



# ENVIRONMENTAL STEWARDSHIP SUMMARY REPORT

## OF THE CONSTRUCTION, OPERATION, AND MAINTENANCE

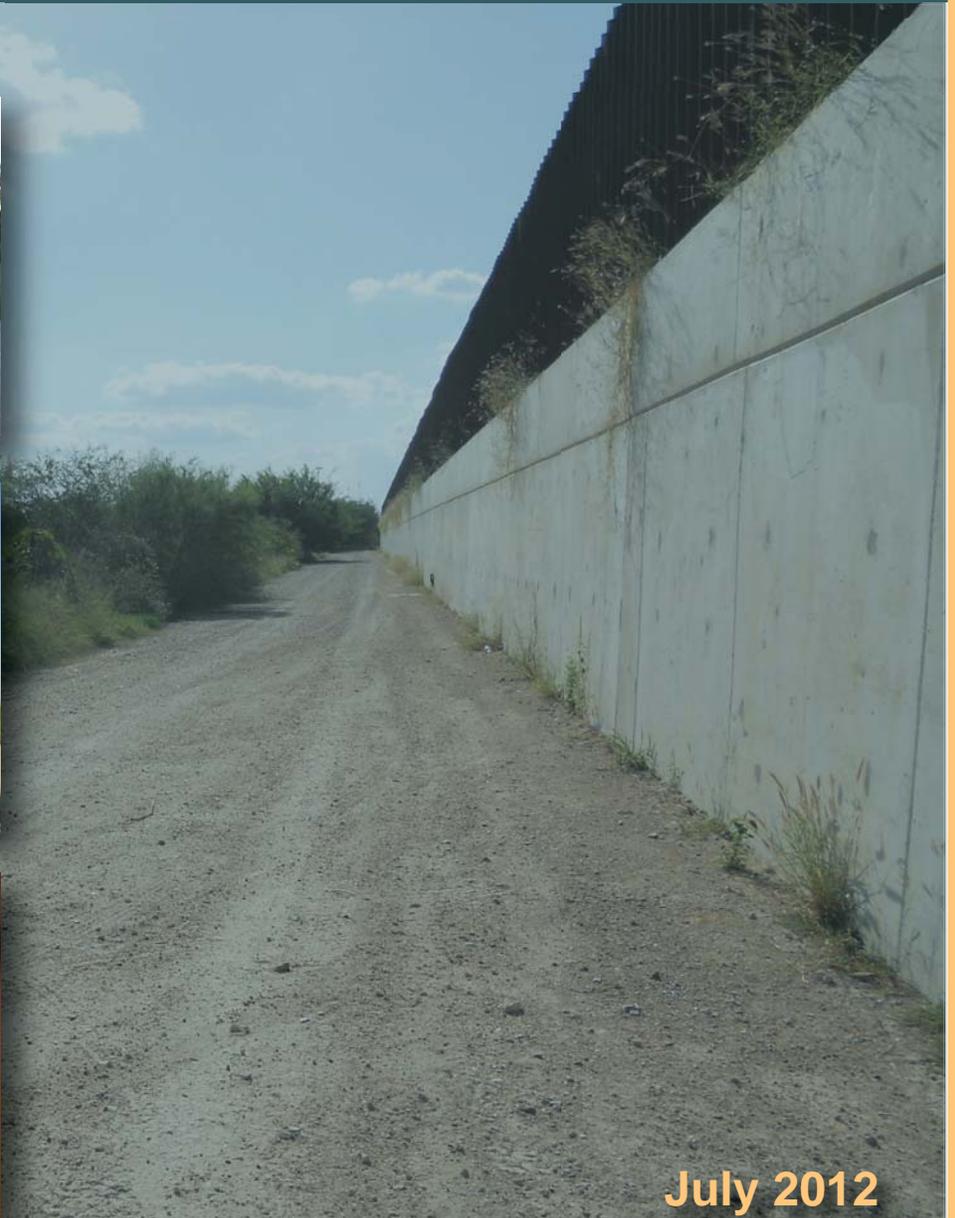
### OF TACTICAL INFRASTRUCTURE

#### PEDESTRIAN FENCE SEGMENTS O-4 THROUGH O-21

#### U.S. Border Patrol Rio Grande Valley Sector,

#### Texas

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



July 2012

**FINAL**

**ENVIRONMENTAL STEWARDSHIP SUMMARY REPORT  
OF THE CONSTRUCTION, OPERATION, AND MAINTENANCE  
OF TACTICAL INFRASTRUCTURE  
PEDESTRIAN FENCE SEGMENTS O-4 THROUGH O-21  
U.S. BORDER PATROL, RIO GRANDE VALLEY SECTOR,  
TEXAS**

**July 2012**

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## EXECUTIVE SUMMARY

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The U.S. Customs and Border Protection (CBP), Secure Border Initiative (SBI) built tactical infrastructure (TI) for the U.S. Border Patrol (USBP), Rio Grande Valley Sector. USBP uses the term TI to describe the physical structures that facilitate enforcement activities; these items typically include, but are not limited to, access roads, vehicle and pedestrian fences, lights, gates, and boat ramps. TI planned under SBI's Pedestrian Fence 225 (PF 225) program within the Rio Grande Valley Sector consisted of pedestrian fence, with adjacent roads, in 21 distinct segments (designated as O-1 through O-21) neighboring the Rio Grande in Starr, Hidalgo, and Cameron counties, Texas. Three segments, O-1, O-2 and O-3, are in Starr County. Segments O-4 through O-10 are in Hidalgo County. The remaining segments, O-11 through O-21, are in Cameron County. At the time of this writing, construction on segments O-1 through O-3 and O-20 had not begun, so this document omits them from evaluation.

The purpose of this report is to provide a comprehensive summary of the installation of TI and assess its final design and footprint. This Environmental Stewardship Summary Report (ESSR) compares the final completed action to the installation of TI originally proposed in the July 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Rio Grande Valley Sector, Texas*. Construction of the various segments began in 2008 and was ongoing as of March 2011.

CBP provided an environmental monitor during construction activity, who documented adherence to best management practices (BMPs). The monitors noted any deviations from the BMPs and required corrections weekly on a BMP tracking spreadsheet. The most common BMP infractions in the Rio Grande Valley Sector included concrete wash outside of designated areas, food-related trash improperly contained, dust control measures not in place when needed, lack of demarcation of work and parking areas, driving outside of designated areas, lack of stormwater pollution prevention plan measures, lack of revegetation efforts, lack of drip pans, and improper storage of petroleum, oils, and lubricants. Most BMP infractions did not require revegetation efforts, because little or no native vegetation was removed during these events. No known impacts on federally listed species were documented as a result of the infractions, and there were no predicted or actual impacts on threatened or endangered species or their habitat in the Rio Grande Valley Sector.

After the completion of the Environmental Stewardship Plan (ESP) in 2008, 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 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 ESP 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 the 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 Rio Grande Valley segments O-4 through O-21 to inspect the final project corridor and infrastructure footprints. The surveys documented any significant differences between the planned action and completed actions. When the survey team observed changes, it consulted the CR forms to see whether the changes were recorded and approved. Approximately 96 CRs were approved for the Rio Grande Valley Sector; however, only 21 of these had the potential to cause environmental impacts.

Post-construction surveys for fence segments in Hidalgo County, O-4 through O-10, and fence segments in Cameron County, Segments O-11 through O-21, determined the actual length of the fence compared with the original length described in the ESP. The post-construction surveys determined the overall length for segments O-4 through O-21 (excluding O-20) to be 49.6 miles. This is 5.8 miles less than the original length of 55.4 miles described in the ESP for these segments.

Segment O-21a was not built at the time of the post-construction survey. When the ESP was written, O-21a was proposed to be a continuous segment within segment O-21, but was simply referred to as the area within O-21 containing Old Brulay (Nye) Plantation buildings. At the time of the post-construction survey, O-21a was under contract and vegetation clearing activities had begun. However, discovery of archaeological resources within the project corridor halted construction.

The ESP did not quantify the impact area for each fence segment; therefore, estimates were made using the corridor width and the length of each fence segment. As described in the ESP, the impact areas for segments O-4 through O-10 were estimated using a 40-foot-wide corridor, and for O-11 through O-21 using a 60-foot-wide corridor. The ESP estimated overall impact to be 368.5 acres. The post-construction survey found the impact area to be 255.3 acres.

Table ES-1 compares the modifications of fence lengths and impact area estimated in the ESP with the post-construction survey. As this table shows, the total fence length decreased by 5.8 miles and the total impact area decreased by 113.2 acres, primarily due to reductions in segments O-9, O-13, O-16, and O-21.

**Table ES-1. Comparison of Predicted and Actual Impacts**

<b>Segment/Area</b>	<b>ESP predicted length (miles)</b>	<b>Surveyed length (miles)</b>	<b>ESP predicted impact area (acres)*</b>	<b>Surveyed impact area (acres)</b>	<b>Difference in area (acres)</b>
O-4	4.4	4.3	21.3	28.6	7.2
O-5	1.8	1.7	8.7	4.7	-4.0
O-6	3.9	4.0	18.9	24.1	5.1
O-7	0.9	0.9	4.4	5.1	0.8
O-8	3.2	3.2	15.5	18.5	2.9
O-9	3.9	3.5	28.4	23.1	-5.2
O-10	2.4	2.3	17.5	12.1	-5.4
O-11	2.3	2.3	16.7	12.5	-4.3
O-12	0.9	0.9	6.5	6.0	-0.5
O-13	1.6	2.5	11.6	9.6	-2.1
O-14	3.6	2.4	26.2	10.9	-15.3
O-15	1.9	2.2	13.8	10.5	-3.3
O-16	3.0	2.0	21.8	9.0	-12.8
O-17	1.6	1.6	11.6	3.7	-7.9
O-18	3.6	3.5	26.2	16.2	-9.9
O-19**	3.4	2.3	24.7	8.2	-16.6
O-21	13.0	12.3	94.5	52.7	-41.9
<b>Total</b>	<b>55.4</b>	<b>49.6</b>	<b>368.5</b>	<b>255.3</b>	<b>-113.2</b>

\* Impact areas for segments O-4 through O-10 were estimated using a 40-foot wide corridor, and for O-11 through O-21 a 60-foot-wide corridor, as defined in the ESP.

\*\* Segment O-19 fence construction was not complete at the time of the post-construction survey; final fence length and area may change the final footprint

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**SECTION 1.0**  
**INTRODUCTION, OUTREACH, AND METHODS**



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## 1.0 INTRODUCTION, OUTREACH, AND METHODS

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As part of an effort to document the installation of tactical infrastructure (TI) completed under the Secure Border Initiative's Pedestrian Fence 225 (PF 225) Program, this Environmental Stewardship Summary Report (ESSR) presents a compilation of the construction actions. It compares the planned action proposed in the July 2008 *Final Environmental Stewardship Plan for the Construction, Operation, and Maintenance of Tactical Infrastructure U.S. Border Patrol Rio Grande Valley Sector, Texas* to the final results of the construction project. U.S. Customs and Border Protection (CBP) prepared a Biological Resources Plan (BRP) to identify the presence of sensitive biological resources, particularly federally protected species, and potential impacts on these resources. It provided the BRP to affected resource agencies and land managers for review. The BRP was appended to the Environmental Stewardship Plan (ESP). The original ESP was made available to the public on the CBP Website, <http://www.borderfenceplanning.com>, which has subsequently been changed to [http://cbp.gov/xp/cgov/border\\_security/ti/ti\\_docs/sector/rgv/](http://cbp.gov/xp/cgov/border_security/ti/ti_docs/sector/rgv/). Information in this ESSR was compiled from approved modifications made during construction and post-construction surveys of the project corridor. The original ESP analyzed anticipated impacts from building segments O-1 through O-21 (Figures 1-1 through 1-3). However, segments O-1, O-2, O-3, O-20, and O-21a have not been built to date, and segment O-19 is not fully complete. Therefore, this ESSR compares anticipated impacts described and assessed by the original ESP with actual impacts after construction occurring in 17 segments, O-4 through O-19 and O-21.

Before installing the TI, CBP performed an environmental review of the fencing projects and published the results of this analysis in a draft Environmental Impact Statement (EIS), including mitigation and best management practices (BMP) for minimizing adverse impacts on the environment. Upon issuance of the April 2008 waiver, the EIS was revised into the ESP. This and other ESPs were drafted for each TI segment under the waiver. Some ESPs addressed specific TI segments, while others, such as the ESP for the Rio Grande Valley Sector, addressed all of the PF 225 segments planned for the 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 for review and comment to the affected resource agencies, such as the U.S. Fish and Wildlife Service (USFWS) and State Historic Preservation Office. Conservation measures and other BMPs identified in the ESP were made part of the request for proposal issued to commercial construction contractors and were also incorporated into the contract upon award.

This ESSR was prepared to document the impact areas ("final footprint"), compared with the original ESP 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.

