

CBP invites your participation in the public review process for the enclosed draft EA and FONSI. The 30-day public comment period begins on November 14, 2016, and comments must be received by December 14, 2016 to be considered for incorporation into the final EA. Comments on the draft EA and draft FONSI can be submitted by:

- E-mail to: joseph.zidron@cbp.dhs.gov
- Mail to:
Mr. Joseph Zidron
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Your prompt attention to this request is greatly appreciated. If you require additional information or have any questions, please contact me by telephone at (949) 643-6392, or by e-mail at joseph.zidron@cbp.dhs.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joseph Zidron".

Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
Program Management Office

Enclosure



**U.S. Customs and
Border Protection**

NOV 10 2016

John Berrey, Chairman
The Quapaw Tribe of Indians
5681 South 630 Road
Quapaw, OK 74364

Dear Chairman Berrey:

Border Patrol Facilities and Tactical Infrastructure (BPFTI) Program Management Office (PMO), within Department of Homeland Security's (DHS) U.S. Customs and Border Protection (CBP) is pleased to forward the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) addressing the proposed upgrade of its Remote Video Surveillance Systems (RVSS) within the U.S. Border Patrol (USBP) Brownsville (BRP), Fort Brown (FTB), Harlingen (HRL), Falfurrias (FLF), and Kingsville (KIN) Stations' Areas of Responsibility (AORs). The BPFTI PMO has prepared this EA on behalf of the USBP.

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The Proposed Action includes the construction, operation, and maintenance of 32 RVSS tower sites to provide long-term, permanent surveillance in the USBP's BRP, FTB, HRL, FLF, and KIN Stations' AORs. The RVSS system provides radar or video data feeds to the command and control (C2) modular facilities. The C2 facilities integrate and display data from all their respective RVSS and relay towers deployed within the USBP's BRP, FTB, HRL, FLF, and KIN Stations' AORs. Each RVSS tower consists of a tower equipped with a suite of sensors and/or communications equipment.

The Proposed Action also includes the construction and maintenance of access drives, totaling 850 feet, and the maintenance and repair of access roads, totaling 19 miles. Access road maintenance and repairs include reconstruction, widening, or straightening of the existing road, and installation of drainage structures, and would require a 30- or 60-foot-wide temporary construction disturbance area. Drainage structures may include but are not limited to ditches, culverts, and low-water crossings.

John Berrey

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Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
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Enclosure



**U.S. Customs and
Border Protection**

NOV 10 2016

Leonard M. Harjo, Principal Chief
The Seminole Nation of Oklahoma
P.O. Box 1498
Wewoka, OK 74884

Dear Principal Chief Harjo:

Border Patrol Facilities and Tactical Infrastructure (BPFTI) Program Management Office (PMO), within Department of Homeland Security's (DHS) U.S. Customs and Border Protection (CBP) is pleased to forward the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) addressing the proposed upgrade of its Remote Video Surveillance Systems (RVSS) within the U.S. Border Patrol (USBP) Brownsville (BRP), Fort Brown (FTB), Harlingen (HRL), Falfurrias (FLF), and Kingsville (KIN) Stations' Areas of Responsibility (AORs). The BPFTI PMO has prepared this EA on behalf of the USBP.

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Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
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**U.S. Customs and
Border Protection**

NOV 10 2016

George Scott, Town King
Thlopthlocco Tribal Town
P.O. Box 188
Okemah, OK 74859

Dear Town King Scott:

Border Patrol Facilities and Tactical Infrastructure (BPFTI) Program Management Office (PMO), within Department of Homeland Security's (DHS) U.S. Customs and Border Protection (CBP) is pleased to forward the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) addressing the proposed upgrade of its Remote Video Surveillance Systems (RVSS) within the U.S. Border Patrol (USBP) Brownsville (BRP), Fort Brown (FTB), Harlingen (HRL), Falfurrias (FLF), and Kingsville (KIN) Stations' Areas of Responsibility (AORs). The BPFTI PMO has prepared this EA on behalf of the USBP.

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Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
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**U.S. Customs and
Border Protection**

NOV 10 2016

Joey P. Barbry, Chairman
Tunica-Biloxi Indian Tribe
151 Melacon Drive
Marksville, LA 71351

Dear Chairman Barbry:

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Sincerely,



Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
Program Management Office

Enclosure



**U.S. Customs and
Border Protection**

NOV 10 2016

Terri Parton, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Dear President Parton:

Border Patrol Facilities and Tactical Infrastructure (BPFTI) Program Management Office (PMO), within Department of Homeland Security's (DHS) U.S. Customs and Border Protection (CBP) is pleased to forward the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) addressing the proposed upgrade of its Remote Video Surveillance Systems (RVSS) within the U.S. Border Patrol (USBP) Brownsville (BRP), Fort Brown (FTB), Harlingen (HRL), Falfurrias (FLF), and Kingsville (KIN) Stations' Areas of Responsibility (AORs). The BPFTI PMO has prepared this EA on behalf of the USBP.

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Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
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Enclosure



**U.S. Customs and
Border Protection**

NOV 10 2016

The Honorable Imelda Barrera
Brooks County Judge
100 E. Miller Street
Falfurrias, TX 78355

Dear Honorable Judge Barrera:

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Sincerely,



Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
Program Management Office

Enclosure



**U.S. Customs and
Border Protection**

NOV 10 2016

The Honorable Pete Sepulveda Jr.
Cameron County Judge
1100 East Monroe
Brownsville, TX 78520

Dear Honorable Judge Sepulveda Jr.:

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The Honorable Judge Pete Sepulveda Jr.
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Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
Program Management Office

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**U.S. Customs and
Border Protection**

NOV 10 2016

The Honorable Louis E. Turcotte III
Kenedy County Judge
151 N. Mallory
Sarita, TX 78385

Dear Honorable Judge Turcotte III:

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Joseph Zidron
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**U.S. Customs and
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NOV 10 2016

Brownsville Public Library
2600 Central Boulevard
Brownsville, TX 78520
(956) 548-1055

To Whom It May Concern:

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Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
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**U.S. Customs and
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NOV 10 2016

Harlingen Public Library
410 76 Drive
Harlingen, TX 78550
(956) 216-5888

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CBP invites your participation in the public review process for the enclosed draft EA and FONSI. The 30-day public comment period begins on November 14, 2016, and comments must be received by December 14, 2016 to be considered for incorporation into the final EA.

Comments on the draft EA and draft FONSI can be submitted by:

- E-mail to: joseph.zidron@cbp.dhs.gov
- Mail to:
Mr. Joseph Zidron
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Your prompt attention to this request is greatly appreciated. If you require additional information or have any questions, please contact me by telephone at (949) 643-6392, or by e-mail at joseph.zidron@cbp.dhs.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joseph Zidron".

Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
Program Management Office

Enclosure



**U.S. Customs and
Border Protection**

NOV 10 2016

Ed Rachal Memorial Library
1402 South St. Marys Street
Falfurrias, TX 78355
(361) 325-3681

To Whom It May Concern:

Border Patrol Facilities and Tactical Infrastructure (BPFTI) Program Management Office (PMO), within Department of Homeland Security's (DHS) U.S. Customs and Border Protection (CBP) is pleased to forward the draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) addressing the proposed upgrade of its Remote Video Surveillance Systems (RVSS) within the U.S. Border Patrol (USBP) Brownsville (BRP), Fort Brown (FTB), Harlingen (HRL), Falfurrias (FLF), and Kingsville (KIN) Stations' Areas of Responsibility (AORs). The BPFTI PMO has prepared this EA on behalf of the USBP.

