	Increases project footprint

2.8 IMPACT QUANTITIES ANTICIPATED IN THE ENVIRONMENTAL STEWARDSHIP PLAN

Table 2-2 identifies the pertinent resources that the ESP expected the project to affect. This table is not all-inclusive, as post-construction quantities for some resource impacts (air, noise, socioeconomic) could not be measured.

Table 2-2. Anticipated Resource Impacts

Resource	Impacts*			Comment
	Permanent	Temporary	Total	
Soils	324		324	Prime farmlands and farmland of statewide importance are present in the project area.
Vegetation	17		17	5.3 acres of creosote bush are corridor-wide; 3.4 acres of desert wash vegetation are in segment BV-1; 8.3 acres of active sand dune communities are in segments B-4, B-5A, and B-5B.
Cultural Resources	11 sites; 4 recently discovered resources		11 sites	All the sites are within or adjacent to the Area of Potential Effect. Two previously unknown archaeological resources and two prehistoric isolates were discovered during surveys. None have been evaluated for National Register of Historic Places eligibility.
Wetlands or Other WUS	8.5		8.5	Wetland sites are in segments BV-1, B-2 and B-4.
Wildlife Habitat	5.3		5.3	Widening of border access roads will cause the loss of wildlife habitat.
Threatened and Endangered (T&E) Species	17		17	New boundary roads and access roads will cause the loss of 17 acres of habitat for T&E species.

* Unless otherwise noted, all quantifications are in acres.

SECTION 3.0
POST-CONSTRUCTION FINDINGS



3.0 POST-CONSTRUCTION FINDINGS

This section discusses the results of the post-construction surveys in both qualitative and quantitative terms, by construction activity. It also discusses approved CRs that necessitated any changes in the project as described in the ESP. During large construction projects, it is common for minor differences between field conditions and design drawings to require small modifications. These modifications can result in increases in the length of fence sections or the footprint of roads and staging areas. Changes such as these are expected under typical construction projects. A summary of the impacts on the pertinent resources, based on these post-construction surveys, is presented at the end of this section. Figures 3-1 through 3-5 show the location of TI, post-construction, as well as staging areas and access roads used/built during construction.

3.1 RESULTS OF ROAD MEASUREMENTS

3.1.1 Access Roads

No access road calculations were provided in the ESP; therefore, all lengths and acreages associated with the access roads are obtained from the FITT Geographic Information System (GIS) files.

3.1.1.1 BV-1 Segment

The ESP stated that the BV-1 project corridor would have seven access roads totaling 26.57 miles. The anticipated impact from access roads was approximately 97 acres. Post-construction surveys recorded approximately 20.32 miles of new road built, totaling approximately 54.85 acres. No CR was approved for this reduction.

3.1.1.2 B-2 Segment

The ESP stated that the B-2 project corridor would have five access roads, for a total of 4.15 miles (15 acres). However, post-construction surveys recorded approximately 5.72 miles, with a total impact area of 15.79 acres. No CR was approved for the increase.

3.1.1.3 B-4 Segment

The ESP stated that the B-4 project corridor would have two access roads. These access roads were expected to total 1.38 miles, which would affect approximately 5 acres. However, post-construction surveys recorded approximately 1.28 miles of access road, for a reduction of 0.1 mile. The total impact area was 3.5 acres.

3.1.1.4 B-5A Segment

The ESP stated that the B-5A project corridor would have three access roads totaling 2.85 miles and impacting approximately 10.4 acres. Post-construction surveys recorded approximately 2.89 miles of new road. However, the total area impacted by the access roads was only 8.2 acres, or 2.2 acres less than expected.