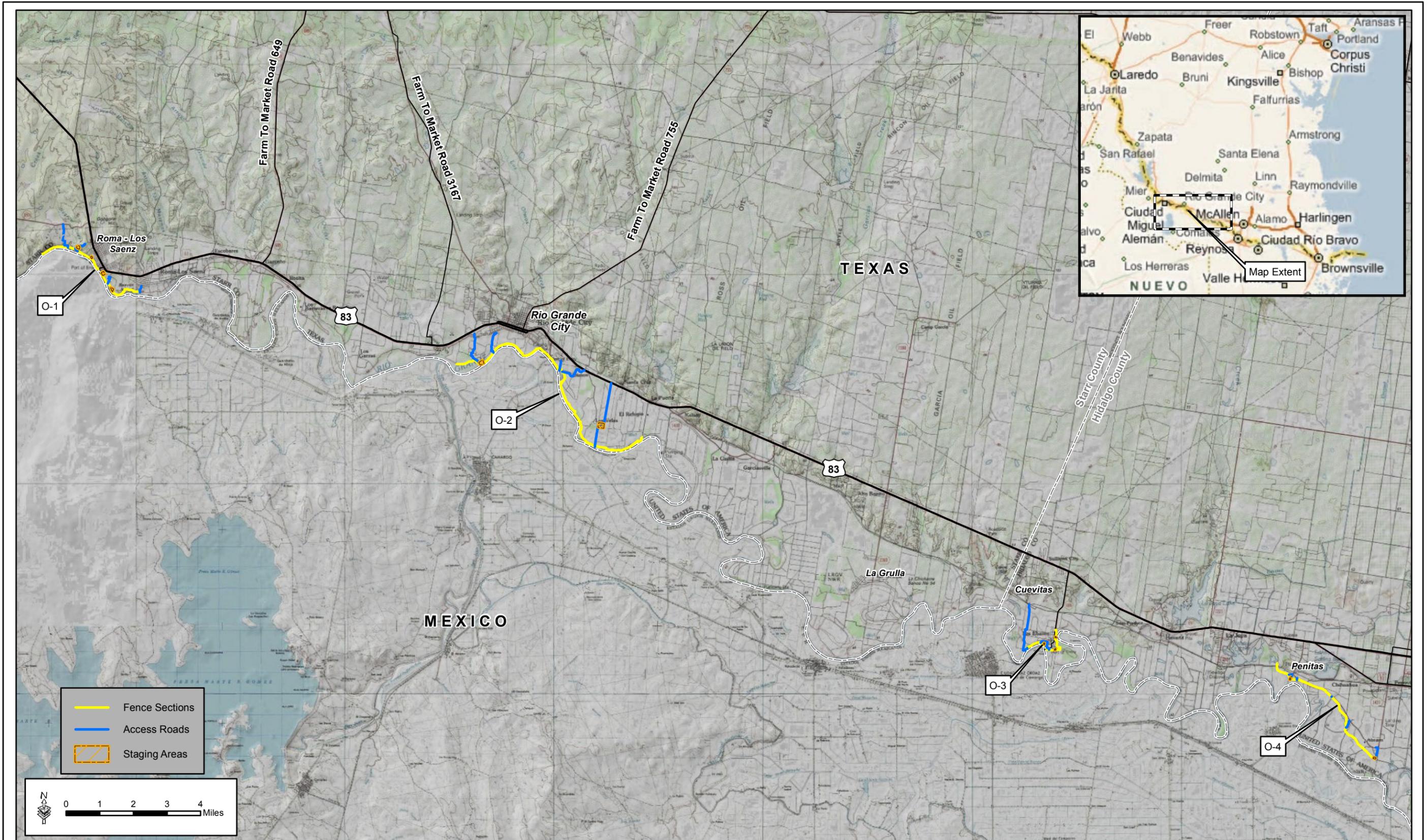


Figure 1-1: Locations of Tactical Infrastructure - Sections O-1 through O-4

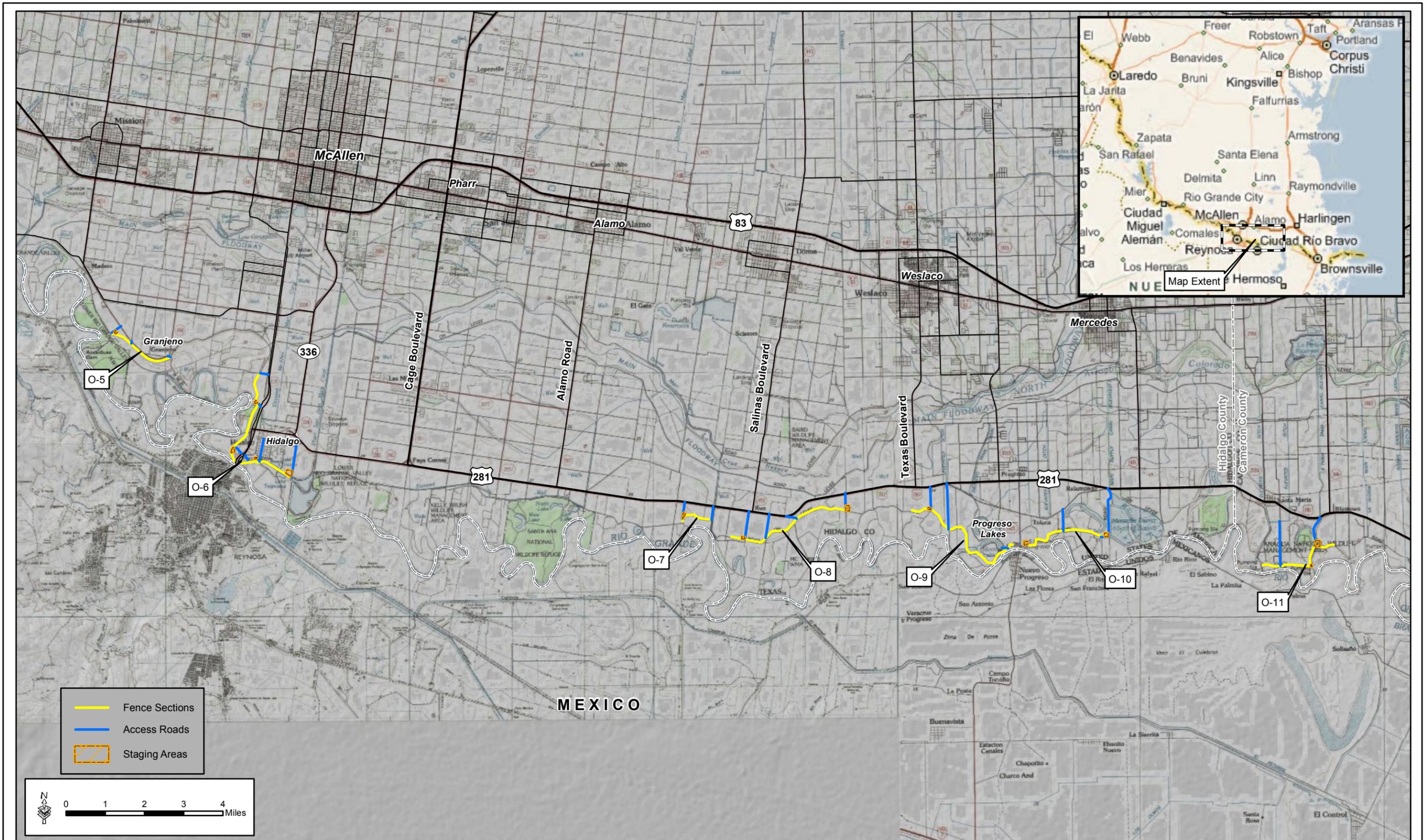


Figure 1-2: Locations of Tactical Infrastructure - Sections O-5 through O-10

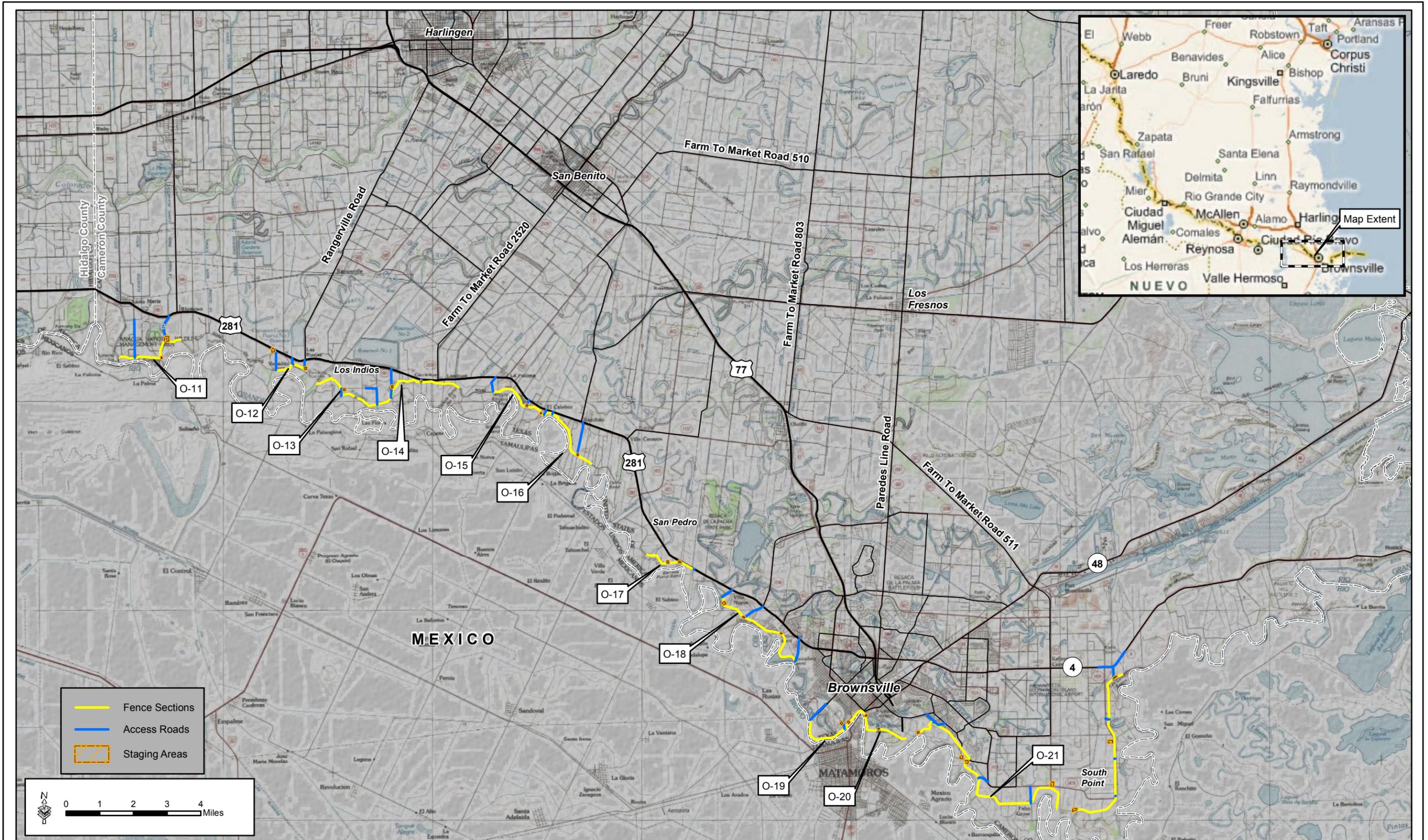


Figure 1-3: Locations of Tactical Infrastructure - Sections O-11 through O-21



## 1.1 PUBLIC AND AGENCY OUTREACH

As mentioned above, before the waiver, CBP prepared an EIS to address the potential effects of the planned action. A Notice of Availability for the draft EIS was published in *The Monitor*, *The Brownsville Herald*, *The Valley Morning Star*, *La Frontera*, and *El Nuevo Herald* on November 16 and 18, and December 5 and 11, 2007, announcing the release of the document for a 45-day public comment period. In addition, public open houses were held at the McAllen Convention Center, the Brownsville Convention Center, and VFW Post 8256 in Rio Grande City on December 11, 12, and 13, 2007, respectively.

After the Secretary of Homeland Security waived compliance with certain environmental laws and requirements in April 2008, CBP reviewed, considered, and incorporated comments from the public and other Federal, state, and local agencies, as appropriate, in preparing the ESP. CBP received numerous public comments on the draft EIS. Its responses to public comments on the draft EIS are available for viewing on the CBP website [http://cbp.gov/xp/cgov/border\\_security/ti/ti\\_docs/sector/rgv/rgv\\_eis/response/](http://cbp.gov/xp/cgov/border_security/ti/ti_docs/sector/rgv/rgv_eis/response/).

In addition to conducting that program for public involvement and outreach, CBP has continued to coordinate with various Federal and state agencies during construction. These 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), Galveston District - CBP coordinated all activities with USACE to identify potential jurisdictional waters of the United States (WUS), including wetlands, and to develop measures to avoid, minimize, or compensate for losses to these resources.

USFWS - CBP has coordinated with USFWS to identify listed species that could occur in the project area and has cooperated with it to prepare a BRP that analyzes potential effects on listed species and BMPs to reduce or offset any adverse impacts.

Texas State Historic Preservation Office - CBP coordinated with the Texas State Historic Preservation Office to identify historic properties listed, or potentially eligible to be listed, on the National Register of Historic Places (NRHP) and to develop measures to avoid, minimize, or compensate for the loss of such resources.

## 1.2 METHODS

### 1.2.1 Environmental Monitoring Process

CBP provided an environmental monitor during construction activity. Duties of the monitor included documenting impacts beyond those anticipated in the ESP, advising on-site construction managers on implementing the BMPs and about other environmental issues as they arose.

Environmental monitors recorded observations daily and compiled them weekly in BMP tracking spreadsheets, which they submitted to CBP and USACE. At the time this ESSR was prepared, the summary report was not yet compiled.

The designated environmental monitor was to notify the construction manager of any activities that could harm or harass a federally listed species or of any other environmental issue 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 apprised of the situation for resolution. In addition, CBP notified the USFWS Corpus Christi Field Office in the event that construction activities directly affected any federally listed species. CBP maintained open coordination with USFWS during construction to discuss implementation and effectiveness of BMPs to avoid adverse impacts on federally listed species. In fact, CBP shared the BMP tracking spreadsheet with USFWS during construction activities via weekly teleconference calls to review BMP infractions.

### **1.2.2 Change Request Process**

During construction, CBP identified potential modifications that would 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. The CR forms described the proposed changes or modifications, justification of the changes, anticipated effects on construction costs and schedule, and any other extenuating circumstances that would help to clarify the changes. Each proposed change was vetted throughout CBP to evaluate potential impacts before final approval by CBP Headquarters.

### **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 infrastructure, including types of fence and width of roads and project corridor. In addition, the survey recorded biological communities, wetlands, and other environmental conditions in and adjacent to the project corridor. Survey teams also recorded any other unusual conditions they observed, 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 locations and type of fence to be installed, the location and width of access and maintenance areas, and the location and size of staging areas. Approved CR forms were also produced and used in the field to document approved changes. Teams surveyed the entire O-4 through O-21 project corridor and recorded the centerline, length, and width of road alignments using a Trimble™ Global Positioning System (GPS). They took periodic GPS coordinates of the temporary and permanent construction footprint, especially when the corridor appeared to be expanded or reduced, and recorded the perimeter of staging areas using GPS.

This report defines a permanent impact as one in which a resource is irretrievably lost; temporary impacts are those lasting less than 1 year beyond completion of the project.

**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 approximately 70.54 miles of TI in the USBP Rio Grande Valley Sector along the U.S./Mexico international border in Starr, Hidalgo, and Cameron counties in Texas, comprising 21 different segments designated as O-1 through O-21.

Descriptions of the planned fence segments that have been built (or are nearing completion) as outlined in the ESP are represented in Table 2-1 below. As outlined in the ESP, the total length of segments O-4 through O-10 is 20.4 miles, and the total length for O-11 through O-21 is 34.9 miles.

**Table 2-1. Description of Planned Fence Segments O-4 through O-21\***

Segment number	Associated USBP station	General location in RGV	Length of primary pedestrian fence segment (miles)	Length of concrete flood protection structure/concrete fence segment (miles)
O-4	McAllen	From Peñitas to Abram	0	4.35
O-5	McAllen	Future Anzalduas POE	0	1.76
O-6	McAllen	Hidalgo POE	0	3.86
O-7	Weslaco	Proposed Donna POE	0	0.9
O-8	Weslaco	Retamal Dam	0	3.2
O-9	Weslaco	West Progreso POE	0	3.87
O-10	Weslaco	East Progreso POE	0	2.43
O-11	Harlingen	Joe's Bar–Nemo Road	2.31	0
O-12	Harlingen	Weaver's Mountain	0.92	0
O-13	Harlingen	West Los Indios POE	1.58	0
O-14	Harlingen	East Los Indios POE	3.59	0
O-15	Harlingen	Triangle–La Paloma	1.93	0
O-16	Harlingen	Ho Chi Minh–Estero	2.97	0
O-17	Brownsville	Mulberry Lane to Riverbend Resort Water Tower ramp	1.61	0
O-18	Brownsville	Fresnos Pump Road to PUB Fence Line (west)	3.58	0
O-19	Brownsville	Extension of Palm Boulevard to Fort Brown Golf Course (River Levee Dr.)	3.37	0
O-21	Fort Brown	Veterans International Bridge to Sea Shell Inn	12.99	0
<b>Total</b>			<b>34.85</b>	<b>20.37</b>

\*Segments O-1 through O-3 and O-20 are not included.

Maintenance will include removing any debris accumulated on the fence. 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 SEGMENTS O-1 THROUGH O-3 AND O-11 THROUGH O-21**

The ESP anticipated that O-1 through O-3 and O-11 through O-21 would consist of primary pedestrian fence and primary floating pedestrian fence along a specified route that would minimize environmental impacts while meeting USBP operational needs.

Segments O-1 through O-3 primarily would follow a route along existing USBP access roads near the Rio Grande. As described in the ESP, during a flood, segments of the primary floating pedestrian fence in O-1 through O-3 would be moved in order to allow movement of flood waters. Primary floating pedestrian fence would also be used in O-14, O-17, and portions of O-21. Segments O-11 through O-21 would be primary pedestrian fence and would follow the USIBWC levee system along the Rio Grande. In most cases, the alignment was to be approximately 30 feet from the north toe (protected side) of the levee. All primary pedestrian fence would include wildlife openings (8.5 by 11 inches) at ground level.

This design would allow the infrastructure to be in an existing levee right-of-way (ROW) without disturbing current USIBWC operations or USBP access roads. Several locations along the levee ROW were expected to require the purchase of private land. Some fence segments would encroach on portions of the Lower Rio Grande Valley National Wildlife Refuge and Texas Wildlife Management Areas in the Rio Grande Valley. Controlled access gates were to be installed to allow landowners, farmers, land managers, water and irrigation personnel, emergency services, and recreational users access to the area on the Rio Grande side of the TI.

As stated in the ESP, the TI for O-1 through O-3 and O-11 through O-21—primary and floating pedestrian fence—would affect an approximately 60-foot-wide corridor for the fence itself and for access roads. Whenever possible, construction would use existing roads and previously disturbed areas for access and staging areas. Either USBP Rio Grande Valley Sector personnel or contracted personnel were to perform fence maintenance. Although the planned action described in the ESP included segments O-1, O-2, and O-3, they were removed from the baseline via a CR. In addition, at the time of writing this ESSR, O-20 was not under construction. Thus, this ESSR does not discuss segments O-1, O-2, O-3, and O-20 further in detail.

The ESP stated that the construction of TI in O-4 through O-21 would have a permanent impact on approximately 365 acres. The ESP did not discuss temporary impact acreage for staging areas; however, the proposed staging areas were included in the CBP Facilities and Infrastructure Tracking Tool (FITT) data files. As Table 2-2 shows, the planned staging areas for O-1 through O-3 and O-11 through O-21, according to the FITT Geographic Information System (GIS) data files, were expected to total 113.8 acres.

**Table 2-2. Staging Area Impacts for Pedestrian Fence, Segments O-1 through O-3 and O-11 through O-21 (Acres)**

Fence segment staging area	ESP predicted impact (acres)
O-1	15.9
O-2	23.9
O-3	2.7
O-11	12.1
O-12	7.0
O-13	2.0
O-14	2.2
O-15	2.1
O-16	1.1
O-17	3.6
O-18	5.8
O-19	5.1
O-20	0.8
O-21	29.5
<b>Total</b>	<b>113.8</b>

The TI segment follows the USIBWC levee system of the Rio Grande for most of its length. Construction could affect surface water features in the impact corridors either directly or indirectly. Those adjacent to the impact corridors include the Santa Maria Canal (segment O-11), the Harlingen Canal (O-12), the San Benito Canal (O-13), the Los Fresnos pump canal (O-18), and the El Jareidin Canal (O-21).

As stated in the ESP, ecology teams assessed wetlands and WUS within a 150-foot-wide corridor for the length of the project corridor with the exception of O-17, O-18, and O-19, where access was granted for a narrower, 60-foot-wide corridor survey. Additionally, they assessed construction staging areas for wetlands and WUS. In general, wetlands cover approximately 12.7 acres of the project corridor including streams, arroyos, marshes, and other wetland areas. Table 2-3 lists jurisdictional wetlands reported to occur within or near segments O-11 through O-21.