The draft EA was prepared in compliance with provision of the National Environmental Policy Act (NEPA) of 1969 as amended (42 U.S. Code 4321, et seq.), the Council on Environmental Quality's NEPA implementing regulations at 40 Code of Federal Regulations Part 1500 et seq., and DHS's Directive Number 023-1 Rev. 01, and Instruction Manual 023-01-001-01, Rev. 01: *Environmental Planning Program*.

The Proposed Action includes the construction, operation, and maintenance of 32 RVSS tower sites to provide long-term, permanent surveillance in the USBP's BRP, FTB, HRL, FLF, and KIN Stations' AORs. The RVSS system provides radar or video data feeds to the command and control (C2) modular facilities. The C2 facilities integrate and display data from all their respective RVSS and relay towers deployed within the USBP's BRP, FTB, HRL, FLF, and KIN Stations' AORs. Each RVSS tower consists of a tower equipped with a suite of sensors and/or communications equipment.

The Proposed Action also includes the construction and maintenance of access drives, totaling 850 feet, and the maintenance and repair of access roads, totaling 19 miles. Access road maintenance and repairs include reconstruction, widening, or straightening of the existing road, and installation of drainage structures, and would require a 30- or 60-foot-wide temporary construction disturbance area. Drainage structures may include but are not limited to ditches, culverts, and low-water crossings.

CBP invites your participation in the public review process for the enclosed draft EA and FONSI. The 30-day public comment period begins on November 14, 2016, and comments must be received by December 14, 2016 to be considered for incorporation into the final EA.

Comments on the draft EA and draft FONSI can be submitted by:

- E-mail to: joseph.zidron@cbp.dhs.gov
- Mail to:
Mr. Joseph Zidron
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Your prompt attention to this request is greatly appreciated. If you require additional information or have any questions, please contact me by telephone at (949) 643-6392, or by e-mail at joseph.zidron@cbp.dhs.gov.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joseph Zidron".

Joseph Zidron
Environmental Protection Specialist
Border Patrol Facilities and Tactical Infrastructure
Program Management Office

Enclosure



United States Department of the Interior
FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Service Field Office
3325 Green Jay Rd
Alamo, TX 78516



In Reply Refer To:
FWS/R2/ES/02ETCC00-2017-I-0218

Joseph Zidron
Environmental Branch Chief (A)
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Dear Mr. Zidron:

Thank you for your letter and environmental assessment received November 10, 2016, regarding the effects of proposed Remote Video Surveillance System (RVSS) Towers on federally listed species in Hidalgo, Cameron, Brooks, and Kenedy counties, Texas. Your project was also evaluated with respect to wetlands and other federal trust fish and wildlife resources.

We understand that U.S. Customs and Border Protection (CBP) proposes the construction, operation, and maintenance of 32 RVSS sites to provide long-term, permanent surveillance. Each RVSS tower would be equipped with a suite of sensors and/or communications equipment. The proposed action also includes the construction and maintenance of 850 feet of access drives, and the maintenance and repair of 19 miles of access roads. Access roads will require reconstruction, widening, or straightening of the existing road, and installation of drainage structures including a 30- to 60-foot wide temporary construction disturbance area. Drainage structures may include ditches, culverts, and low-water crossings.

Three types of tower structures are proposed: self-standing towers (SSTs), monopole towers, and relocatable towers. Only the relocatable towers would require guy wires. SSTs could be up to 199 feet high including lightning protection. Monopole towers are single metal poles with reinforced steel and concrete foundations varying from 60 to 199 feet high. Relocatable towers are towed on a trailer and placed on level ground. The guy wires attach to the relocatable tower trailer outrigger infrastructure to stabilize the tower when extended. When fully extended these towers would be up to 120 feet tall.

Construction of SSTs or monopole tower sites results in ground disturbance to a 200-foot x 200-foot area (40,000 square feet). All staging of construction equipment and materials occurs within this footprint. Each permanent tower site footprint is expected to be up to a 100-foot x 100-foot (10,000 square feet) and includes a permanent parking area for vehicles and a perimeter fence. Also, each RVSS tower would be powered by commercial grid power or by solar power with grid or applicable redundant system for backup. The grid power design would be site-specific; however, commercial grid power would be overhead to the permanent disturbed area and then underground where it enters the 100- x 100-foot fenced tower site. Overhead or buried lines outside of the permanent disturbance area would be placed within access road construction buffer areas to the extent possible.

There are several tower locations on the Lower Rio Grande Valley National Wildlife Refuge along the Rio Grande River that will require a Special Use Permit and a right of way from the Rio Grande Valley Refuge and the Realty Division. The right of way process is done at the Regional Office and can take up to a year. There are some towers planned for the Refuge that could impact habitat, so please coordinate closely with the Refuge

Manager, Bryan Winton at 956-784-7521, to minimize habitat clearing and relocate towers to more disturbed areas. Impacts to Refuge habitat will need to be compensated if avoidance or minimization cannot be achieved.

BMPs and Conservation measures are listed in your document and would be implemented as part of the proposed action to avoid impacts to threatened and endangered species and other environmental resources. Conservation measures include CM1a – CM1d, and CM2. In addition, we recommend the following:

- U.S. Fish and Wildlife Service (Service) (2000) *Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers* and Service (2013) *Revised Voluntary Guidelines for Communication Tower Design, Siting, Construction, Operation, Retrofitting, and Decommissioning* would be implemented to include actions to reduce nighttime atmospheric lighting and the potential adverse effects of nighttime lighting on migratory bird and nocturnal flying species. The proposed tower sites may be lit for security purposes. Security lighting may consist of a “porch light” on the tower shelter and would be controlled by a motion detector. When so equipped, the light would be shielded to avoid illumination outside the footprint of the tower site. The proposed RVSS may have infrared lighting installed for aviation safety. The heights of the towers will also be limited to 199 feet above ground level as described in the Service guidance.
- Following construction activities, any temporary impact areas will be revegetated with a mixture of nursery plantings or a mixture of 46 native plant seeds (or both).
- Birds would potentially perch on towers, and the threat of striking the towers exists; however, implementation of best management practices recommended by the Service (2000) would greatly reduce the likelihood of such impacts. These recommendations include the collocation of equipment on existing sites to minimize disturbance and obstructions, adjustments to lighting to reduce the likelihood of bird strike; anti-perching devices; and the avoidance of using guy wires and visual markers for the relocatable towers with guy wires.
- Down shield lights from towers and facilities away from brush.

To comply with the Migratory Bird Treaty Act and to avoid impacts to listed avian species, CBP would conduct advance surveys for nesting migratory birds and nests if mechanical control activities occurred during the nesting season (March 15 through September 15). If project activities must be conducted between March and August, we recommend surveying for nests prior to commencing work and if a nest is found, and if possible, the Service recommends a buffer of vegetation (≥ 50 ft) remain around the nest until young have fledged or the nest is abandoned.