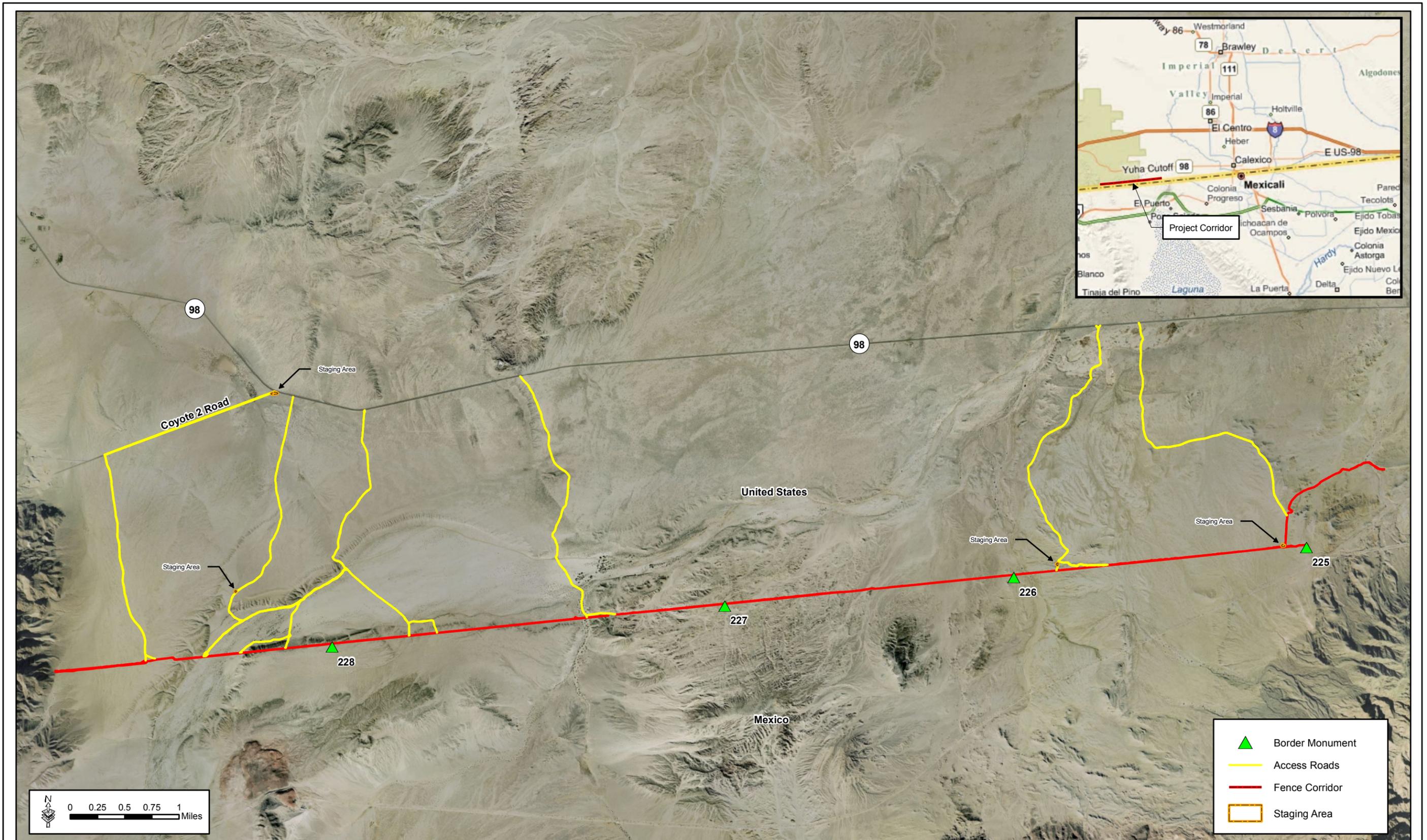


Figure 3-1: BV-1 Post-Construction Map

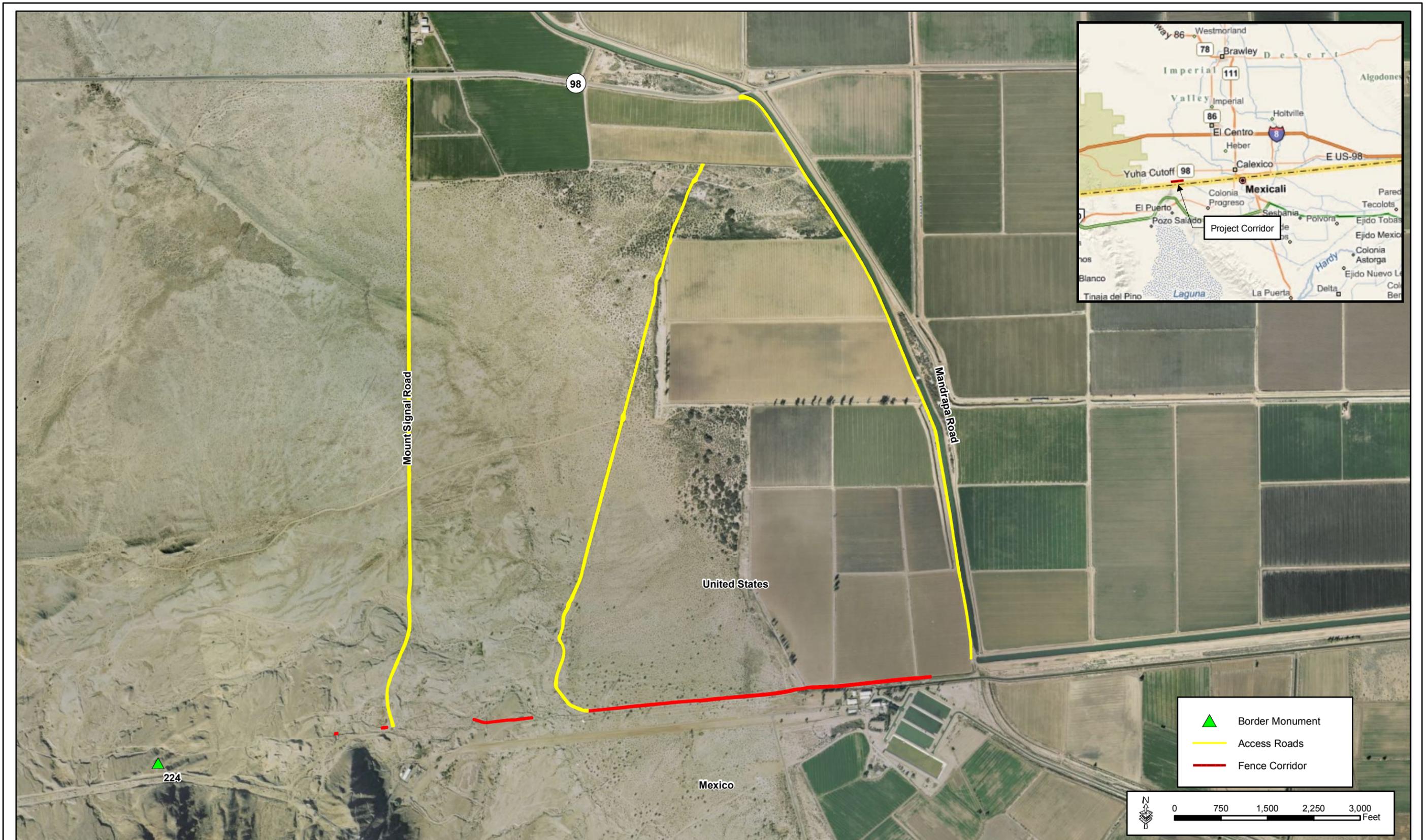


Figure 3-2: B-2 Post-Construction Map

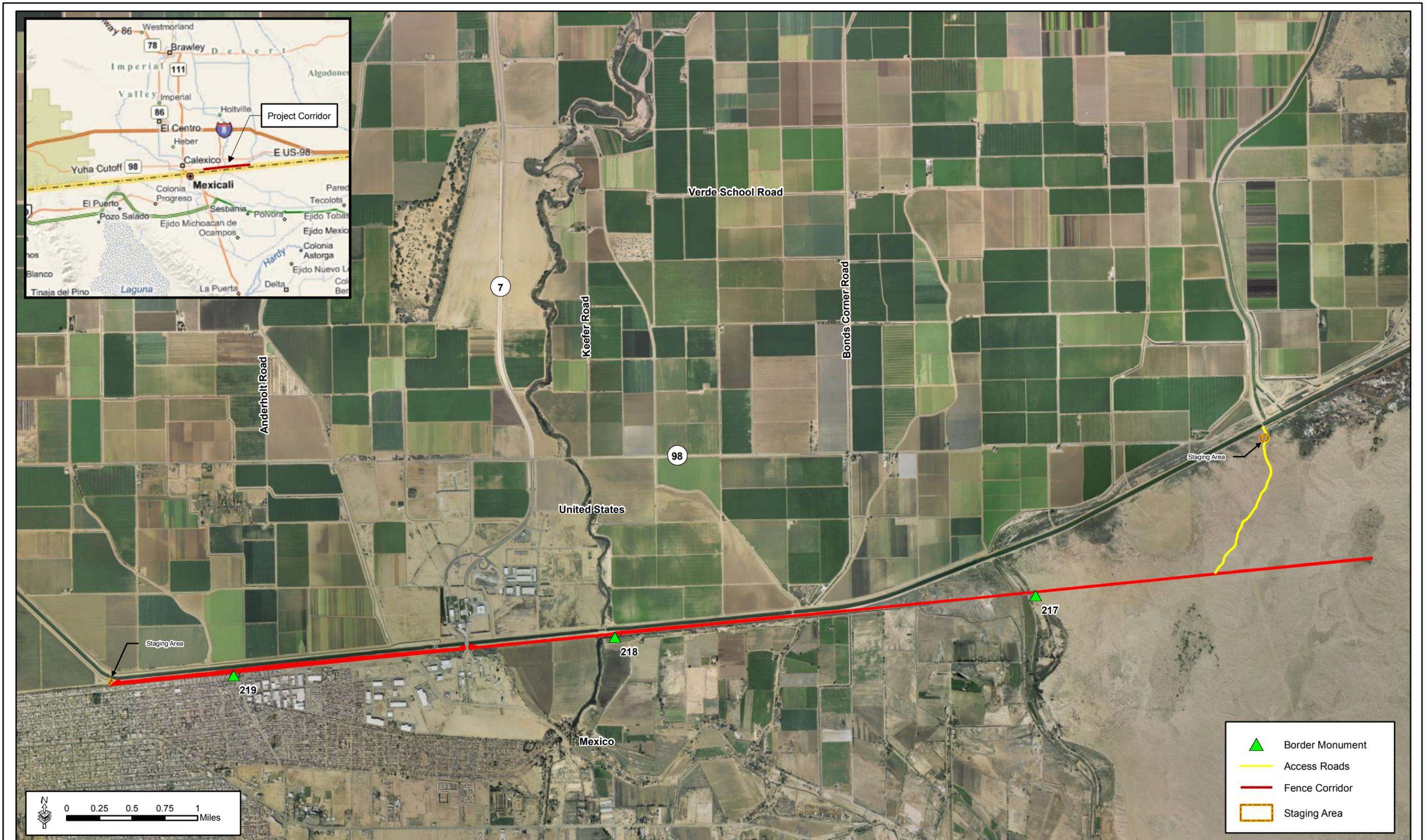


Figure 3-3: B-4 Post-Construction Map