**Table 2-3. Jurisdictional Wetlands in Segments O-1 through O-3 and O-11 through O-21 (as Stated in the ESP)**

Wetland type	Segment	Size (acres)	Impact (acres)
PSS/PEM	O-20	0.0	0
PEM/POW	O-17	0.5	0
PSS/PEM	O-17	2.7	0.21
PFO along ditch	O-11	3.3	1.0
POW/PFO/PEM	O-12	1.1	0
PSS/POW/PEM	O-13	0.8	0
PFO/PEM	O-13	0.1	0

Table 2-3, continued

Wetland type	Segment	Size (acres)	Impact (acres)
PFO/PSS	O-13	0.2	0
PSS/PEM	O-13	0.1	0
PEM	O-13	0.1	0
PEM	O-13	0.4	0.1
PFO	O-18	0.0	0
PEM/PSS	O-18	0.2	0
POW/PEM	O-18	0.7	0
PFO/PEM	O-21	0.3	0
POW/PEM	O-21	1.8	0
PFO	O-20	0.4	0
<b>Total</b>		<b>12.7</b>	<b>1.31</b>

Notes: PEM=Palustrine Emergent; PSS=Palustrine Scrub-Shrub; POW=Palustrine Open Water;  
PFO= Palustrine Forested

## 2.2 SEGMENTS O-4 THROUGH O-10

The ESP anticipated that O-4 through O-10 would consist of seven distinct segments of a concrete flood protection structure/concrete fence in Hidalgo County and would affect an approximately 40-foot-wide corridor. This structure would be built where the current USIBWC levee exists; the access roads and all construction activities were to be contained within the USIBWC ROW.

The structure would range from 15 to 18 feet in height based on USIBWC requirements not to affect floodwaters in Mexico in accordance with international treaty obligations. Also, a guard rail or bollard fence would be built on top of the structure to ensure the safety of drivers using the road on top of the levee. Controlled access gates in the concrete fence would allow access to the area on the Rio Grande side of the TI by irrigation personnel, emergency services, recreational users, and others. An access road was also planned adjacent to the bottom of the structure on the river side.

As stated in the ESP, building the concrete flood protection structure/concrete fence would affect a corridor approximately 24 to 40 feet wide on the river (flood) side of the levee. The ESP proposed removing approximately 24 feet of levee on the flood side and anticipated that construction would have a temporary impact on approximately 16 additional feet within the USIBWC ROW. The ESP estimated that the total permanent impact area would be approximately 106.2 acres. The ESP did not discuss temporary impact acreage associated with proposed staging areas, but those areas were included in CBP data files. As Table 2-4 shows, the planned staging areas for O-4 through O-10, according to the FITT data files, were expected to total 52.8 acres.

**Table 2-4. Staging Area Impacts for Concrete Flood Protection Structure/Concrete Fence, Segments O-4 through O-10 (Acres)**

Fence segment staging area	ESP predicted impact (acres)
O-4	4.3
O-5	2.1
O-6	20.0
O-7	3.4
O-8	10.1
O-9	1.9
O-10	11.0
<b>Total</b>	<b>52.8</b>

The TI segment follows the USIBWC levee system of the Rio Grande for most of its length. Surface waters affected either directly or indirectly include the Rio Grande (O-6), an irrigation canal (O-5), the Donna Canal (O-7), and the settling basin and Moon Lake (O-9). As stated in the ESP, ecology teams assessed wetlands and WUS within a 150-foot-wide corridor for the length of the project corridor. Additionally, they assessed construction staging areas for wetlands and WUS. In general, wetlands within the project corridor have become established in ditches, marshes, and other wetlands and cover approximately 3.5 acres. Table 2-5 below summarizes jurisdictional wetlands in segments O-4 through O-10.

**Table 2-5. Jurisdictional Wetlands in Segments O-4 through O-10 (as Stated in the ESP)**

Wetland type	Segment	Size (acres)	Impact (acres)
PEM/PSS	O-10	0.4	0.0
PEM	O-9	2.6	0.2
PEM/ditch	O-8	0.1	0.0
PEM/POW	O-5	0.4	0
<b>Total</b>		<b>3.5</b>	<b>0.2</b>

Notes: PEM=Palustrine Emergent; PSS=Palustrine Scrub-Shrub; POW=Palustrine Open Water

## 2.3 MONITORING

Throughout construction, unexpected field conditions required practical changes to the planned action. In these situations, CBP conducted the appropriate field surveys to document the potential environmental impacts of these changes. CBP further coordinated with USFWS to develop BMPs specific to the construction activities and applied them accordingly.

The most common BMP infractions in the Rio Grande Valley Sector included concrete wash outside of designated areas, food-related trash improperly contained, dust control measures not in place when needed, lack of demarcation of work and parking areas, driving outside of designated areas, lack of stormwater pollution prevention plan measures, lack of revegetation efforts, lack of drip pans, and improper storage of petroleum, oils, and lubricants. Most BMP infractions did not

require revegetation efforts, because little or no native vegetation was removed during these events. No known impacts on federally listed species were documented as a result of the infractions, and there were no predicted or actual impacts on threatened or endangered species or their habitat in the Rio Grande Valley Sector.

## 2.4 CHANGE REQUEST FORMS

Approximately 96 CR forms were approved for the Rio Grande Valley Sector at the time the post-construction survey was performed. Approximately 21 of these had the potential to affect the construction footprint and, thus, change the environmental impacts. Table 2-6 summarizes the project modifications for segments O-4 through O-21 determined to have the potential to change the environmental effects discussed in the project ESP. The table does not include change requests for segments not built at the time of the post-construction survey.

**Table 2-6. Approved CRs with Potential to Affect the Environment**

Approval date	Summary description	Potential environmental impact
Segments O-1, O-11, O-16, O-17, O-19, and O-21		
June 25, 2008	Due to survey and design information, mileage for fence segments has been redefined.	Increase or decrease of overall permanent project impacts.
Segment O-12		
March 10, 2008	Move location of fence off the IBWC levee onto canal access road owned by Cameron County Irrigation District #3. Use of P-2 fence placed 20 feet from the west bank of the Feria Canal with a maintenance road placed between the canal and fence.  Delete proposed staging area #1, request addition of a staging area.	This would keep the fence away from the brush/tree line west of canal, which would reduce impacts on wildlife and still afford the Irrigation District the ability to mow and dredge canal. Use of P-2 fence would permit the use of wildlife openings.
February 3, 2009	Lower the Harlingen irrigation canal levee and slope by 1 to 2 feet.	Decrease erosion on the banks of the canal.
April 3, 2009	Reduce fence length by 217 feet.	Decrease overall permanent impact corridor for this segment.
Segment O-17		
November 13, 2008	Include a concrete headwall and erosion protection at discharge end of Russell Canal.	Diminish potential for erosion by reducing energy dissipation.
January 27, 2009	Culvert the Russell Canal and modify the fence type for this segment	Reduce or eliminate seepage from the canal, avoid potential issues with fence foundation.
November 17, 2009	Construct a 40-foot-wide by 150-foot-long earthen ramp with erosion protection for access to agricultural lands south of the border fence and IBWC levee.	Loss of habitat outside of impact corridor; however, would prevent land lock to farm lands south of levee.
March 24, 2009	Relocate wooden power and light poles to northern limit of fence corridor.	Increase overall impact area for this segment.

Table 2-6, continued

Approval date	Summary description	Potential environmental impact
Segment O-18		
July 23, 2009	Realign approximately 3,750 feet of the fence approximately 100 feet north of the originally proposed alignment within the USFWS Phillip Banco Refuge to avoid safety concerns with the existing transmission towers and overhead lines.	Removal of an additional 6 acres of refuge land.
October 5, 2009	Extend an existing irrigation pipe to allow water to flow from an existing IBWC headwall to the irrigation pond north of the fence and construct a 200-foot earthen berm to contain the water within the irrigation pond and prevent flooding of the fence footprint.	Stabilize irrigation pond, increase or stabilize biological production.
November 17, 2009	Construct a 35-foot-wide by 20-foot-long concrete low water crossing.	Decrease erosion and scouring of soils along fence foundation.
February 3, 2010	Stabilize the slope along the Cordova gravel pit and construct a stable roadway with drainage ditch and caliche base to provide continuous access to border patrol and private citizens alongside the north side of the fence.	Stabilize soils on slope of pit, decrease erosion of soils and ponding of water.
November 12, 2010	Clear and grub six areas within the project corridor that were not previously cleared during fence construction.	Increased area of new disturbance.
Segments O-18/O-19		
March 19, 2009	Relocate wooden power and light poles to northern limit of fence corridor.	Increase overall impact area for this segment.
Segment O-19		
June 30, 2009	Replace dog kennel and security fence, transplant trees, and construct drainage swale.	Impact fruit bearing trees; avoid impacts on fence due to water drainage.
July 29, 2009	Relocate wooden power and light poles along the Art League segment of segment O-19.	Increase overall impact area for this segment.
Segment O-21		
April 21, 2008	Move 2 miles of floating fence off the IBWC levee road to the North toe of the levee from the Impala Pump Facility to Monsees Road.	Increase overall impact area for this segment of fence.
June 25, 2008	Due to survey and design information, mileage for fence sections has been redefined.	Increase or decrease of overall permanent project impacts.
July 18, 2008	Due to survey and design information, project mileage has been redefined.	Increase overall permanent impact area for this segment.
April 21, 2009	Save approximately 300 mature sabal palms within the project corridor and transplant onto USFWS refuge lands.	Preservation of native habitat.
September 24, 2009	Relocate utility power poles along 0.42 mile of the fence alignment.	Increase overall impact area for this segment of fence.
May 25, 2010	Add a concrete mow strip along both sides of the fence barrier along the earthen ramp/embankment that leads up to the crown of the IBWC levee at the Impala Pump Station.	Eliminate erosion caused by drainage flows.

## 2.5 IMPACT QUANTITIES ANTICIPATED IN THE ENVIRONMENTAL STEWARDSHIP PLAN

Table 2-7 identifies the pertinent resources that the ESP anticipated would be affected. This table is not all-inclusive, as post-construction quantities for some impacts, such as air, noise, and socioeconomic effects, could not be measured.

**Table 2-7. Predicted Impacts for Segments O-4 through O-21 (as Stated in the ESP)**

Resource	Impacts*			Comment
	Permanent	Temporary	Total	
Soils	85	508	593	Short-term minor direct adverse impacts due to grading and contouring will impact approximately 508 acres. Permanent soil disturbance due to grading, contouring, and trenching will impact approximately 85 acres.  Long-term minor direct adverse impacts on prime farmland soils in Hidalgo and Cameron counties will occur as a result of construction activities. No soils associated with farmland of local, unique, or statewide importance are identified for Starr, Hidalgo, and Cameron counties.
Vegetation			372	Short- and long-term adverse impacts on vegetation will range from negligible to major due to habitat loss and modification. Minor beneficial effects on floristic composition at the local level will result from the removal of plant species listed by the State of Texas as noxious or invasive nonnatives. The ESP predicted that a total of 376 acres of vegetation would be affected; however, when the impacts were identified by biotic community, the total impact area reported in the ESP was 372 acres.
Cultural Resources	0 sites	3 sites	3 sites (eligible)	Moderate to major long-term adverse impacts on cultural resources.
Wetlands and WUS	0	0	0	Construction erosion and sediment runoff, potential oil spills and leaks. Removal of wetland vegetation and fill of waters of the U.S., including wetlands, and temporary degradation of water quality. The ESP identified 23.79 acres of jurisdictional wetlands and waters of the U.S. occurring near the impact corridor; however, impacts to wetlands and waters of the U.S. were not quantified.

\* Unless otherwise noted, all quantities are in acres.

**SECTION 3.0**  
**POST-CONSTRUCTION FINDINGS**



## 3.0 POST-CONSTRUCTION FINDINGS

This section of the ESSR discusses the results of the post-construction surveys in both qualitative and quantitative terms, by construction activity. 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 this 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. Appendix A contains maps of the various segments and illustrates the location and extent of the impacts.

### 3.1 RESULTS OF ROAD MEASUREMENTS

#### 3.1.1 Access Roads

The ESP did not discuss impacts associated with access roads in detail, although it identified numerous access roads for use in various segments. All planned or utilized access roads were preexisting before building the TI; therefore, no improvements such as widening or straightening were required in order to use them. Some maintenance and repair activities (grading, filling holes, and so on) were required. Consequently, the access roads are reported herein as permanent impacts. Table 3-1 summarizes the number of roads by segment and their impact area in acres. Discussion of the differences in access roads planned and used follows the table.

**Table 3-1. Access Roads and Impacts, Segments O-4 through O-21**

Fence segment	Access roads proposed (number)	Access roads used (number)	Impact area (acres)
O-4	3	4	2.52
O-5	3	3	0
O-6	7	3	0.97
O-7	3	3	1.58
O-8	4	4	4.26
O-9	3	5	6.21
O-10	2	2	1.14
O-11	2	2	4.05
O-12	2	4	1.92
O-13	1	3	1.49
O-14	4	2	1.62
O-15	3	4	2.04
O-16	3	2	2.4
O-17	2	3	0.54
O-18	4	3	4.77
O-19	4	5	1.08
O-21	14	17	3.47
<b>Total</b>	<b>64</b>	<b>69</b>	<b>40.06</b>

##### 3.1.1.1 Segment O-4

The ESP proposed three access roads in segment O-4; however, four access roads were used during construction.

**3.1.1.2 Segment O-5**

The ESP also proposed three access roads for segment O-5, and all three were used during construction.

**3.1.1.3 Segment O-6**

The ESP proposed seven access roads for segment O-6, but only three were used during construction.

**3.1.1.4 Segment O-7**

The ESP proposed three access roads for segment O-7, all of which were used during construction. Contractors used two primary roads to access the eastern and western ends of the impact corridor. As construction progressed over the canal on the eastern end, a third road was opened to access both sides of the canal.

**3.1.1.5 Segment O-8**

The ESP proposed four access roads for segment O-8, all of which were used during construction.

**3.1.1.6 Segment O-9**

The ESP proposed three access roads for segment O-9; however, five access roads were used during construction.

**3.1.1.7 Segment O-10**

The ESP proposed two access roads for segment O-10, both of which were used during construction.

**3.1.1.8 Segment O-11**

The ESP proposed two access roads for segment O-11, both of which were used during construction.

**3.1.1.9 Segment O-12**

The ESP proposed two access roads for segment O-12. However, four were used during construction. During the canal bridge construction in O-12, contractors used the fourth access road to move equipment and supplies to the impact corridor. The access road on the eastern end of O-12 is a paved road.

**3.1.1.10 Segment O-13**

The ESP proposed one access road for segment O-13. However, three were used during construction, one east of the Free Trade International Bridge and two west of the bridge.

**3.1.1.11 Segment O-14**

The ESP proposed four access roads for segment O-14, although just two were primarily used during construction.

### ***3.1.1.12 Segment O-15***

The ESP proposed three access roads for segment O-15. However, four were used during construction.

### ***3.1.1.13 Segment O-16***

The ESP proposed three access roads for segment O-16, two of which were also shared by O-15. However, contractors used two primary roads to access O-16, both near the eastern end of the tactical infrastructure. The ESP did not include easternmost access road for this segment among the proposed access roads.

### ***3.1.1.14 Segment O-17***

The ESP proposed two access roads for segment O-17. However, three were used during construction. The middle access road was eliminated upon the closure of a gap in the border fence. The additional access road was the westernmost and was used by permission of a private landowner.

### ***3.1.1.15 Segment O-18***

The ESP proposed four access roads for segment O-18, but only three were used during construction. The easternmost proposed access road was not used. In addition, two small access roads near residential areas were used intermittently. Contractors used the levee road for access to O-18 from O-19, so the post-construction survey documented it as an access road.

### ***3.1.1.16 Segment O-19***

The ESP proposed four access roads for segment O-19. However, five were used during construction, particularly in areas where the TI was not accessible via the levee road between the Brownsville and Matamoros International Bridge and the Gateway Bridge. They included public roads to the Alice Wilson Hope municipal park in Brownsville.

### ***3.1.1.17 Segment O-21***

The ESP proposed 14 access roads for segment O-21. However, 17 were used during varying times of construction. Nine of these were named roads accessible to the public.

## **3.1.2 Maintenance and Other Roads**

Post-construction surveys noted that the footprint for fence and adjacent maintenance or other road for segments O-11 through O-21 was located on top of the USIBWC levee and did not consider it part of the 60-foot-wide footprint the ESP described. These roads were used during construction to mobilize supplies and equipment and to monitor construction activity. The survey noted that segments O-4 through O-10 also contained footprint for fence and adjacent maintenance or other road on top of the levee. This levee road was considered part of the footprint described in the ESP and was used during construction to mobilize supplies and equipment and to monitor construction. The ESP estimated that 471.2 acres of permanent impact would occur; however, post-construction surveys found that only 255.3 acres of permanent impact occurred. However, an additional 208.7 acres had temporary impacts.

### 3.2 FENCE

The ESP analysis anticipated that five fence types would be built for the Rio Grande Valley Sector. Primary pedestrian fences included steel bollards either anchored into concrete or driven into the soil. Two types of bollards were used with different diameters. Photograph 3-1 depicts one style of the bollard primary pedestrian fence. In some locations the bollard fence was modified to include hanging panels (Photograph 3-2), which can be removed during major floods or other urgent circumstances. The floating fence design consists of concrete Jersey barriers (similar to those used along highway construction sites) with bollards installed in the top of the barriers (Photograph 3-3).



**Photograph 3-1. Bollard-style Fence**



**Photograph 3-2. Hanging Fence Panel**



**Photograph 3-3. Floating Fence**

As mentioned previously, this ESSR defines a permanent impact as one in which a resource is irretrievably lost; temporary impacts are those lasting less than 1 year beyond completion of the project. Permanent impacts were typically associated with the road and fence final footprint. Temporary impacts were associated with staging areas and the construction corridor that were needed to build the fence or road but that would not be maintained upon completion of the project.

Both of these types of areas were typically restored (for example, by mulching and hydroseeding) upon completion of construction.