Site Specific Recommendations:

- **Reduce the footprint** of the 30-60 foot wide road for access and utilities as much as possible.
- **Extension of Palm location** – Push site back towards road, and away from the Rio Grande; leave at least 30 foot wildlife corridor along the river for habitat connectivity.
- **BRP FTBOC** – Place tower on west side of the road.
- **FLF Checkpoint** – Could place tower in more open area.
- **FTB Armstrong** – Could place tower in more open area.
- **FTB End of Hwy 4** - Could place tower in more open area.
- **FTB Zone 34** - Could place tower in more open area.


- **HRL Wells Bros Canal** - Could place tower in more open area.
- **BRP Extensions of Palm** - Could place tower in more open area.
- **BRP FTBGC Y** - Could place tower in more open area. A 30 foot wildlife corridor needs to be left along the Rio Grande if not tower stays in place.
- **FLF Checkpoint Tower** - Could place tower in more open area.
- **FTB East of Sable Palm Rd** - Could place tower in more open area.
- **FTB Zone 34** - Could place tower in more open area.
- **HRL Concrete Canal & Levee** - Could place tower in more open area.
- **HRL Green Barn Rd** - Could place tower in more open area.
- **HRL Wells Bros Canal** - Could place tower in more open area.

Based on the project information you submitted and above understanding, your agency made a "may affect, not likely to adversely affect" determination for the Gulf Coast jaguarundi and ocelot. The Service concurs with the information presented and your determination. Your agency made a "no effect" determination on the interior least tern, red-crowned parrot, star cactus, Zapata bladderpod and its critical habitat, ashy dogweed, Walker's manioc, and Texas ayenia. The Service does not provide concurrence for "no effect" determinations, but by making a determination we believe the agency complied with Section 7(a)(2) of the Endangered Species Act of 1973, as amended.

We appreciate the opportunity to provide pre-planning information. If we can be of further assistance, please contact Ernesto Reyes at (956) 784-7560.

Sincerely,



 Charles Ardizzone
Field Supervisor

cc:

Assistant Field Supervisor, U.S. Fish and Wildlife Service, Corpus Christi, TX
Bryan Winton, LRGVNR Manager, Alamo, TX
Yvette Truit, Realty Specialist, Albuquerque, NM



Kiowa Tribe of Oklahoma

Office of Historic Preservation

P.O. Box 50
100 Kiowa Way
Carnegie, OK 73015

November 25, 2016

Joseph Zidron
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

RE: Section 106 Consultation & Review for proposed project and Environmental Assessment for Remote Video Surveillance Systems within USBP Brownsville, Fort Brown, Harlingen, Falfurrias, and Kingsville Stations' AOR in the Rio Grande Valley Sector, Texas

Dear Mr. Zidron,

The Kiowa Tribe Office of Historic Preservation has received the information and materials requested for our Section 106 Review and Consultation. Section 106 of the National Historic Preservation Act of 1966 (NHPA), and 36 CFR Part 800 requires consultation with the Kiowa Tribe.

Given the information provided, you are hereby notified that the proposal project location should have minimal potential to adversely affect any known Archaeological, Historical, or Sacred Kiowa sites. Therefore, in accordance with 36 CFR 800.4(d) (1), you may proceed with your proposed project. However, please be advised undiscovered properties may be encountered and must be immediately reported to the Kiowa Tribe Office of Historic Preservation under both the NHPA and NAGPRA regulations.

This information is provided to assist you in complying with 36 CFR Part 800 for Section 106 Consultation procedures. Please retain this correspondence to show compliance. Should you have any questions, please do not hesitate to contact me at kellie@tribaladminsivices.org. Thank you for your time and consideration.

Sincerely,

Kellie J. Poolaw
Acting Tribal Historic Preservation Officer (THPO)

Kellie J. Poolaw
Acting Tribal Historic Preservation Officer (THPO)
kellie@tribaladminsivices.org

Phone: (405) 435-1650

Complex: (580) 654-2300



United States Department of the Interior

FISH AND WILDLIFE SERVICE

South Texas Refuge Complex

Lower Rio Grande Valley National Wildlife Refuge

3325 Green Jay Road

Alamo, Texas 78516



December 2, 2016

Joseph Zidron
Environmental Protection Specialist
Border Patrol & Air and Marine Program Management Office
U.S. Customs and Border Protection
949-643-6392
949-307-2982
joseph.zidron@dhs.gov

Re: Comments on RGV RVSS Tower Upgrade Project (Harlingen, Fort Brown, Brownsville, Kingsville, Falfurrias) Environmental Assessment, November 2016, specific to the Lower Rio Grande Valley National Wildlife Refuge (LRGV NWR); and in general.

1. The EA Title does not include McAllen Station—1 of 9 stations in the Rio Grande Valley Sector of CBP. However, there are tower locations/maps described in this document for the McAllen Station AOR. We reviewed a separate EA previously for this same project that was specific to the western portion of the Rio Grande Valley which included McAllen Station AOR.
2. The EA Title states RVSS Tower “Upgrade”. The majority of the tower locations proposed in this document are new towers, and not an upgrade of anything currently existing.
3. Tower heights are identified as being up to 199’ in the EA. When we met with you in 2014 we were informed the towers would be between 80-120’. The refuge supports the shorter tower heights on refuge lands in order to reduce incidental bird strike collision occurrences. However, the refuge may consider taller (maximum height) towers in one or more refuge areas, if CBP would allow FWS to co-locate/install radio communication infrastructure on the proposed tower. Particularly in the Rio Grande City, TX vicinity, our Fire Management Program pays over \$25K annually for tower rental in order to maintain hand-held communications capability, and this cost has increased annually. Since CBP and FWS are both federal agencies, we would be interested in obtaining space for communication equipment on one or more of the proposed towers, if it can be allowed without impacting the primary purposes for these proposed towers.
4. Easements or Rights-of-Way (widths) proposed to access tower locations was identified as 30’ or 60’. After speaking with you over the phone on December 1, 2016, you informed me that these requested widths would generally be the extreme maximum or, in general, in excess of what is actually needed in order to access tower locations at many of the proposed sites (on or off refuge). You also made it clear that the proposed 60’ wide access easement/ROW was proposed for tower sites that would also need electricity (utilities) supporting them. We strongly

recommend that the proposed tower locations on the refuge (and ideally everywhere) will need to be built/accessed with the least amount of habitat impact as possible. Therefore, the refuge will seek to reduce the access route widths, and possibly the tower site dimensions as well, in order to maximize the protection of wildlife and plant resources on the refuge, while affording CBP the ability to install and access the new towers. Note that it is paramount that we be notified immediately upon final determination of all tower locations, so that the refuge can begin processing easement/right-of-way requests associated with those towers located on the refuge, since the timeframe to legally process an easement/right-of-way request can often take upwards of 12 months to complete. In order to avoid unnecessary delays in future tower construction on the refuge, we urge you to continue to maintain open and frequent communication about the status of this proposed project.