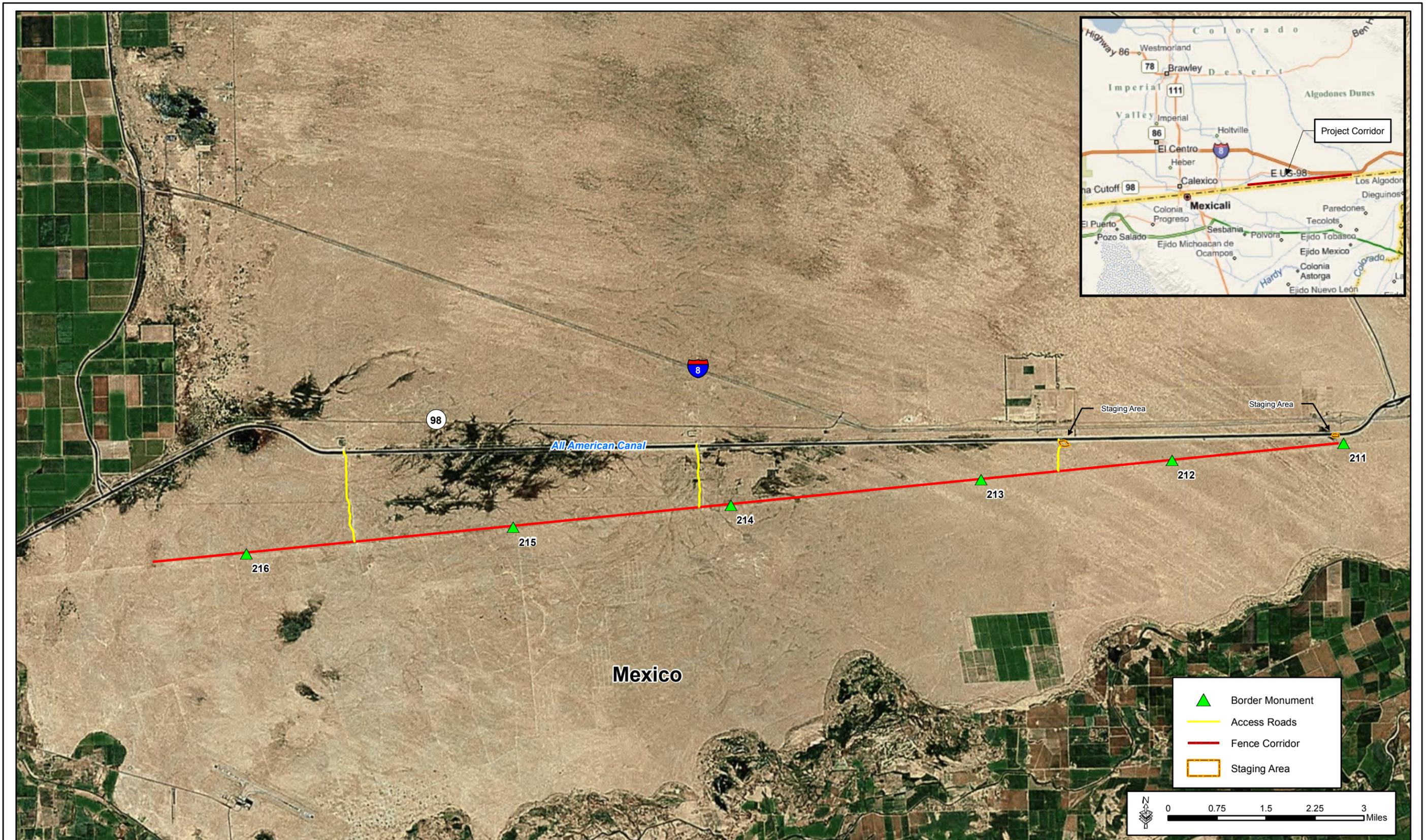


Figure 3-4: B-5A Post-Construction Map

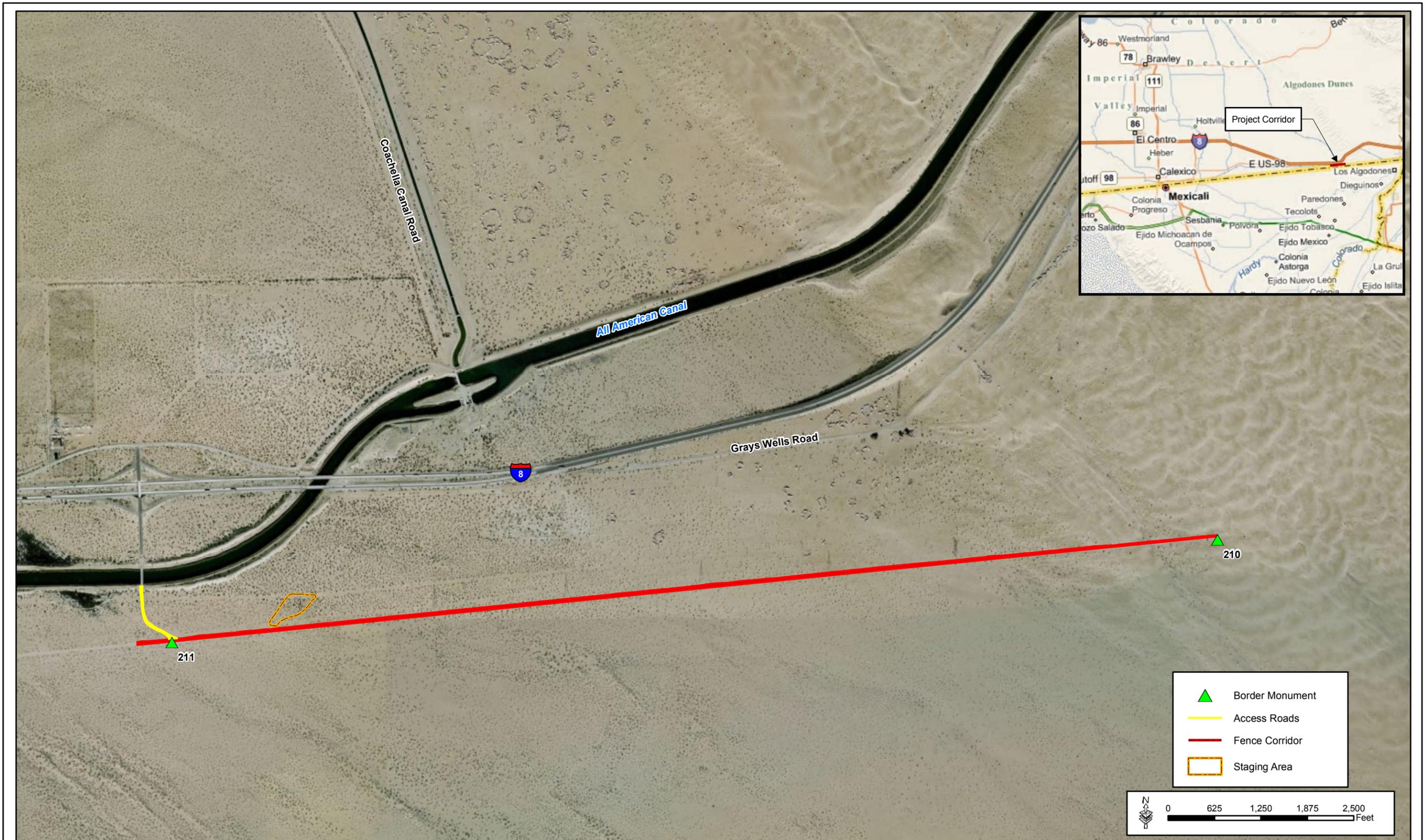


Figure 3-5: B-5B Post-Construction Map

3.1.1.5 B-5B Segment

No new access roads were proposed for the B-5B segment. Post-construction surveys recorded approximately 0.17 mile of new road, with a total impact area of 0.57 acre. No CR was approved for this increase.

3.2 FENCE AND ACCESS ROADS

3.2.1 BV-1 Segment

A post-construction survey reported that the fence and adjacent access road footprint encompassed the 60-foot-wide Roosevelt Reservation, which was the planned footprint delineated in the ESP. The analysis in the ESP anticipated that 11.3 miles of primary vehicle fence (VF-2) would be installed in the BV-1 project corridor. The post-construction survey established that 12.98 miles of VF-2 fence were installed (Photograph 3-1), or approximately 1.7 miles more than the ESP expected. No CR was approved for this increase.