Concrete flood protection (retaining walls) were also installed in segments in Hildago County. This design consists of prefabricated concrete wall panels incorporated into an existing levee or flood embankment to form a smooth vertical barrier. Steel bollards were installed on the top of the wall to increase the height of the barrier (Photograph 3-4). These were installed on the south side of the levee. Roads were incorporated into this design south of the fence and on top of the levee. The post-construction survey confirmed the installation of all five fence types. The concrete flood protection design was used in segments O-4 through O-10. The floating fence design was used in O-14, O-17, and O-21. Bollard fences (both sizes) were used throughout segments O-11 through O-21, while hanging fences were installed at various locations.



**Photograph 3-4. Concrete Flood Protection Fence**

#### **3.2.1.1 Segment O-4**

Segment O-4 fence was less than estimated in the ESP, decreasing from a planned 4.4 miles to 4.3 miles.

#### **3.2.1.2 Segment O-5**

Segment O-5 fence was estimated in the ESP to be 1.8 miles long. Post-construction surveys found the length slightly reduced to 1.7 miles.

#### **3.2.1.3 Segment O-6**

The fence for segment O-6 was estimated in the ESP at 3.9 miles long. Post-construction surveys found the length of the fence increased to 4.0 miles.

#### **3.2.1.4 Segment O-7**

Segment O-7 fence was documented to be the same length as the ESP estimate of 0.9 mile.

#### **3.2.1.5 Segment O-8**

Segment O-8 fence was 106 feet longer than the original ESP estimate of 3.2 miles.

#### **3.2.1.6 Segment O-9**

Post-construction surveys in segment O-9 found that the fence was reduced to 3.5 miles, compared with the original planned length of 3.9 miles.

#### **3.2.1.7 Segment O-10**

Post-construction surveys in segment O-10 found that the fence was reduced to 2.3 miles, compared with the original planned length of 2.4 miles.

**3.2.1.8 Segment O-11**

Segment O-11 fence was documented to be the same length as the original ESP estimate, 2.3 miles.

**3.2.1.9 Segment O-12**

Segment O-12 fence was found to be 106 feet longer than the original planned length of 0.9 mile. A CR was submitted to change the fence length by 217 feet. This type of small difference is expected for major construction activities such as this project.

**3.2.1.10 Segment O-13**

Segment O-13 fence was longer than the original ESP estimate, increasing from a planned 1.6 miles to 2.5 miles.

**3.2.1.11 Segment O-14**

Post-construction surveys found that segment O-14 fence was 2.4 miles long, shorter than the ESP estimate of 3.6 miles.

**3.2.1.12 Segment O-15**

The ESP estimated segment O-15 fence at 1.9 miles. However, a CR was issued 1 month before the release of the final ESP. Post-construction surveys found the length of segment O-15 fence to be 2.2 miles.

**3.2.1.13 Segment O-16**

Segment O-16 fence was reduced to 2.0 miles before the release of the ESP, compared with the planned length of 3.0 miles. Post-construction surveys found segment O-16 fence to be 2.0 miles.

**3.2.1.14 Segment O-17**

Segment O-17 fence was reduced by 105 feet compared to the original length described in the ESP of 1.6 miles.

**3.2.1.15 Segment O-18**

Segment O-18 fence was slightly reduced, 3.5 miles compared with the planned 3.6 miles.

**3.2.1.16 Segment O-19**

Segment O-19 fence decreased from 3.4 miles in the ESP estimate to 2.3 miles, a change authorized by a CR after the ESP was completed. However, a portion of the O-19 fence from Hope Park to the B&M Bridge POE was not yet completed when the post-construction survey occurred.

**3.2.1.17 Segment O-21**

Segment O-21 fence was slightly reduced, from the ESP estimate of 13 miles to 12.3 miles. Segment O-21a was not built when the post-construction survey occurred. When the ESP was written, O-21a was proposed to be a continuous segment within O-21 but was simply referred to as the area within O-21 containing Old Brulay (Nye) Plantation buildings. At the time of the

post-construction survey, O-21a was under contract and vegetation clearing had begun, but activity halted due to the new discovery of archaeological resources in the project corridor.

Table 3-2 compares the ESP estimates for fence lengths and impact areas (for both fence and roads) with the post-construction survey findings. As the table shows, total fence length decreased by 5.8 miles, and the total impact area decreased by 113.2 acres.

**Table 3-2. Fence Lengths and Impact Areas, Segments O-1 through O-21**

Fence segment	ESP predicted length (miles)	Surveyed length (miles)	ESP predicted impact area (acres)*	Surveyed impact area (acres)
O-4	4.4	4.3	21.3	28.56
O-5	1.8	1.7	8.7	4.74
O-6	3.9	4.0	18.9	24.05
O-7	0.9	0.9	4.4	5.13
O-8	3.2	3.2	15.5	18.45
O-9	3.9	3.5	28.4	23.13
O-10	2.4	2.3	17.5	12.07
O-11	2.3	2.3	16.7	12.45
O-12	0.9	0.9	6.5	6.01
O-13	1.6	2.5	11.6	9.57
O-14	3.6	2.4	26.2	10.86
O-15	1.9	2.2	13.8	10.47
O-16	3.0	2.0	21.8	9.03
O-17	1.6	1.6	11.6	3.69
O-18	3.6	3.5	26.2	16.24
O-19	3.4	2.3	24.7	8.17
O-21	13.0	12.3	94.5	52.69
<b>Total Length</b>	<b>55.4</b>	<b>49.6</b>	<b>368.5</b>	<b>255.3</b>

\* Impact areas for Segments O-4 through O-10 were estimated using a 40-foot-wide corridor, and for Segments O-11 through 21 a 60-foot-wide corridor, as defined in the ESP.

### 3.3 STAGING AREAS

The ESP estimated that the overall permanent impact area for the various segments would be 471.2 acres. However, this total included anticipated impacts for segment O-1 through O-3 and O-20, which were not built when the post-construction surveys took place. In addition, the ESP did not quantify the impact area for each segment. Using the 40-foot-wide and 60-foot-wide project corridors the ESP estimated for segments O-4 through O-10 and O-11 through O-21, respectively, the planned impact area for the fence and road segments was calculated to be a total of 368.5 acres. Post-construction surveys determined that the total permanent impact of fences and roads for segments O-4 through O-21 (excluding O-20) was 255.3 acres, a reduction of 113 acres.

Although the ESP did not indicate all locations of the planned staging areas or quantify them separately from other project components, that information was obtained from the CBP FITT data files. The post-construction survey found that staging area locations or acreage differed from the ESP for almost all segments. Also, the post-construction survey documented supplementary staging areas that differed from proposed staging areas in the FITT data files

(Photographs 3-5 and 3-6). The data files indicated that staging areas for segments O-4 through O-21 (excluding O-20) would have temporary impacts on 123.2 acres. The post-construction survey, however, found that total temporary impacts for staging areas in these segments was 56.8 acres. This is a net reduction of 66.8 acres from what was originally planned (Table 3-3).



Photograph 3-5. Eastern Staging Area in Segment O-21



Photograph 3-6. Western Staging Area in Segment O-14

**Table 3-3. Staging Area Impacts, Segments O-4 through O-21 (Acres)**

Fence segment	ESP predicted impact (acres)	Surveyed impact (acres)	Difference (acres)
O-4	4.3	10.9	6.6
O-5	2.1	0.0	-2.1
O-6	20.0	4.1	-16.0
O-7	3.4	0.0	-3.4
O-8	10.1	3.0	-7.1
O-9	1.9	0.0	-1.9
O-10	11.0	0.0	-11.0
O-11	12.1	3.2	-8.9
O-12	6.9	0.5	-6.4
O-13	2.0	1.8	-0.2
O-14	2.2	16.0	13.8
O-15	2.1	0.0	-2.1
O-16	1.1	0.0	-1.1
O-17	3.6	2.8	-0.8
O-18	5.8	2.7	-3.1
O-19	5.1	0.8	-4.6
O-21	29.5	11.0	-18.5
<b>Total</b>	<b>123.2</b>	<b>56.8</b>	<b>-66.8</b>

### 3.4 WILDLIFE OPENINGS

The ESP briefly discussed wildlife openings. CBP proposed to install 438 wildlife openings (at locations determined by the USFWS) at ground level within the primary pedestrian fence in segments O-11 through O-13 and O-15 through O-21. The purpose of these 8.5-by-11-inch openings is to encourage the passage of wildlife, particularly the ocelot (*Leopardus pardalis*) and

jaguarondi (*Puma yagouaroundi*), through the fence to access sustainable habitat (Photographs 3-7 and 3-8). Wildlife openings were not planned in segments O-4 through O-10, due to the fence design that used concrete barriers as bases. As Table 3-4 shows, post-construction surveys found that wildlife openings were installed in segments where they were not originally planned, but two segments were built either without wildlife openings (O-14) or with a reduced number (O-21). If no wildlife openings were planned or built, the fence segment was not listed in the table. The net total of the planned and actual number of wildlife openings, however, was the same (352). USFWS requested fewer wildlife openings in O-14 and O-21 to discourage their use by feral or domestic dogs and cats.



Photograph 3-7. Wildlife Opening in Segment O-12 at UTM 0623572\_2881869



Photograph 3-8. Wildlife Opening in Segment O-19 at UTM 0648032\_2864946

**Table 3-4. Wildlife Openings in Segments O-1 through O-3 and O-11 through O-21**

Fence segment	ESP predicted count (openings)	Surveyed count* (openings)	Difference (openings)
O-8	0	12	+12
O-9	0	8	+8
O-10	0	12	+12
O-11	35	25	-10
O-12	35	37	+2
O-13	35	45	+10
O-14 <sup>a</sup>	13	0	-13
O-15	37	36	-1
O-16	19	19	0
O-17	27	19	-8
O-18	28	28	0
O-19**	21	22	+1
O-21	102	89	-13
<b>Total Openings</b>	<b>352</b>	<b>352</b>	<b>0</b>

\* Data provided by HDR/e2m.

\*\* O-19 had not been completed at the time post-construction surveys were conducted.

<sup>a</sup> This fence segment did not contain wildlife openings due to the primary floating pedestrian fence design.

### 3.5 SABAL PALM RELOCATION

The Texas sabal palm (*Sabal texana*) is a unique tree native to the Rio Grande Valley. Approximately 300 mature sabal palm trees in the O-21 project corridor were slated to be bulldozed during clearing and grubbing to build the fence. As good stewards of the environment, CBP proposed transplanting these unique trees to local refuge lands before beginning clearing and grubbing. A CR was issued in April 2009 for the action to relocate the sabal palms. As the ESP noted, CBP could reduce potential impacts by avoiding the trees or could minimize potential impacts by transplanting individual sabal palms in areas selected by USFWS, Texas Parks and Wildlife Department, or other resource agencies. Avoidance of all sabal palms within the impact corridor was not feasible. CBP's construction contractor worked with USFWS to relocate and transplant 237 sabal palms from O-21 to nearby USFWS refuge lands (Photographs 3-9 and 3-10).



**Photograph 3-9. Preparation for Sabal Palm Removal**



**Photograph 3-10. Relocation of Sabal Palm to USFWS Refuge Lands**

### 3.6 MEASURED IMPACT QUANTITIES

#### 3.6.1 Soils

The ESP anticipated that the planned action would permanently disturb 85 acres of soils. Contractors would cause temporary impacts on an additional 508 acres of soils with bulldozers or graders by scraping and blading to level the area and accommodate material staging, corridor construction, and levee improvement. The ESP estimated that a combined total of 593 acres of soil would be affected. The post-construction field survey confirmed that the length of the project corridor was reduced by 5.8 miles. Most of these changes were authorized in various CRs described previously. However, the permanent impacts on soils increased by 170.3 acres over the ESP estimate. The temporary impact area decreased by 341.4 acres.

#### 3.6.2 Vegetation

The TI was expected to affect an approximately 60-foot-wide corridor for O-11 through O-21 and a 40-foot-wide corridor for O-4 through O-11 for fences and other roads, totaling 372 acres of vegetation. Vegetation within the corridor was to be cleared and graded where needed. However, based on post-construction surveys, the permanent impact area totaled 255.31 acres. Temporary impacts decreased from the estimated 310 acres to 208.04 acres. Post-construction

surveys found that some of the project area was naturally revegetated or showing signs of established revegetation from hydroseed application. Post-construction surveys also noted that hydroseeding was not successfully established in a few canals on the north side of the TI in segment O-21 and on either sides of the bridge in O-12. It should also be noted that a USIBWC levee improvement project occurred during the construction of the TI. Vegetation was removed, levee slopes were improved, and the area was revegetated. Although these areas were temporarily affected during TI construction, and in most instances by the same contractor, the post-construction survey did not document them as temporary impacts.

### **3.6.3 Cultural Resources**

The TI was expected to affect three eligible cultural resources sites. However, construction occurred in only one of these three sites, in segment O-13. During construction at Segment O-21a (Old Brulay Plantation) on-site cultural resources monitors encountered archeological finds. The site was fully tested and items curated in close coordination with the Texas SHPO.

### **3.6.4 Wetlands and WUS**

Post-construction surveys confirmed that TI construction did not increase the footprint within jurisdictional wetland areas beyond what was originally planned. Surveys identified no other additional wetlands or WUS where the project corridor was modified, such as the staging areas. Contractors implemented erosion and sediment control and stormwater management practices during and after construction in accordance with the stormwater pollution prevention plan for the project.

**SECTION 4.0**  
**DISCUSSION**



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## **4.0 DISCUSSION**

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### **4.1 DECREASED PROJECT FOOTPRINT**

The temporary impacts on soils and vegetation decreased in acreage from the original estimate, due to a decrease in the size of the staging areas, as well as the temporary footprint for building the fence. The proposed staging areas described in the FITT data files indicated staging areas totaling approximately 166.35 acres. The post-construction surveys determined that the total acreage for staging areas was 57.66. The ESP did not anticipate temporary impacts attributable to the fence; however, post-construction surveys recorded 151.38 acres of temporary impacts (excluding staging areas) attributable to fence construction.

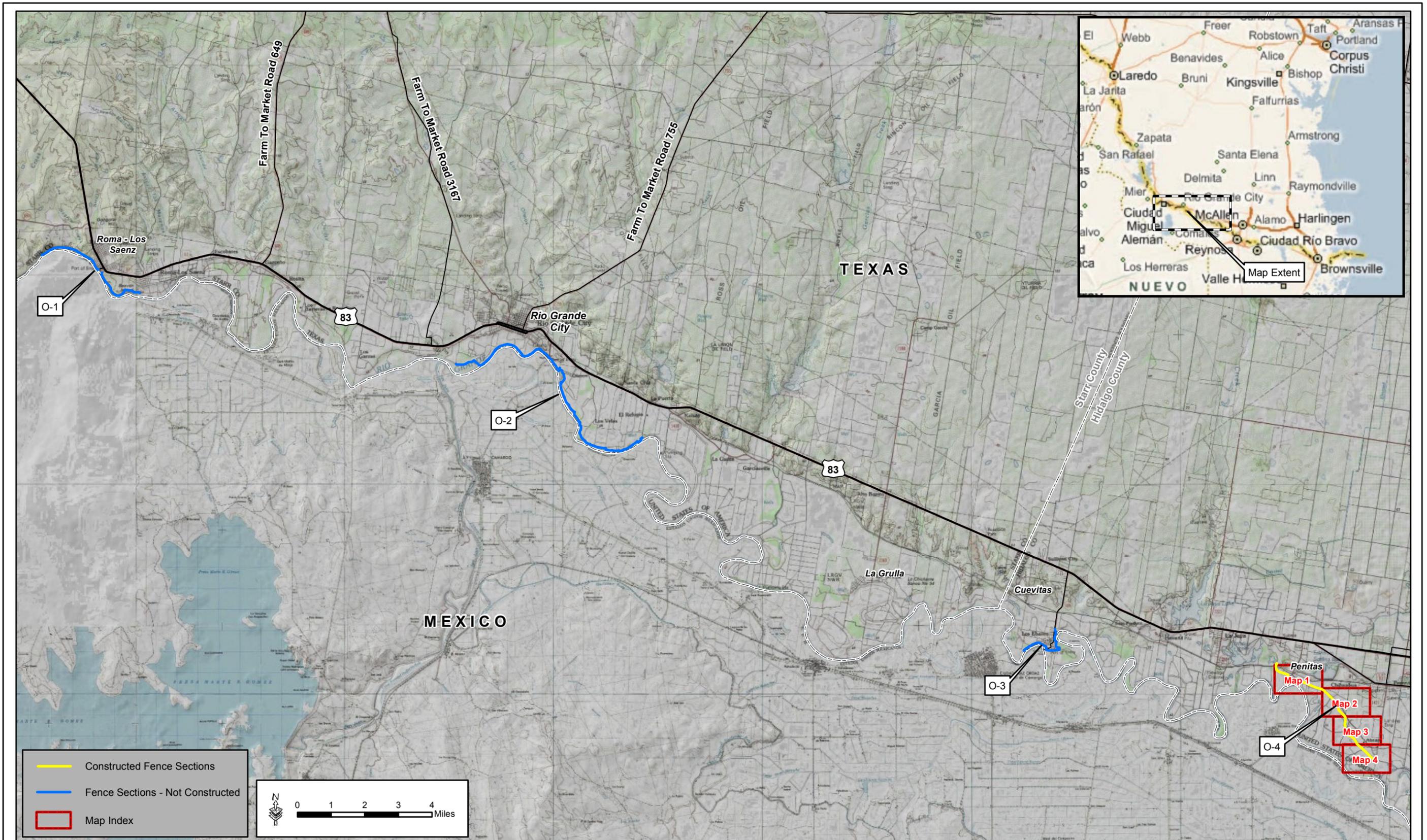
The ESP estimated that the total fence (for segments O-4 through O-19 and O-21) would be 55.4 miles long; however, post-construction surveys recorded a total length of 49.6 miles. This decrease can be primarily attributed to segments O-9, O-13, O-16, and O-21, where contractors reduced the lengths by approximately 0.5 to 1 mile. The post-construction surveys found that the permanent impact area of 368.5 acres expected in the ESP was reduced to 255.31 acres. This decrease can probably be attributed to construction crew efforts to minimize permanent impacts as much as possible, in accordance with the project BMPs.