5. Whenever and where ever possible, we urge CBP to consider adjusting proposed access easements and/or tower locations that are located within existing forest vegetation—since the native habitat found in South Texas has been reduced to ~5% of what originally existed. We understand that the tower/equipment viewshed is paramount and that some impacts will occur, but, when possible, CBP should seek to utilize existing roads to/from tower locations, and otherwise seek to avoid extensive forest removal actions in order to establish tower sites. We found that in a number of sites, agricultural (cleared) land exists within very close proximity to proposed tower sites that are currently planned to be within forested areas. We recommend that CBP opt to place towers in agricultural (un-forested) whenever possible, in lieu of clearing additional habitat. We noted that a number of proposed tower locations in the Brownsville and Fort Brown Station AOR's are within existing/remaining native vegetation. These are the tower sites we urge CBP to consider adjusting if feasible/possible. Lastly, one proposed site (FTB Zone 34 Preferred) is in dense brush, with road access proposed through a Resaca (oxbow lake). New roads and tower sites should avoid dense brush and access routes through critically-important wetland areas.

6. Numerous tower locations are proposed very close to the Rio Grande. Many or most are not close to the Rio Grande, but are a considerable distance removed (back from) the river. We recommend tower locations proposed on or near the bank of the river be adjusted northward in order to preserve the capability of the refuge to complete the "wildlife corridor" in the future, and meet conservation demands for imperiled and migratory bird species found in south Texas. If tower locations are constructed near the bank of the river, our ability to complete this land acquisition project in the future will be significantly impacted from the habitat loss and expected ongoing activity/disturbance that will be present at the tower locations in the future. Conversely, the FWS does see value in appropriately-cited tower locations that will deter future illegal traffic activities from occurring on refuge lands in the future.

7. HRL Three House Road Southeast Preferred Tower location is located along the La Gloria Tract of the LRGV NWR. The proposed route of egress is located on private property located within the FWS property. The canal systems and ditches that provide irrigation water from two separate pumping locations located on the river bank of our property, were privately held when this property was purchased. In addition, the refuge does not want to see improved access on this private property from HW281 to the IBWC levee because it is adjacent to a 50-acre managed wetland we own, which is a protected area valuable to migratory birds. Construction of a new/improved route of travel in this location will cause excessive disturbance to sensitive species currently using this wetland (like Wood Storks and a variety of other migratory

waterfowl and shorebirds). We strongly recommend CBP consider the Alternate route of travel to access the proposed tower on this refuge tract.

This concludes our comments to the RVSS Tower Environmental Assessment for the eastern and northern portions of south Texas. We appreciate the feedback you provided yesterday, and the clarification(s) you provided on additional previous comments. Please contact us as often as necessary so that we can evaluate final proposals further and assist CBP with initiating important legal processes regarding access and occupancy of future tower sites located on the LRGV NWR. Please provide regular updates via email (bryan_winton@fws.gov) or by phone, (956) 784-7521. Thank you again for this opportunity to provide input on this proposed project.

Sincerely,



Bryan R. Winton
Refuge Manager

cc: Robert D. Jess, Project Leader, South Texas Refuge Complex
Sonny Perez, Deputy Project Leader, South Texas Refuge Complex
Chris Perez, Wildlife Biologist (Refuge Realty), Lower Rio Grande Valley NWR
Ernesto Reyes, Wildlife Biologist, Ecological Services (Alamo Field Office)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

South Texas Refuge Complex

Lower Rio Grande Valley National Wildlife Refuge

3325 Green Jay Road

Alamo, Texas 78516

December 6, 2016



Joseph Zidron
Environmental Protection Specialist
Border Patrol & Air and Marine Program Management Office
U.S. Customs and Border Protection 949-
643-6392
949-307-2982
joseph.zidron@dhs.gov

Re: Follow-up comments on RGV RVSS Tower Upgrade Project (Harlingen, Fort Brown, Brownsville, Kingsville, Falfurrias) Environmental Assessment, November 2016.

Dear Mr. Zidron:

As a follow-up to our letter of December 2, 2016, we would also like to include information on guiding policy regarding the placement of towers and related infrastructure on National Wildlife Refuges. In general, the granting of rights-of-way and/or easements across National Wildlife Refuges is outlined in pertinent part--both in regulation and policy (Fish and Wildlife Service Manual, Part 340 FW 3.1-3.15; 603 FW1-Appropriate Refuge Uses; and 603 FW2-Compatibility). Before any new uses such as rights of way or permits are granted on refuge lands, we must first evaluate such uses for their "appropriateness" and if determined appropriate; they must then be evaluated for "compatibility" with the Refuge System mission and refuge purposes. Of course, we would encourage any alternatives that would not involve the need to acquire new rights-of-way across refuge lands as these uses are usually not determined to be an appropriate refuge use and involve a fairly complicated and lengthy environmental review, public comment, and assessment process, as required per National Environmental Policy Act and any other federal resource mandates. Please also keep in mind that further coordination and compliance with our Ecological Services Field Offices will be required.

Attached are referenced copies of our Appropriate Uses, Compatibility Policies, and Fish and Wildlife Service policy on Rights-of-Way that may affect your project. Thanks again for the opportunity to provide input on your proposed project. If you have any questions or concerns, please let me know at (956) 784-7521 or via email at bryan_winton@fws.gov

Sincerely,

Bryan R. Winton
Refuge Manager

Cc: Robert D. Jess, Project Leader, South Texas Refuge Complex
Sonny Perez, Deputy Project Leader, South Texas Refuge Complex
Chris Perez, Wildlife Biologist (Refuge Realty), Lower Rio Grande Valley NWR
Ernesto Reyes, Wildlife Biologist, Ecological Services (Alamo Field Office)

Attachments (3)



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

November 23, 2016

Mr. Joseph Zidron
US Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Subject: Notice of Availability of Draft Remote Video Surveillance Systems Upgrade in the Rio Grande City, McAllen, and Weslaco Stations' areas of responsibility of the U.S. Border Patrol, Rio Grande Valley Sector, Texas Environmental Assessment and Finding of No Significant Impact

Dear Mr. Zidron:

The United States Section, International Boundary and Water Commission (USIBWC) has reviewed the Draft Remote Video Surveillance Systems (RVSS) Upgrade Environmental Assessment (EA) and Finding of No Significant Impact dated November, 2016. This EA identifies and assesses the potential impact of upgrade of RVSS towers in the Rio Grande City, McAllen, and Weslaco Stations' areas of responsibility of the U.S. Border Patrol, Rio Grande Valley Sector, Texas. The project area is the Rio Grande Basin of Texas and encompasses three U.S. Border Patrol stations with proposed locations occurring on privately owned land, municipally owned lands and public lands managed by the U.S. Fish and Wildlife Service, and Customs and Border Patrol.

USIBWC reiterates the following comments for consideration.

1. USIBWC lands, rights of way or easements are not specifically identified in the figures but do exist throughout the project area. Proposed tower locations and/or utility and access improvements that occur on USIBWC controlled lands require formal technical review, approval, and licensing from USIBWC before earth disturbing activities may begin. This coordination may be initiated via the USIBWC Boundary and Realty Office at (915) 832-4716 or http://www.ibwc.gov/Permits_Licenses/boundary_realty.html.
2. The technical evaluation of any facilities proposed within floodways, regardless of land ownership must include hydraulic simulation. The results of these simulations may require substantial siting or design changes by the proponent in order to maintain the hydraulic performance of the floodway.