Photograph 3-1. VF-2 Fence

3.2.2 B-2 Segment

The ESP stated that the B-2 segment would have approximately 2.4 miles of primary pedestrian fence (PV-1). A CR was approved to modify segment B-2 from 2.36 miles to 2.41 miles. However, no CR accounted for the change from PV-1 to the VF-2 observed during post-construction surveys. These surveys concluded that 1.27 miles of VF-2 fence (see Photograph 3-1) was sporadically installed (see Figure 3-2), versus the 2.41 miles of planned PV-1. This means that a different type of fence than what was planned in the ESP was installed, as well as approximately 1.1 miles less of fence length.

3.2.3 B-4 Segment

The ESP stated that the B-4 segment would have 8.6 miles of PV-1. A CR was approved to modify segment B-4 from 8.59 miles to 8.65 miles. Because the eastern end of B-4 is in a playa, another CR was approved to install PV-4 floating fence through the playa area instead of PV-1 fence, for a distance of approximately 3,000 feet. The post-construction survey confirmed that 8.65 miles of PV-1 and PV-4 fence were installed.

3.2.4 B-5A Segment

The ESP stated that the B-5A segment would have 19.3 miles of PV-1 installed, although a CR was approved to increase the amount from 19.16 to 19.27 miles. The fence type for B-5A was originally PV-1, but another CR was approved to change it to P-2 (Photograph 3-2), due to increased demand for this fence type for other PV-1 segments. The post-construction survey confirmed that 19.3 miles of PV-1 and P-2 fence were installed. Caps has not been installed on top of all bollards, as of the survey



Photograph 3-2. P-2 Fence Style

conducted for this ESSR. However, CBP reported that the capping was completed by the end of construction.

3.2.5 B-5B Segment

The ESP stated that the B-5B segment would have three miles of PV-4, primary pedestrian fence of special design for dune conditions (Photograph 3-3). The post-construction survey confirmed that 2.77 miles of fence were installed, approximately 0.23 mile less than planned in the ESP.



PHOTOGRAPH 3-3. PV-4 FENCE TYPE

3.3 STAGING AREAS

No staging area calculations were provided in the ESP; therefore, all acreages associated with the staging areas are based upon FITT GIS files.

3.3.1 BV-1 Segment

The ESP stated that the BV-1 project corridor would have three staging areas. One was planned on the east end of the project corridor, and the other two were to be located along access roads. CBP post-construction surveys found that the staging areas had decreased in size from eight acres (identified by GIS data) to 1.2 acres.

3.3.2 B-2 Segment

The ESP proposed no staging areas for the B-2 segment, which the post-construction survey confirmed.

3.3.3 B-4 Segment

The ESP stated that the B-4 project corridor would have one staging area. Based upon GIS data, the staging area would be approximately one acre on the west end of the segment corridor. However, the post-construction survey found that three staging areas were used encompassing a total of 1.68 acres, an increase of 0.68 acre from the ESP. No CR was approved for this increase.

3.3.4 B-5A Segment

The ESP stated that the B-5A project corridor would have one staging area on its eastern end. According to GIS data, the staging area would encompass approximately 15 acres. The post-construction survey found that a staging area was used but that it encompassed only eight acres, a decrease of seven acres.

3.3.5 B-5B Segment

The ESP stated that no staging areas were proposed for the B-5B segment. However, the post-construction survey recorded 2.86 acres of staging area. No CR was approved for this increase.

3.4 MEASURED IMPACT QUANTITIES

3.4.1 Soils

The analysis in the ESP anticipated that the fence corridor would permanently remove 324 acres of soils from biological production and that the access roads and staging areas would remove an additional 150 acres, for a total of 474 acres. However, the permanent impacts on soils decreased by 148 acres from what was expected in the ESP, from 474 acres to 326 acres. Table 3-1 summarizes the change in area of permanent impact from the ESP to the areas measured in the post-construction survey.