### **4.2 ADDITIONAL ISSUES**

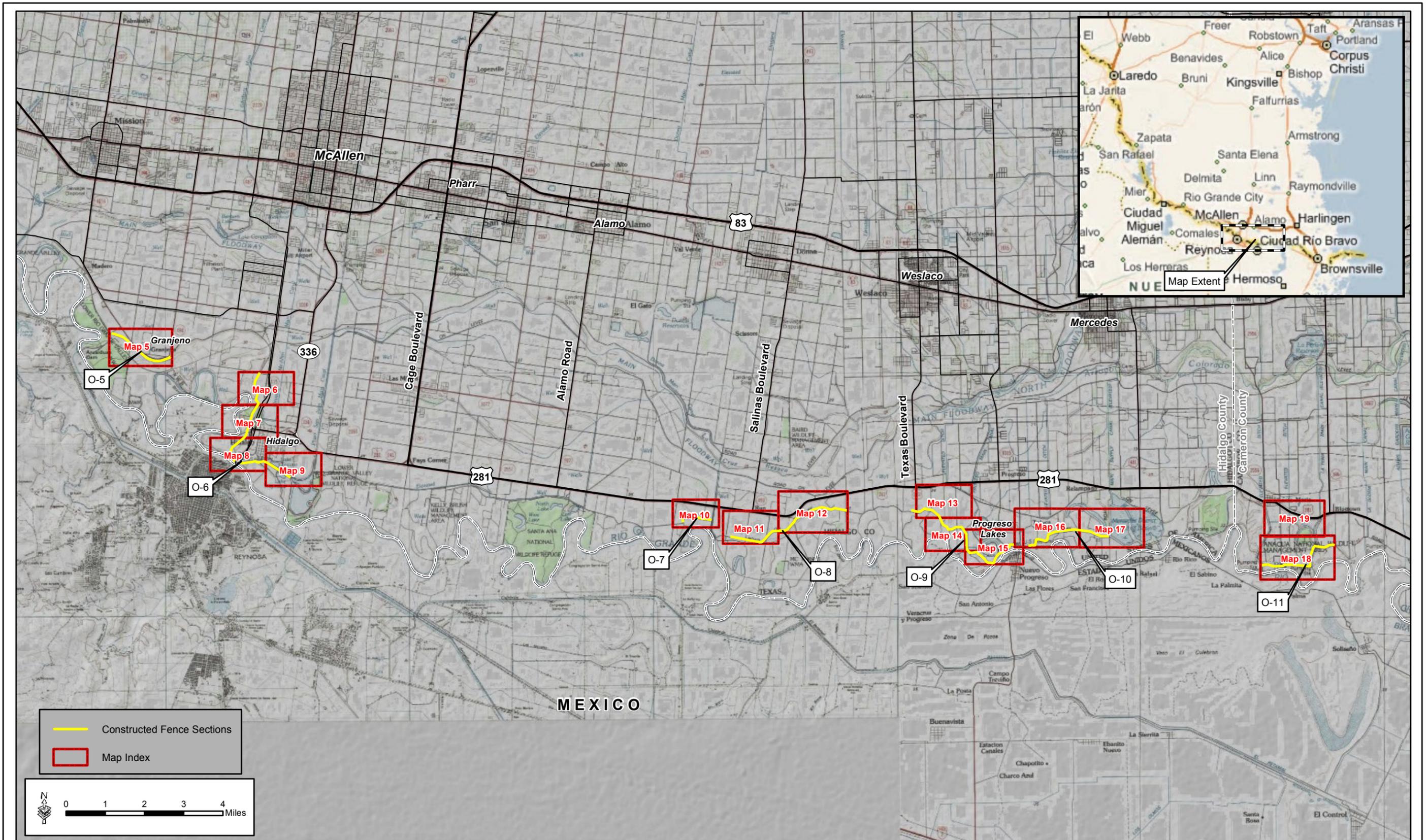
One issue identified during the post-construction survey will be evaluated. Drainage that crosses the project corridor will be addressed, as the water may back up within the roadbed and create some erosion along the fence corridor. CBP is implementing a Comprehensive Tactical Infrastructure Maintenance and Repair (CTIMR) program to ensure the TI and related areas are maintained and repaired as needed.

**APPENDIX A**  
**CORRIDOR MAPS O-4 THROUGH O-21**



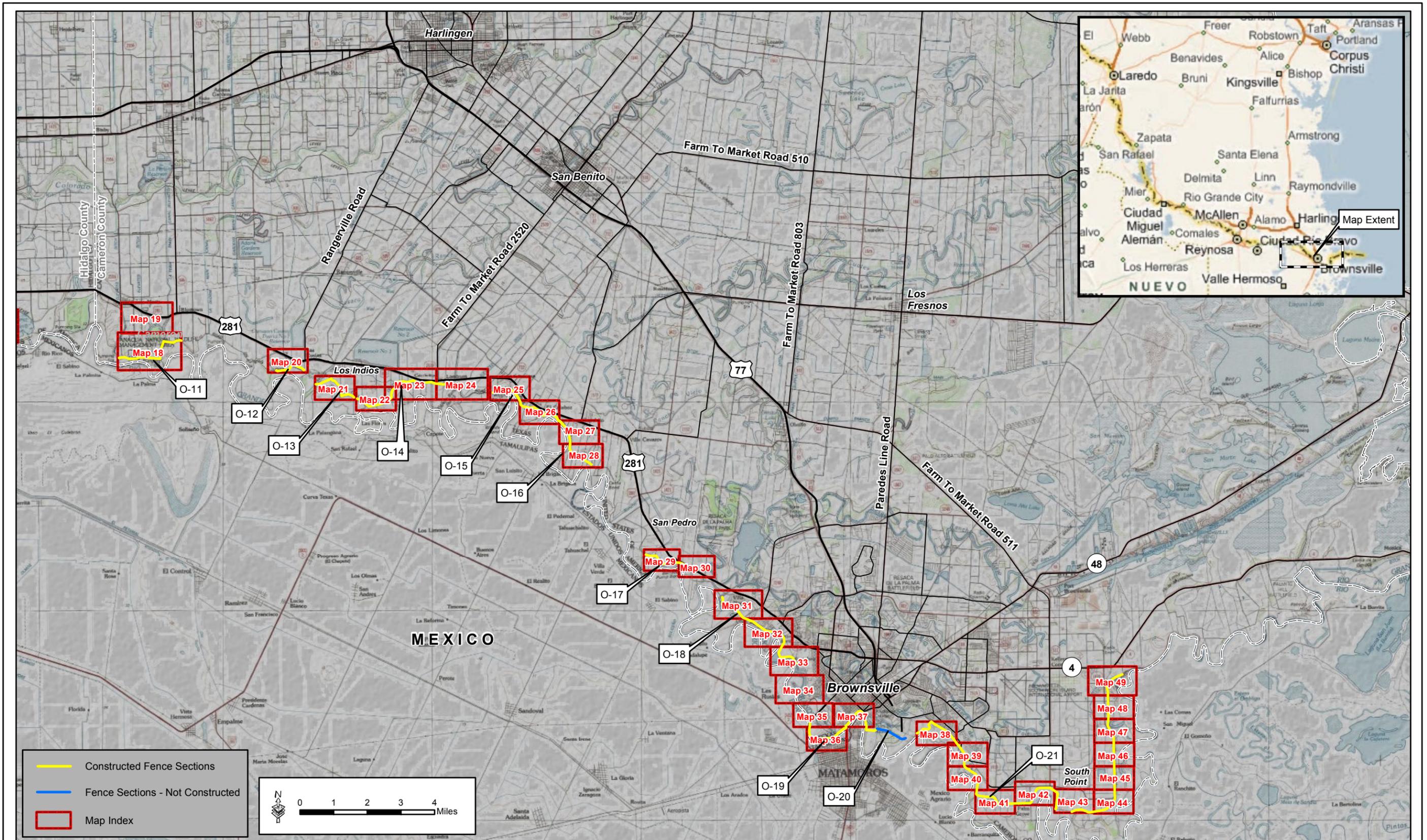


Locations of Tactical Infrastructure Index Map - Sections O-1 through O-4



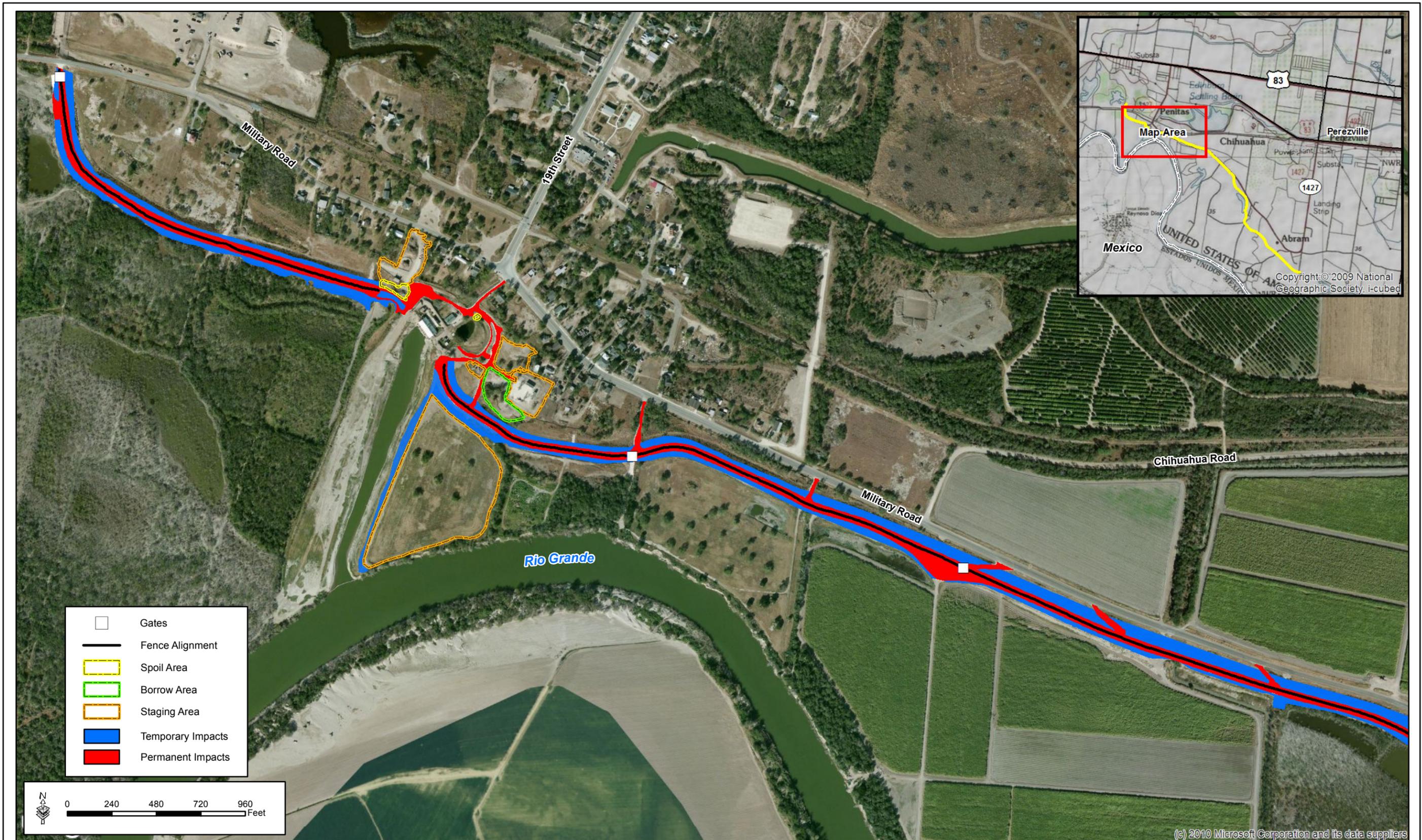
Locations of Tactical Infrastructure Index Map - Sections O-5 through O-10





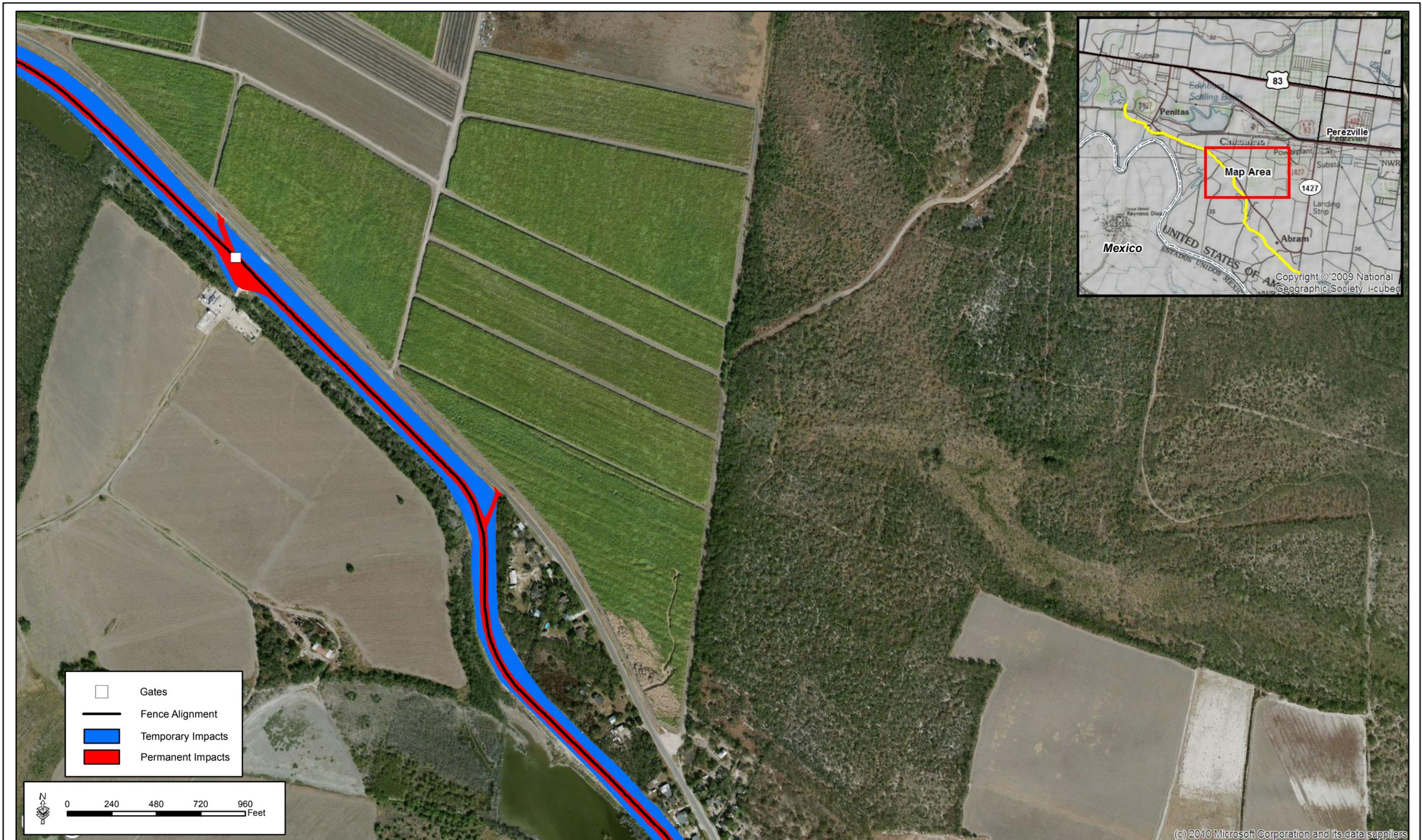
Locations of Tactical Infrastructure Index Map - Sections O-11 through O-21