The Commons, Building C, Suite 100 • 4171 N. Mesa Street • El Paso, Texas 79902-1441
(915) 832-4701 • Fax: (915) 832-4166 • <http://www.ibwc.gov>

Preliminary review of the November revision of this EA by the USIBWC Environmental Management Division has revealed multiple locations where CBP improvements are proposed within USIBWC jurisdiction. Some examples of this occur with the following proposed locations.

1. MCS Inspiration Canal Preferred. - Site is located within river levee.
2. HRL Rio Rico Road and Pump Road Preferred. - Site is located within river levee.
3. FTB Zone 34 Preferred. - Site is located within river levee.
4. BRP Cindy Stone Preferred. - Site appears to include portion of levee as proposed CPB Service Road.
5. BRP FTBGC Preferred. - Site appears to include a levee crossing by a proposed 60 foot roadway and ownership of proposed site must be confirmed by USIBWC Boundary and Realty Office as the USIBWC has ownership of multiple parcels at that location. In addition, there is anecdotal evidence of landfilling of military material in this vicinity at the conclusion of World War II. Determination of the nature and extent of this activity requires archives investigation and possibly field investigation through the U.S. Army Corps of Engineers Formerly Used Defense Sites Program (FUDS).

USIBWC is unable to concur with specific locations proposed in this EA without formal submission of these locations and associated improvement to the IBWC through the USIBWC Boundary and Realty Office at (915)832-4716 or http://www.ibwc.gov/Permits_Licenses/boundary_realty.html.

If you have any questions or require additional information, please feel free to contact Kelly Blough at (915) 832-4734 or to kelly.blough@ibwc.gov.

Sincerely,



Gilbert G. Anaya
Division Chief
Environmental Management Division



INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

December 7, 2016

Mr. Joseph Zidron
US Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Subject: Notices of Availability of October Draft Remote Video Surveillance Systems Upgrade in the Rio Grande City, McAllen, and Weslaco Stations' areas of responsibility of the U.S. Border Patrol, Rio Grande Valley Sector, Texas Environmental Assessment and Finding of No Significant Impact **and** the November Draft Remote Video Surveillance Systems Upgrade in the Brownsville, Fort Brown, Harlingen, Falfurrias, and Kingsville Stations' areas of responsibility of the U.S. Border Patrol, Rio Grande Valley Sector, Texas Environmental Assessment and Finding of No Significant Impact.

Dear Mr. Zidron:

The United States Section, International Boundary and Water Commission (USIBWC) has considered further the October Draft Remote Video Surveillance Systems Upgrade in the Rio Grande City, McAllen, and Weslaco Stations' areas of responsibility of the U.S. Border Patrol, Rio Grande Valley Sector, Texas Environmental Assessment and Finding of No Significant Impact **and** the November Draft Remote Video Surveillance Systems Upgrade in the Brownsville, Fort Brown, Harlingen, Falfurrias, and Kingsville Stations' areas of responsibility of the U.S. Border Patrol, Rio Grande Valley Sector, Texas Environmental Assessment and Finding of No Significant Impact. The project area is in the lower Rio Grande Basin of Texas and encompasses the U.S. Border Patrol Rio Grande Valley Sector(s) with proposed locations occurring on privately owned land, municipally owned lands and public lands managed by the U.S. Fish and Wildlife Service, and Customs and Border Patrol (CBP).

During initial review of the Environmental Assessments (EA's) by USIBWC it was unclear that the proposed actions while contiguous were being analyzed for the purposes of National Environmental Policy Act (NEPA) as separate actions. Comments supplied previously by USIBWC in our letters of October 18, 2016 and November 23, 2016 remain but for clarity are restated below and are intended to be applicable to both documents.

1. Section 4.4.6 in both EA's states that "CBP is coordinating with USIBWC regarding potential impacts on the floodplain from the proposed construction of towers within the floodplain". In order for this evaluation to be completed by USIBWC, formal submission of specific locations proposed and associated improvements must be submitted for

technical review to the USIBWC through the USIBWC Boundary and Realty Office at (915) 832-4716 or http://www.ibwc.gov/Permits_Licenses/boundary_realty.html.

2. The appearance of segmentation into separate actions exists unless specifically addressed in the respective Cumulative Impact analysis in each EA. Furthermore the relation of these actions and their NEPA analysis to the CPB 2007 Environmental Impact Statement for Construction, Maintenance and Operation of Tactical Infrastructure, Rio Grande Valley Sector, Texas should be identified.

If you have any questions or require additional information, please feel free to contact Kelly Blough at (915) 832-4734 or to kelly.blough@ibwc.gov.

Sincerely,

A handwritten signature in blue ink that reads "Gilbert G. Anaya". The signature is written in a cursive style with a large, stylized 'G' at the beginning.

Gilbert G. Anaya
Division Chief
Environmental Management Division

TEXAS HISTORICAL COMMISSION

real places telling real stories

December 7, 2016

Joseph Zidron
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966*
Draft Environmental Assessment and FONSI for Proposed 32 RVSS Towers, Brooks, Cameron, Hidalgo & Kenedy Counties
CPB/106 (THC Track #201702039) (See also THC Track #201702278)

Dear Mr. Zidron:

Thank you for your correspondence describing the above referenced project which we received on November 14, 2016. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

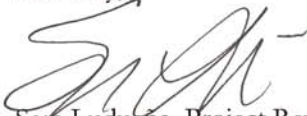
This Draft Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) have been provided to us as part of your compliance with National Environmental Policy Act (NEPA) regulations. In addition to this document, we have received and are reviewing a draft cultural resource survey report related to this undertaking. It is our understanding that this undertaking includes construction of 32 new Remote Video Surveillance System (RVSS) towers at locations in multiple south Texas counties. We will be providing comments separately on the draft survey report and the proposed tower locations, but would also like to provide the following additional information for your consideration and inclusion in the final EA.

The History Programs Division review staff, led by Justin Kockritz, concurs with the findings detailed in Table 3.16 of the Environmental Assessment with the following additions:

- KIN Juanita Section of Kenedy Ranch is located within the Armstrong Ranch, which was determined eligible for listing in the National Register of Historic Places in 2011; and,
- HRL San Benito Pump Station, HRL Moodyville Road and Levee, HRL Cantu Road, and HRL Wells Bro Canal are each located within Cameron County Irrigation District No. 2, which was determined eligible for listing in the National Register in 2009.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review, the required information, or if we can be of further assistance, please contact Sara Ludueña at 512/463-8952.**

Sincerely,



Sara Ludueña, Project Reviewer

for: Mark Wolfe, State Historic Preservation Officer

cc: Noe Guerra, Chair, Brooks County Historical Commission
Steven Hathcock, Chair, Cameron County Historical Commission
Adela Ortega, Chair, Hidalgo County Historical Commission
Clayton Wolter, Chair, Kenedy County Historical Commission

MW/sl





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December 12, 2016

Joseph Zidron
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

RE: Draft Environmental Assessment for remote video surveillance system tower upgrade within the Brownsville, Fort Brown, Harlingen, Falfurrias, and Kingsville Stations' area of responsibility, Brooks, Cameron, Hidalgo and Kenedy Counties, Texas

Dear Mr. Zidron:

This letter is in response to your request for comments and information regarding the proposed project referenced above. The Border Patrol Facilities and Tactical Infrastructure (BPFTI) Program Management Office within the Department of Homeland Security (DHS) U.S. Customs and Border Protection (CBP) has prepared a Draft Environmental Assessment (EA) to address the proposed upgrade of its Remote Video Surveillance System (RVSS) within the Brownsville, Fort Brown, Harlingen, Falfurrias, and Kingsville Stations' Area of Responsibility (AOR).