Table 3-1. Total Area of Permanently Impacted Soils Resulting from the Installation of Tactical Infrastructure

Segment/Area	ESP Predicted Impact (acres)	Surveyed Impact (acres)	Difference (acres)
BV-1 Fence and Road	82	44	-38
B-2 Fence and Road	17	4	-13
B-4 Fence and Road	63	74	+11
B-5A Fence and Road	140	94	-46
B-5B Fence and Road	22	13	-9
Total Fence Corridor Impacts	324	229	-95
Access Roads	127*	83	-44
Staging Areas	23*	14	-9
Total Impacts	474	326	-148

*Estimate based on length and width; the actual acreage impacted was not defined in ESP

3.4.2 Vegetation

The fence and road construction in the BV-1, B-4, B-5A, and B-5B segments affected approximately 17 acres of habitat, including creosote bush, desert wash vegetation, and active sand dune communities. The ESP noted that roads and staging areas would be sited in previously disturbed areas, but did not specifically identify the vegetation types in the anticipated areas. Therefore, some vegetation might have been impacted by use of or improvements to access roads and staging areas. The monitoring reports did not identify any specific impacts other than the access road cut through dense vegetation as noted in Section 2.6.

3.4.3 Cultural Resources

No new cultural resources were found, and no additional impacts occurred.

3.4.4 Wetlands and Waters of the U.S.

The CBP survey team confirmed that the TI construction did not increase the footprint within the potentially jurisdictional wetland areas beyond what was originally planned (8.5 acres of wetland or other WUS). No other additional wetlands or WUS were identified where the project corridor was modified. Of the 8.5 acres considered potential jurisdictional wetlands, 0.8 acre was in BV-1, 1.08 acres were in B-2, and 6.62 acres were in B-4.

SECTION 4.0
DISCUSSION



4.0 DISCUSSION

4.1 INCREASED PROJECT FOOTPRINT

According to the findings of the post-construction survey, no increases occurred in total project footprint.

4.2 DECREASED PROJECT FOOTPRINT

The permanent impacts on soils decreased by 148 acres, from an original estimate in the ESP of approximately 474 acres (324 acres of fence corridor and 150 acres of staging areas and access roads) to 326 acres determined by the post-construction survey. As Table 3-1 shows, the decrease was largely due to the reduction of the footprint width in the project corridor and the decrease in acres of the staging areas and access roads.

Estimates based on the FITT and descriptions in the ESP indicated 35 miles of new access road construction for the project, with a total estimated impact area of 127 acres. However, the post-construction survey found that the total length of new access road built was 30.4 miles, with a total impact area of 83 acres, a decrease in project footprint of 44 acres.

The ESP expected 44.6 miles of new fence TI and a total of 324 acres of fence corridor impact area. The post-construction survey found that all segments of the fence corridor impacted only 229 acres, a decrease in project footprint of 95 acres.

The ESP anticipated the installation of five staging areas: three within the BV-1 segment encompassing 8 acres, a 1-acre site in B-4, and a 15-acre area in B-5A. No staging areas were planned for segments B-2 and B-5B. The post-construction survey found that 2.86 acres of staging area were used in B-5B, and two additional staging areas were used in segment B-4. However, even with these additions, the total staging area impacts decreased from 23 to 14 acres. Because the ESP did not specifically address staging areas and access road impacts, the post-construction surveys could not confirm vegetation losses, if any.

4.3 ADDITIONAL ISSUES

The post-construction survey identified one additional issue that would require some consideration: the manner in which the floating fence is maintained. As discussed in section 2.5 of this ESSR, the PV-4 fence was designed to be lifted using forklifts, and repositioned on the sand surface whenever sand accumulated along the fence. The post-construction survey team observed holes under the fence, which were reportedly caused by wind. These holes were backfilled with a front-end loader, using sand from within the 60-foot Roosevelt Reservation as borrow material. CBP is implementing a Comprehensive Tactical Infrastructure Maintenance and Repair (CTIMR) program to ensure the TI and related areas are maintained and repaired as needed.