Section O-4 Post-Construction Infrastructure Impacts - Map 1

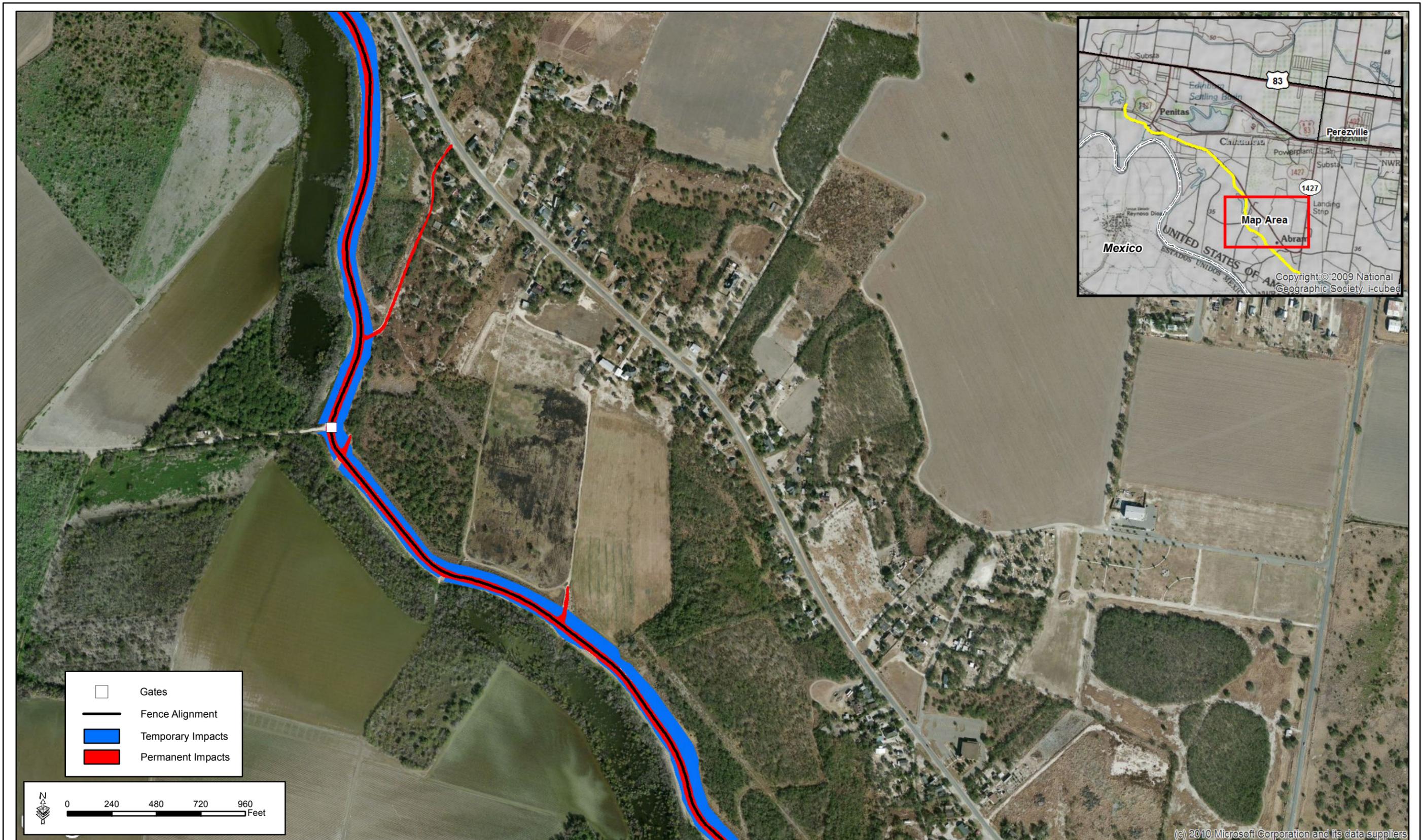




Section O-4 Post-Construction Infrastructure Impacts - Map 2



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Section O-4 Post-Construction Infrastructure Impacts - Map 3



Section O-4 Post-Construction Infrastructure Impacts - Map 4



January 2011



Section O-5 Post-Construction Infrastructure Impacts - Map 5



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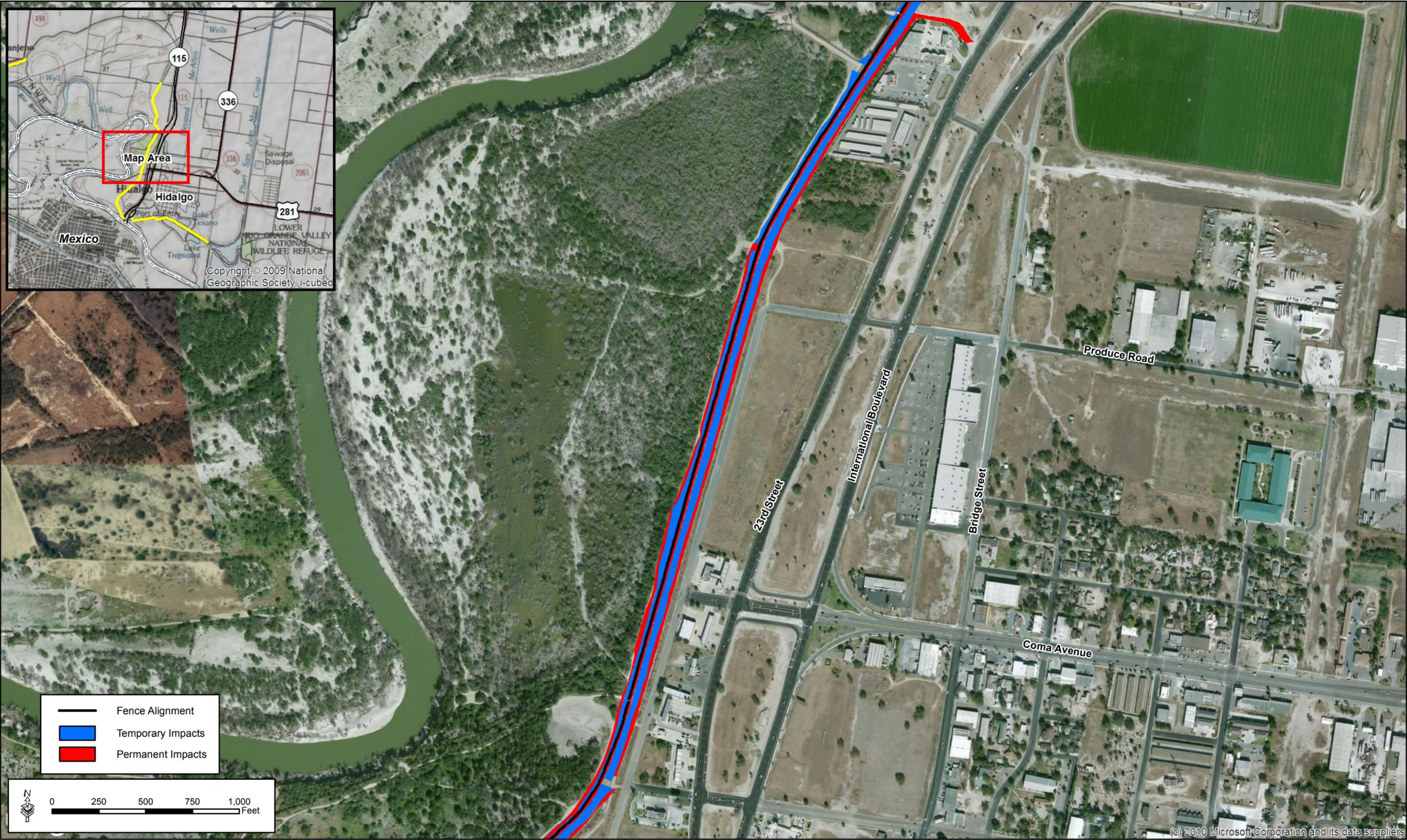
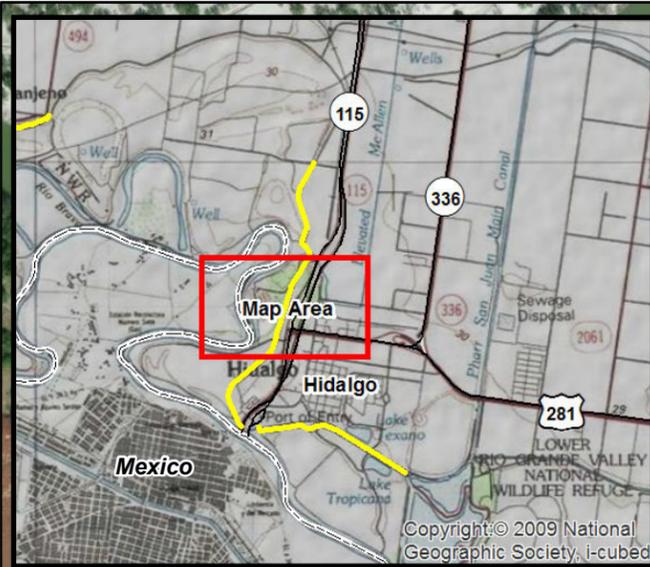


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Section O-6 Post-Construction Infrastructure Impacts - Map 6



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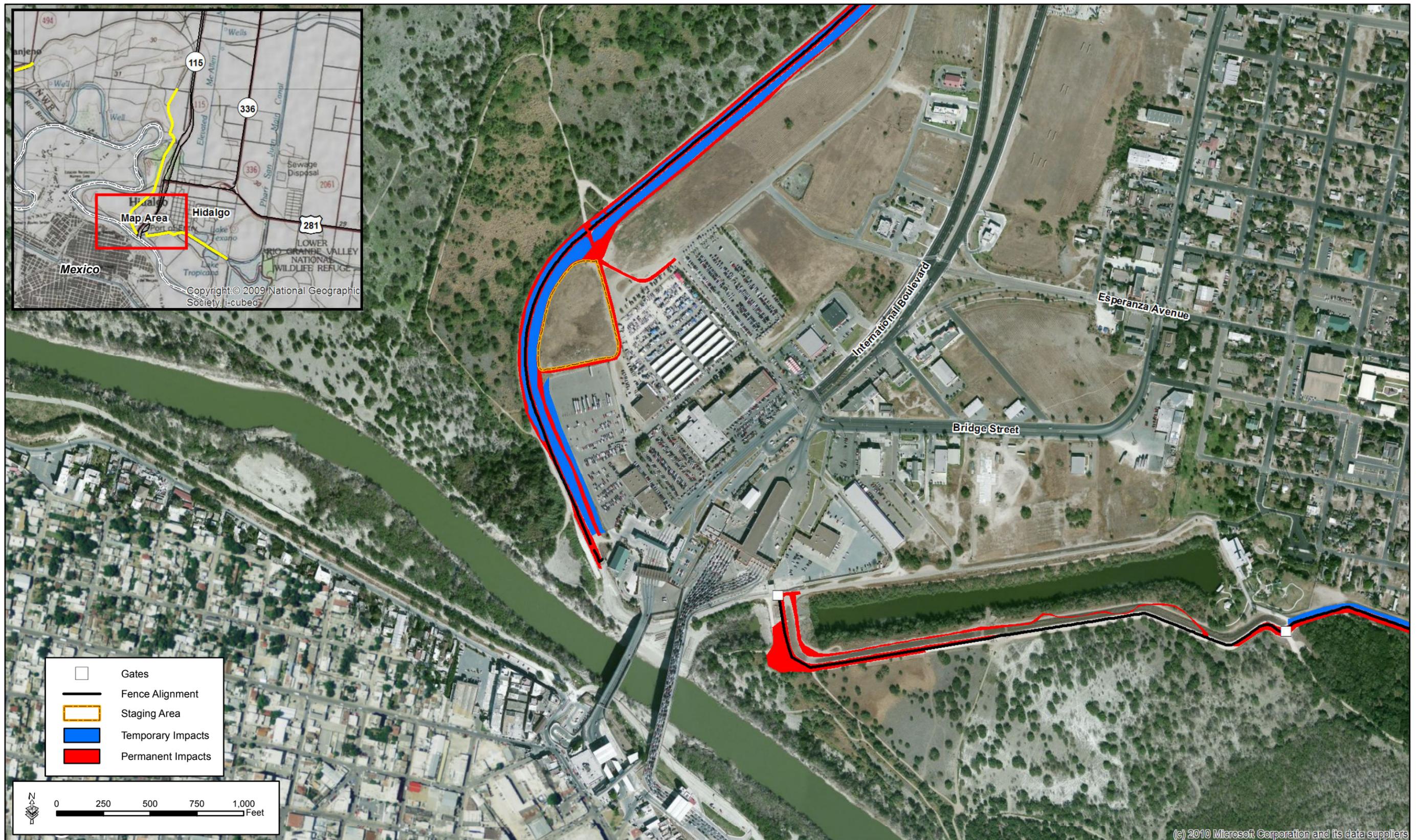
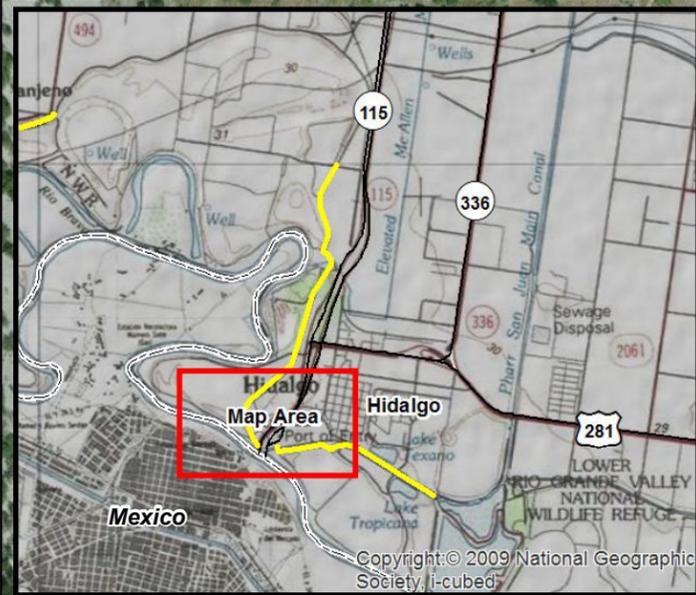


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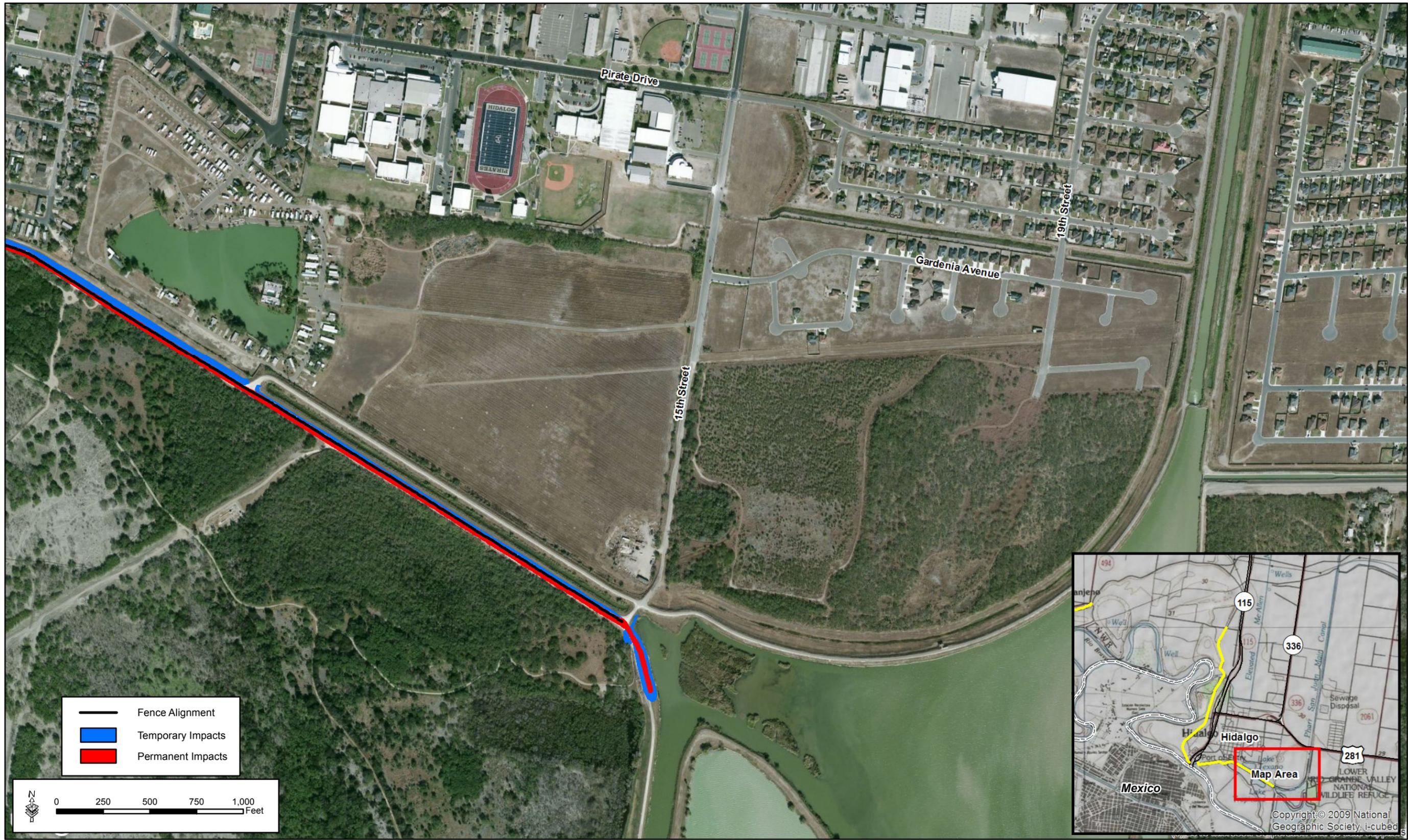
Section O-6 Post-Construction Infrastructure Impacts - Map 7