Project Description

The proposed project includes the construction, operation, and maintenance of 32 RVSS tower sites for the Brownsville, Fort Brown, Harlingen, Falfurrias, and Kingsville Stations' AORs. Towers would either be self-supporting, steel lattice towers; monopoles; or relocatable towers. Both the self-supporting towers and monopoles could be as tall as 199-feet, the relocatable towers could be as tall as 120-feet and would be supported with guy wires. Each tower would be located within a permanently cleared and graded, fenced compound 10,000 square feet (100'x100') in size. An additional 30,000 square feet at each site would be cleared but not graded during construction for staging equipment and materials. Areas temporarily impacted during construction would be revegetated with native vegetation. Tower equipment would include sensors (e.g., cameras), communications (e.g., microwave antennas), and optional equipment (e.g., spotlights, hailer).

The proposed project would also include the construction and maintenance of approximately 850 feet of access drives and the maintenance and repair of approximately 19 miles of access roads. These activities include reconstructing,

widening, or straightening existing roads and installing drainage structures and would require a 30-foot to 60-foot wide temporary construction area.

Only the preferred alternative and the no action alternative were considered in the Draft EA.

Texas Parks and Wildlife Department (TPWD) staff provided scoping comments for the project in a letter dated April 17, 2015. Those comments remain applicable to the project.

Section 3.6 Threatened and Endangered Species

In an April 17, 2015, comment letter during the scoping phase of the project, TPWD recommended that the Draft EA thoroughly evaluate the proposed project's potential impacts to state-listed endangered, threatened and rare species, including rare plants and remnant natural communities. The basis of this recommendation was that over 120 occurrences of rare species have been documented at or near the proposed tower locations and to inform the project proponent of state laws prohibiting the take, including incidental take, of state-listed species.

While surveys were conducted to identify habitat suitable to support both federally listed and state-listed species, the Draft EA did not evaluate state-listed species with potential to occur in the project areas as it did for federally listed species. A list of state-listed and rare species was provided in an appendix.

Recommendation: Two of the proposed tower locations (HRL McMannis Bend Preferred, FTB End of Hwy 4 Preferred) are immediately adjacent to or near tracts of TPWD's Las Palomas Wildlife Management Area and Boca Chica State Park, respectively, in which state-listed species and Species of Greatest Conservation Need (SGCN) are known to occur. Given the likelihood of encountering state-listed species at these sites as well as within tracts of the Lower Rio Grande Valley National Wildlife Refuge (LRGVNWR), and in other areas in which suitable habitat occurs, TPWD reiterates its original recommendation that the Final EA thoroughly evaluate the proposed project's potential impacts to state-listed species.

It is noted in this Section of the Draft EA that the only state-listed species observed during surveys of the project locations was the Texas indigo snake. Table 3-7 in Section 3.5 indicates that the keeled earless lizard was also observed during surveys. The keeled earless lizard, while not state-listed, has been identified in the Texas Conservation Action Plan as an SGCN. In addition to state- and federally-protected species, Texas contains over 1,300 SGCNs that TPWD tracks in the Texas Natural Diversity Database (TXNDD) along with special features, natural communities, and species of concern (SOC). TPWD actively promotes their

conservation. Due to limited distributions and/or declining populations, these species may face threat of extirpation or extinction but lack the legal protections given to threatened or endangered species. Information regarding SGCN can be obtained at http://www.tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/tcap/sgcn.phtml. TPWD considers it important to minimize impacts to special landscape features, natural plant communities, and SGCN to reduce the likelihood of endangerment.

Although only one state-listed species was observed, TPWD cautions that determining the actual presence of a species in a given area depends on many variables including daily and seasonal activity cycles, environmental activity cues, preferred habitat, transiency and population density (both wildlife and human). The absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations, taking into account all the variable factors contributing to the lack of detectable presence.

Recommendation: TPWD appreciates that a number of proposed BMPs developed to avoid and/or minimize potential impacts to wildlife will be implemented and should benefit state-listed species and SGCNs.

If, during construction, the project area is found to contain rare species, natural plant communities, or special features, TPWD recommends that precautions be taken to avoid impacts to them.

Section 3.6.2 State-listed Species

Section 3.6.2 describes activities that could result in *incidental take* of state-listed species, particularly more sedentary species such as the Texas tortoise. TPWD appreciates the proposed best management practices (BMPs) that would be implemented and agrees that they may reduce potential negative impacts to wildlife including listed species. In addition to the Texas tortoise being characterized as sedentary, all reptiles can be immobile, and therefore more susceptible to impacts, during cold weather. Recommendations to address these situations were provided in our previous letter.

Chapter 5 Best Management Practices

CBP propose to implement a number of BMPs that would avoid and/or minimize potential impacts to natural resources. These BMPs include avoiding the spread of non-native plants, revegetating disturbed areas with native seeds or plants, limiting construction vehicle speeds, implementing measures to avoid or address wildlife entrapment, and implementing migratory bird protections.

Comment: TPWD appreciates and supports the proposed BMPs and agrees they would be effective in reducing potential impacts to natural resources.

Section 5.4 Protected Species

In addition to BMPs to protect wildlife, all contractors, work crews, and CBP personnel will receive environmental awareness training that will include maps indicating the occurrence of potentially affected Federally listed species, ecology, habitat requirements, and behavior of those species and penalties for violating the Endangered Species Act (ESA). Additionally, photographs of potentially affected Federally listed species will be incorporated into the training and will be posted.

Recommendation: TPWD recommends environmental awareness training also include state-listed species, particularly those most likely to be encountered in the project areas (e.g., reticulate collared lizard, speckled racer, Texas horned lizard, Texas indigo snake, Texas tortoise). TPWD provided maps indicating the occurrence of state-listed species as an attachment to the April 17, 2015, letter. Ecology, habitat requirements and behavior information is available online on the Annotated County List of Rare Species (<http://tpwd.texas.gov/gis/rtest/>).

Contractors should also be informed that state law prohibits any take (incidental or otherwise) of state-listed species. Laws and regulations pertaining to state-listed endangered or threatened animals are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code; laws pertaining to endangered or threatened plants are contained in Chapter 88 of the TPW Code. There are penalties, which may include fines and/or jail time in addition to payment of restitution values, associated with take of state-listed species. Please see "Laws and Regulations Applicable to TPWD Review" at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/habitat_assessment/laws.phtml.

I appreciate the opportunity to review and comment on this project. Please contact me at (361) 825-3240 or russell.hooten@tpwd.texas.gov if you have any questions regarding our comments.

Sincerely,

A handwritten signature in dark ink, appearing to read "Russell Hooten", with a long horizontal flourish extending to the right.

Russell Hooten
Wildlife Habitat Assessment Program
Wildlife Division

/rh 37266



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

December 14, 2016

Mr. Joseph Zidron
U.S. Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

Dear Mr. Zidron:

In accordance with our responsibilities under Section 309 of the Clean Air Act (CAA) and the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA) Region 6 has reviewed the Draft Environmental Assessment (EA) titled "Remote Video Surveillance System Tower Upgrade Brownsville, Fort Brown, Harlingen, Falfurrias, and Kingsville Stations' Areas of Responsibility". The proposed action will provide enhanced surveillance and detection capabilities that will facilitate in law enforcement response to illegal activity along the border. The project involves the construction and maintenance of 32 Remote Video Surveillance System (RVSS) towers, utilities and utility corridors, and access roads and access drives.

We have enclosed detailed comments for your consideration in preparation of the Final EA. Please provide your responses to our comments in a dedicated section of the Final EA to validate that our comments were addressed.

EPA appreciates the opportunity to provide comments for the Draft EA. Please send the Final EA to my attention. Should you have any questions or concerns regarding these comments, do not hesitate to call me at 214-665-8565, or contact Stephanie Meyers of my staff, at 214-665-6496 or meyers.stephanie@epa.gov for assistance.

Sincerely,

A handwritten signature in black ink, which appears to read "Robert Houston", is placed below the word "Sincerely,".

Robert Houston
Chief, Special Projects Section
Compliance Assurance and
Enforcement Division

**DETAILED COMMENTS
ON THE
DRAFT ENVIRONMENTAL ASSESSMENT
FOR THE
REMOTE VIDEO SURVEILLANCE SYSTEM TOWER UPGRADE
BROWNSVILLE, FORT BROWN, HARLINGEN, FALFURRIAS, AND KINGSVILLE
STATIONS' AREAS OF RESPONSIBILITY PROJECT**

Soils and Prime Farmland

The Draft EA states approximately 9.2 acres of soil, of which 2.75 acres are prime farmland soils, will be permanently disturbed at the new RVSS sites and approximately 24 acres (of which 5.25 acres are prime farmlands) would be temporarily disturbed during construction activities.

Recommendations:

- EPA recommends continuing to coordinate with the Natural Resources Conservation Service (NRCS) on impacts to soils and prime farmland, and including the completed Form AD1006 with the evaluation of the NRCS in the Final EA.

Wildlife Resources, and Threatened and Endangered Species

The Draft EA states approximately 3.7 acres of various vegetative habitats would be permanently lost, and approximately 75 acres would experience temporary degradation having a short-term, minor impact on wildlife. 16 Federally endangered species, one candidate species, and one state listed species have the potential to occur, or have been observed within the project area. Also, there are 7 tower sites that are located near or within the Lower Rio Grande Valley National Wildlife Refuge or Boca Chica State Park.

Recommendations:

- EPA advises following recommendations made by the United States Fish and Wildlife Service (USFWS) and the Texas Parks and Wildlife Department on mitigation measures and including correspondence in the Final EA.
- We also recommend submitting a Biological Evaluation to the USFWS, and including the Biological Opinion of the USFWS in Final EA.

Floodplains

The Draft EA states that 8 tower sites are located within the 100-year floodplain.

Recommendations:

- EPA advises following recommendations from the United States Section of the International Boundary and Water Commission, and including correspondence in the Final EA.

<p align="center">Comment Response Matrix Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA January 2017</p>					
#	Location		Comment	Reviewer	Response
	Page	Section			
0		Soils and Prime Farmland	USEPA recommends coordinating with the United States Department of Agriculture for impacts on soils and prime farmland.	Robert Houston, U.S. Environmental Protection Agency	CBP has coordinated with the United States Department of Agriculture regarding impacts on prime farmlands. This correspondence is found in Appendix A.
1		Wildlife Resources, and Threatened and Endangered Species	USEPA advises following recommendations made by the United States Fish and Wildlife Service and the Texas Parks and Wildlife Department on mitigation measures and including correspondence in the Final EA. We also recommend submitting a biological evaluation to the USFWS, and including the Biological Opinion of the USFWS in the Final EA.	Robert Houston, U.S. Environmental Protection Agency	CBP has incorporated recommendations by both the TPWD and USFWS into the planning efforts for this project. Additionally, CBP has included the coordination with these agencies in Appendix A of the Draft and Final EA.
2		Floodplains	USEPA advises following recommendation from the US Section of the IBWC, and including correspondence in the Final EA	Robert Houston, U.S. Environmental Protection Agency	CBP has coordinated with the USBWC throughout the entire NEPA process and has included the correspondence in the both the Draft and Final EA in Appendix A.
3		Cultural Resources	Given the information provided, you are hereby notified that the proposal project location should have minimal potential to adversely affect any known Archaeological, Historical, or Sacred Kiowa sites. Therefore, in accordance with 36 CFR 800.4(d) (1), you may proceed with your proposed project. However, please be advised undiscovered properties may be encountered and must be immediately reported to the Kiowa Tribe Office of Historic Preservation under both the NHPA and NAGPRA regulations.	Kellie Poolaw, Historic Preservation Office of the Kiowa Tribe of Oklahoma	CBP thanks you for your comment.
4		General	USBWC lands, rights of way or easements are not specifically identified in the figures but do exist throughout the project area. Proposed tower locations and/or utility and access improvements that occur on USBWC controlled lands require formal technical review, approval, and licensing from USBWC before earth disturbing activities may begin. This coordination may be initiated via the USBWC Boundary and Realty Office at (915) 832-4716 or http://www.ibwc.gov/Permits_licenses/boundary_realty.html .	Gilbert Anaya, U.S. International Boundary and Water Commission	CBP has coordinated with the USBWC throughout the entire NEPA process. CBP is in the process of formally submitting construction plans for USBWC technical review for locations within USBWC jurisdiction.

<p style="text-align: center;">Comment Response Matrix Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA January 2017</p>				
#	Location		Comment	Reviewer
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5			<p>The technical evaluation of any facilities proposed within floodways may include hydraulic simulation. The results of these simulations may require substantial siting or design changes by the proponent in order to maintain the hydraulic performance of the floodway.</p>	<p>Gilbert Anaya, U.S. International Boundary and Water Commission</p>
				<p>CBP will secure necessary approval from USIBWC prior to construction at locations within USIBWC jurisdiction. CBP is in the process of formally submitting construction plans for USIBWC technical review for locations within USIBWC jurisdiction. CBP is currently working with the USIBWC to evaluate the proposed RVSS and relay towers within the jurisdiction of the USIBWC.</p>