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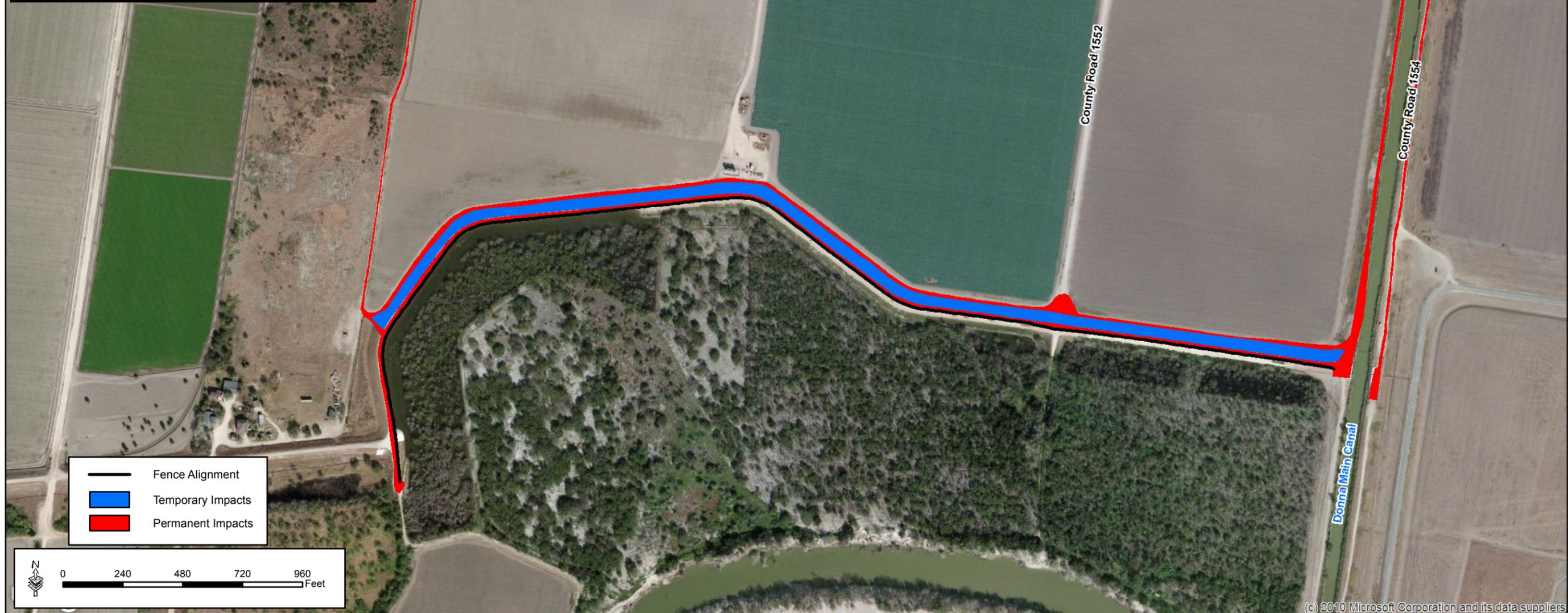


Section O-6 Post-Construction Infrastructure Impacts - Map 8



Section O-6 Post-Construction Infrastructure Impacts - Map 9

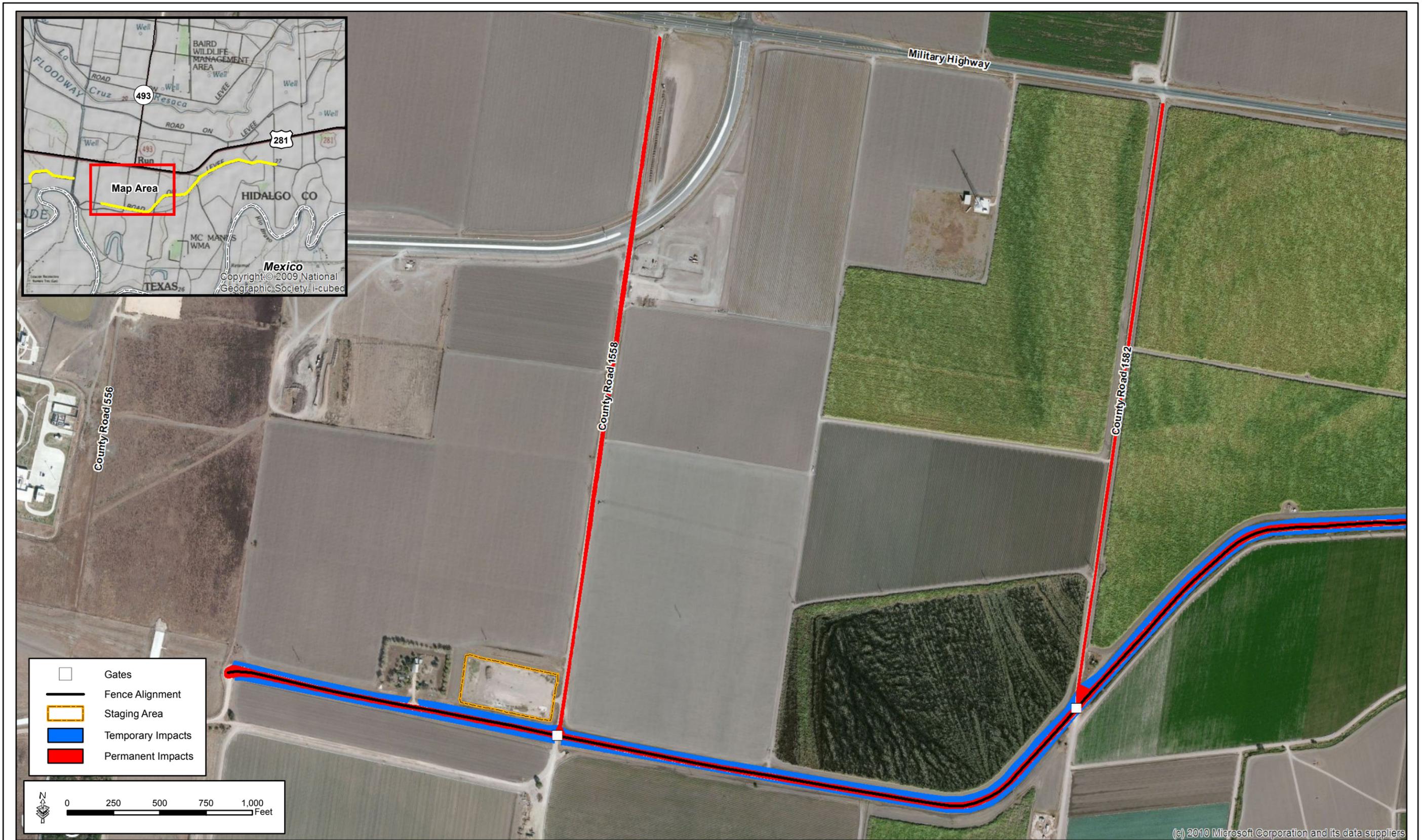




-  Fence Alignment
-  Temporary Impacts
-  Permanent Impacts



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Section O-8 Post-Construction Infrastructure Impacts - Map 11



Section O-8 Post-Construction Infrastructure Impacts - Map 12



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Section O-9 Post-Construction Infrastructure Impacts - Map 13



Section O-9 Post-Construction Infrastructure Impacts - Map 14





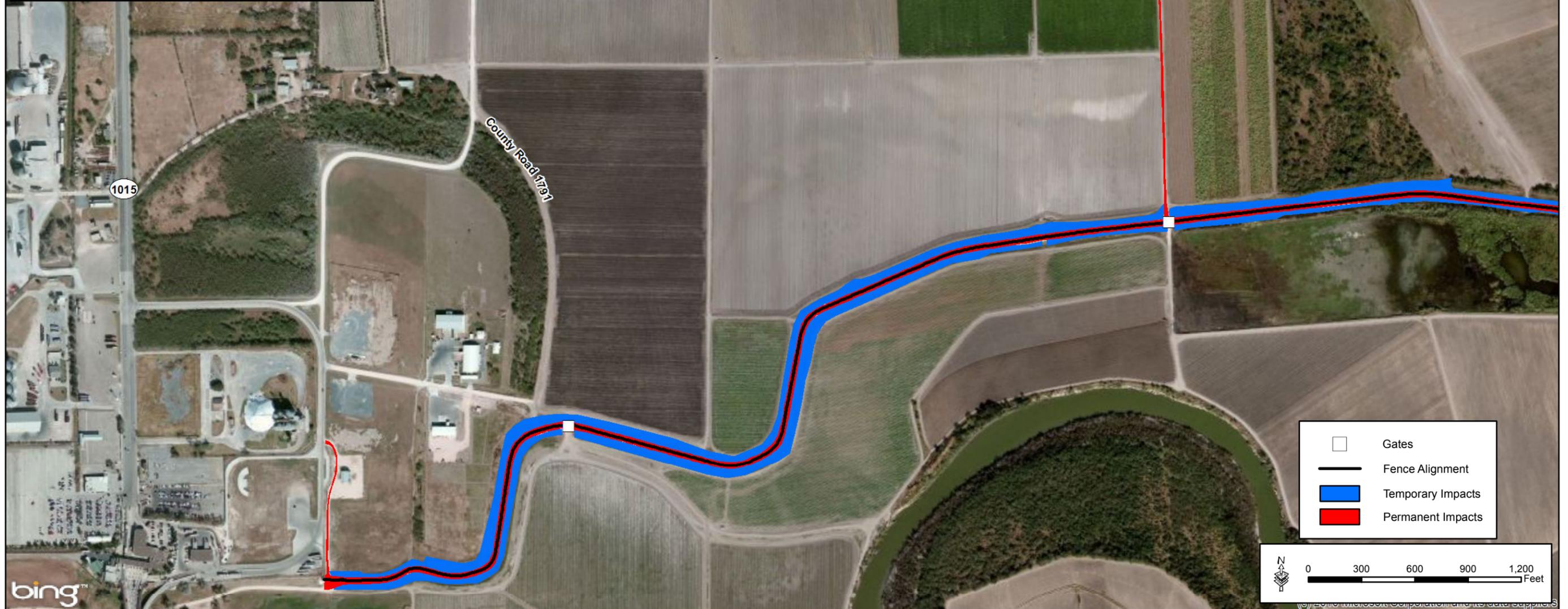
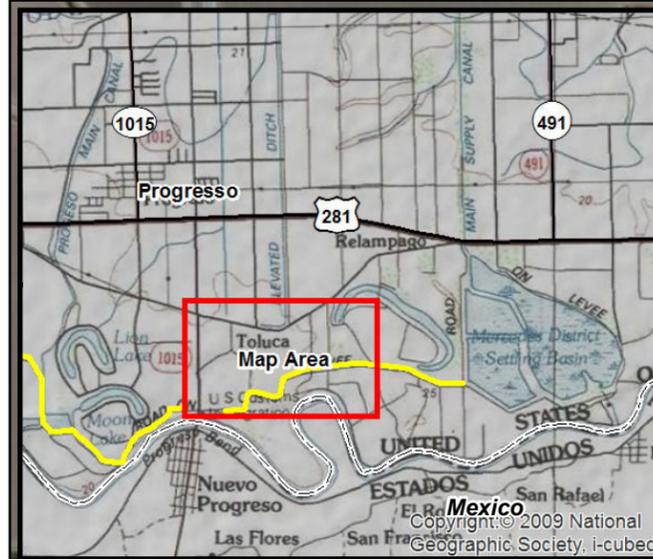
- Gates
- Fence Alignment
- Temporary Impacts
- Permanent Impacts



Section O-9 Post-Construction Infrastructure Impacts - Map 15



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Section O-10 Post-Construction Infrastructure Impacts - Map 16



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Section O-10 Post-Construction Infrastructure Impacts - Map 17

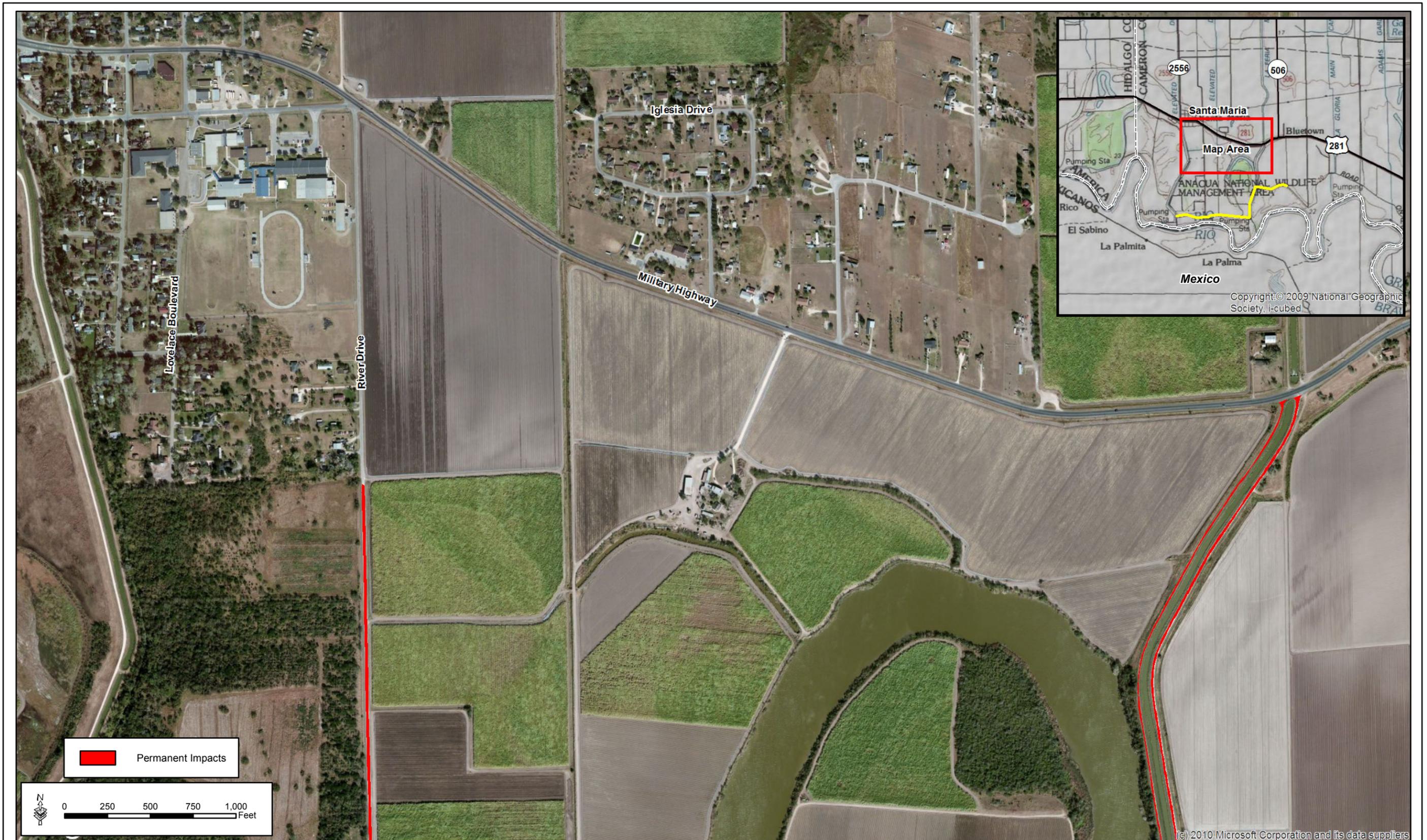


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Section O-11 Post-Construction Infrastructure Impacts - Map 18





Section O-11 Post-Construction Infrastructure Impacts - Map 19



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Section O-12 Post-Construction Infrastructure Impacts - Map 20

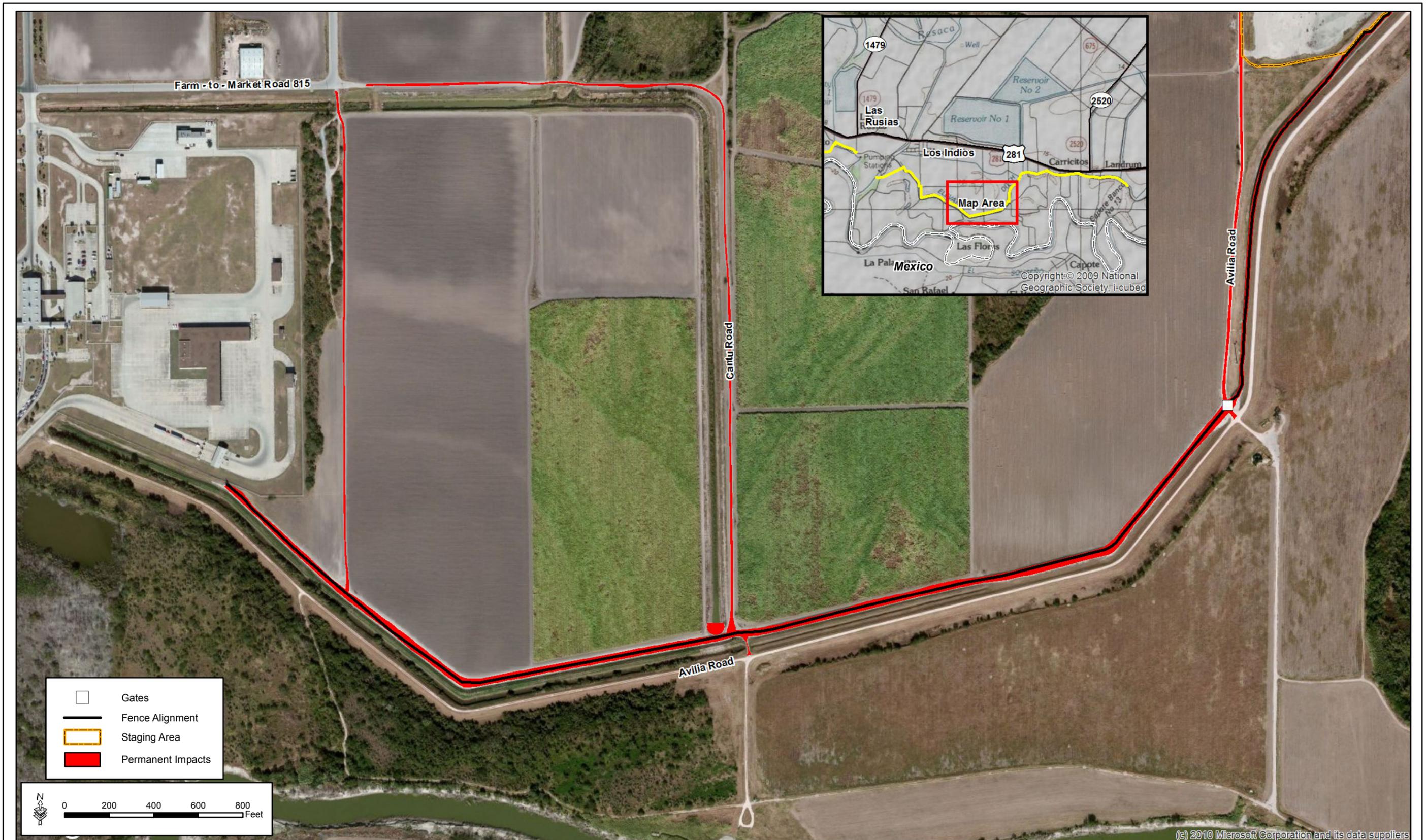




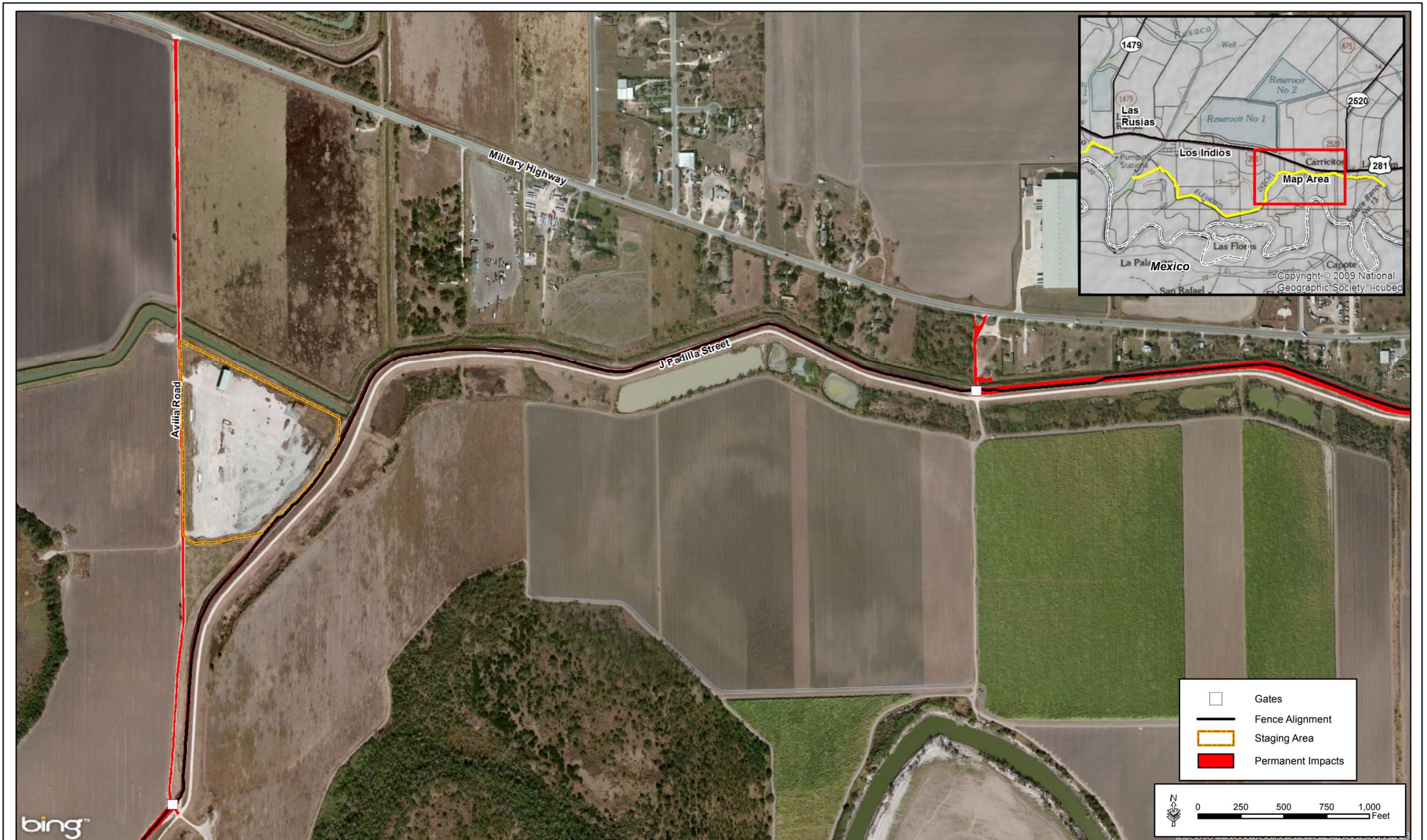
Section O-13 Post-Construction Infrastructure Impacts - Map 21



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Section O-14 Post-Construction Infrastructure Impacts - Map 23



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Section O-15 / O-16 Post-Construction Infrastructure Impacts - Map 26





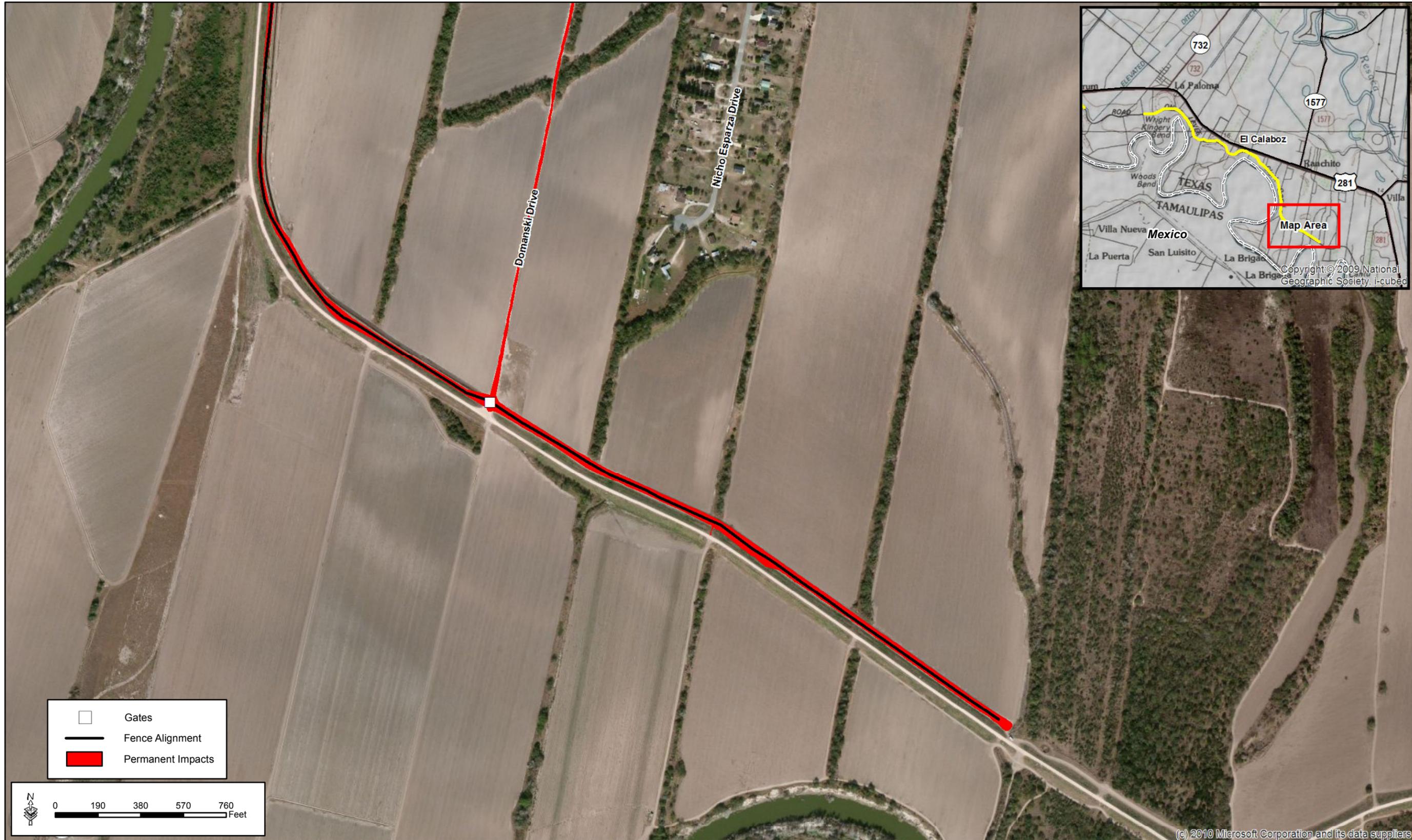
Section O-15 Post-Construction Infrastructure Impacts - Map 25





Section O-16 Post-Construction Infrastructure Impacts - Map 27





Section O-16 Post-Construction Infrastructure Impacts - Map 28



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Section O-17 Post-Construction Infrastructure Impacts - Map 29





Section O-17 Post-Construction Infrastructure Impacts - Map 30



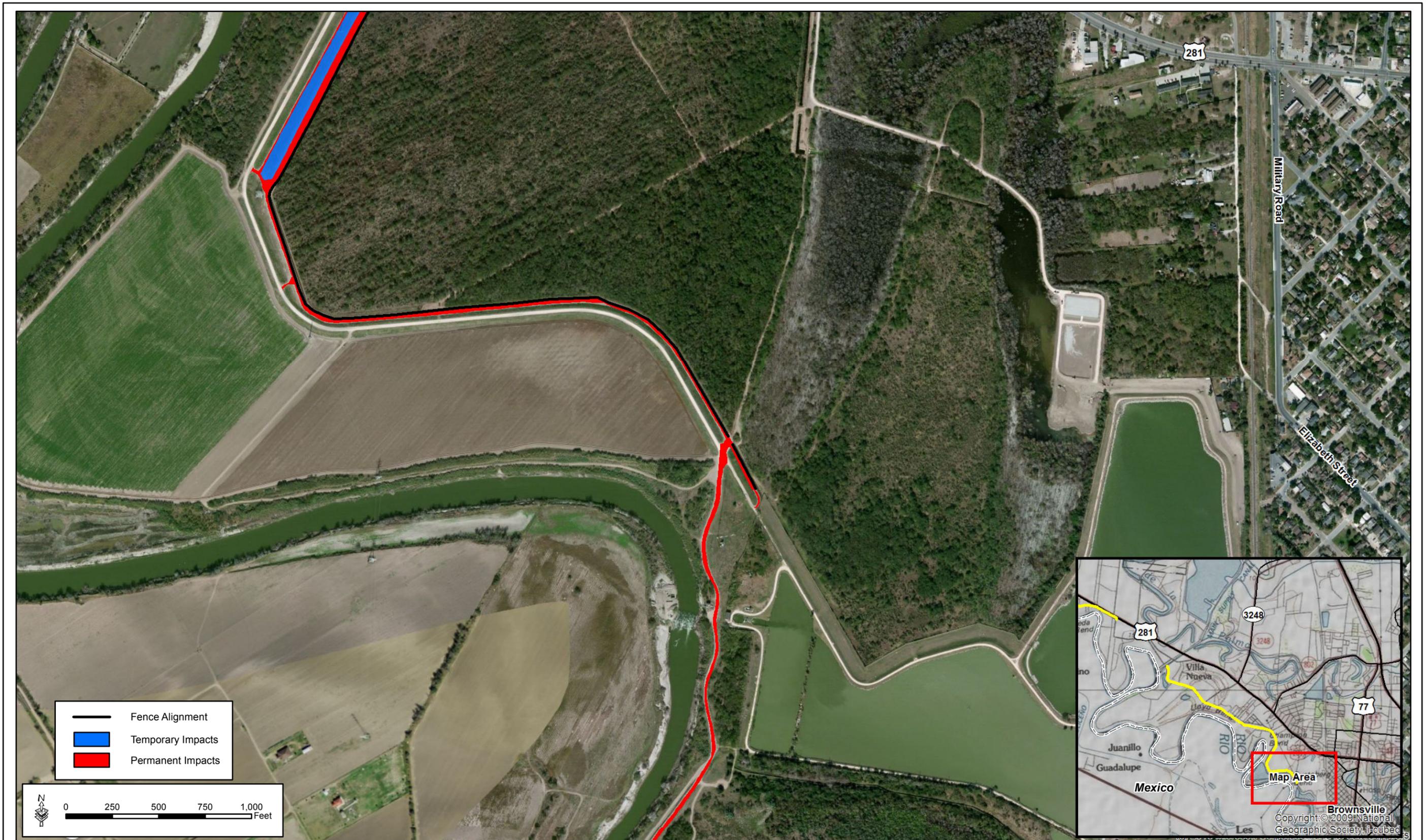
Section O-18 Post-Construction Infrastructure Impacts - Map 31



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Section O-18 Post-Construction Infrastructure Impacts - Map 32



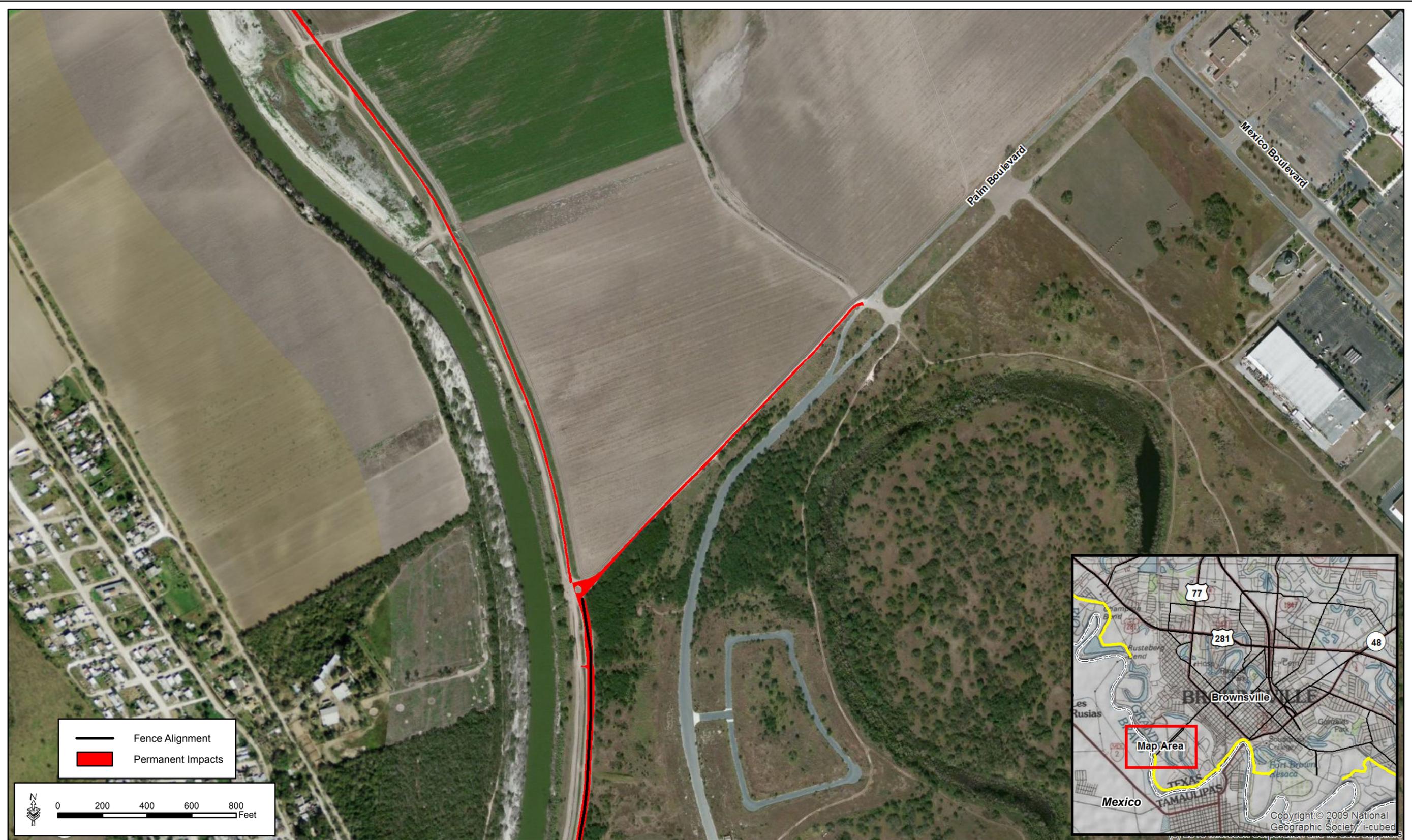
Section O-18 Post-Construction Infrastructure Impacts - Map 33



Section O-18 Post-Construction Infrastructure Impacts - Map 34



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Section O-19 Post-Construction Infrastructure Impacts - Map 35



Section O-19 Post-Construction Infrastructure Impacts - Map 36



Section O-19 Post-Construction Infrastructure Impacts - Map 37





Section O-21 Post-Construction Infrastructure Impacts - Map 38



Section O-21 Post-Construction Infrastructure Impacts - Map 39



Section O-21 Post-Construction Infrastructure Impacts - Map 40



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