Comment Response Matrix					
Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA					
January 2017					
#	Location		Comment	Reviewer	Response
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			<p>Preliminary review of the November revision of this EA by the USIBWC EMD has revealed multiple locations where CBP improvements are proposed within USIBWC jurisdiction. Some examples of this occur with the following proposed locations.</p> <ol style="list-style-type: none">1. MCS Inspiration Canal Preferred. – Site is located within river levee.2. HRL Rio Rico Road and Pump Preferred. – Site is located within river levee.3. FTB Zone 34 Preferred. – Site is located within river levee.4. BRP Cindy Stone Preferred. – Site appears to include portion of levee as CPB Service Road.5. BRP FTBGC Preferred. – Site appears to include a levee crossing by a proposed 60 foot roadway and ownership of proposed site must be confirmed by USIBWC Boundary and Realty Office as the USIBWC has ownership of multiple parcels at that location. In addition, there is anecdotal evidence of landfilling of military material in the vicinity at the conclusion of WWII. Determination of the nature and extent of this activity requires archives investigation and possibly field investigations through the USACE FUDS Program. <p>USIBWC is unable to concur with specific locations proposed in the EA without formal submission of these locations and associated improvement to the IBWC through the USIBWC Boundary and Realty Office at 915-832-4716 or http://www.ibwc.gov/permits_licenses/boundary_realty.html.</p>	Gilbert Anaya, U.S. International Boundary and Water Commission	CBP will secure necessary approval from USIBWC prior to construction at locations within USIBWC Jurisdiction. CBP is in the process of formally submitting construction plans for USIBWC technical review for locations within USIBWC jurisdiction. CBP has coordinated with the USIBWC throughout the entire NEPA process. CBP has and continues to work with the USIBWC to evaluate the proposed RVSS and relay towers within the jurisdiction of the USIBWC.

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<p align="center">Comment Response Matrix</p> <p align="center">Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA</p> <p align="center">January 2017</p>				
#	Location		Comment	Reviewer
	Page	Section		
7			<p>During the initial review of the EA’s by USIBWC it was unclear that the proposed actions while contiguous were being analyzed for the purposes of NEPA as separate actions. Comments supplied previously by USIBWC in our letters of October 18, 206 and November 23, 2016 remain but for clarity are restated below and are intended to be applicable to both documents.</p> <ol style="list-style-type: none"> Section 4.4.6 in both EA’s states that “CBP is coordinating with USIBWC regarding potential impact on the floodplain from the proposed construction of towers within the floodplain”. In order for this evaluation to be completed by USIBWC, formal submission of specific locations proposed and associated improvements must be submitted for technical review to the USIBWC through the USIBWC Boundary and Realty Office. The appearance of segmentation into separate actions exists unless specifically addressed in the respective cumulative impact analysis in each EA. Furthermore, the relation of these actions and their NEPA analysis to the CBP 2007 Environmental Impact Statement for Construction, Maintenance, and Operation of Tactical Infrastructure, Rio Grande Valley Sector, Texas should be identified. 	<p>CBP is in the process of formally submitting construction plans for USIBWC technical review for locations within USIBWC jurisdiction.</p> <p>Each of the two EAs were included in the other EAs cumulative impacts section. CBP notified all interested parties during project initiation of the intent to develop two NEPA documents based on the geographical adjacency of the Border Patrol Station areas of responsibility (AOR). Each RVSS system is a closed loop that supports a single border patrol station AOR—as such, each station’s RVSS system operates independently from RVSS systems in other station AORs and thus each station’s RVSS system has independent utility. The decision was made to provide environmental clearance in two NEPA documents in order to make the amount of information manageable, as well as to prioritize station AORs with the greatest operational need for the system upgrades. This Final EA will be revised to reference the previously completed CBP EIS for Tactical Infrastructure.</p>

Comment Response Matrix Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA January 2017					
#	Location		Comment	Reviewer	Response
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8			3.6	Texas Parks and Wildlife Department	The EA has evaluated the potential impacts on state-listed species sufficiently. In particular the two sites mentioned, do not have any suitable habitat for any of the state-listed species. End of Hwy 4 is located in a disturbed TxDOT ROW adjacent to Hwy 4, and McMannis Bend is located in a disturbed pasture.
			<p>In an April 17, 2015, comment letter during the scoping phase of the project, TPWD recommended that the Draft EA thoroughly evaluate the proposed project’s potential impacts on state-listed endangered, threatened, and rare species, including rare plants and remnant natural communities. The basis of this recommendation was that over 120 occurrences of rare species have documented at or near the proposed tower locations and to inform the project proponent of state laws prohibiting the take of state-listed species.</p> <p>While surveys were conducted for both federally listed and state-listed species, the Draft EA did not evaluate state-listed species most likely to occur in the project areas. A list of state-listed and rare species was provided in the appendix.</p> <p>Two of the proposed tower locations (HRL McMannis Bend Preferred and FTB End of Hwy 4 Preferred) are immediately adjacent to tracts of TPWD’s Las Palomas Wildlife Management Area and Boca Chica State Park, respectively, in which state-listed species are known to occur. Give the likelihood of encountering state-listed species at these sites, as well as within tracts of the Lower Rio Grande Valley National Wildlife Refuge (LRGVNWR), and in other areas in which suitable habitat occurs, TPWD reiterates its original recommendation that the Final EA thoroughly evaluate the proposed project’s impacts on state-listed species.</p>		

Comment Response Matrix						
Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA						
January 2017						
#	Location		Section	Comment	Reviewer	Response
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9			3.6	<p>It is noted in this Section of the Draft EA that the only state-listed species observed during surveys of the project locations was the Texas horned lizard. However, Table 3-7 in Section 3.5 indicates that the keeled earless lizard was also observed during surveys. The keeled earless lizard, while not state-listed, has been identified in the Texas Conservation Action Plan as an SGCN. In addition to state-and federally-protected species, Texas contains over 1,300 SGCNs that TPWD tracks in the Texas Natural Diversity Database along with special features, natural communities, and species of concern. TPWD actively promotes their conservation. Although only one state-listed species were observed, TPWD cautions that determining the actual presence of a species in a given area depends on many variables including daily and seasonal activity cycles, environmental activity cues, preferred habitat, transiency and population density (both wildlife and human). The absence of a species can be demonstrated only with great difficulty and then only with repeated negative observations, taking into account all the variable factors contributing to the lack of detectable presence.</p> <p>TPWD appreciates that a number of proposed BMPs developed to avoid and/or minimize potential impacts to wildlife will be implemented and should benefit state-listed species and SGCNs.</p> <p>Section 3.6.2 describes activities that could result in take of state-listed species, particularly more sedentary species such as the Texas Tortoise. TPWD appreciates the proposed best management practices (BMPs) that would be implemented and agrees that they may reduce potential negative impacts to wildlife including listed species. In addition to the Texas tortoise being characterized as sedentary, all reptiles can be immobile, and therefore more susceptible to impacts, during cold weather. Recommendations to address these situations were provided in our previous letter.</p>	Texas Parks and Wildlife Department	CBP will implement the BMPs described in the EA.
10			3.6.2		Texas Parks and Wildlife Department	CBP will consider scheduling construction of the towers that have potential habitat for state-listed reptilian species during the summer months.

Comment Response Matrix Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA January 2017						
#	Location		Section	Comment	Reviewer	Response
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11			5	CBP proposes to implement a number of BMPs that would avoid and/or minimize potential impacts to natural resources. These BMPs include avoiding the spread of non-native plants, revegetating disturbed areas with native seed or plants, limiting construction vehicle speeds, implementing measures to avoid or address wildlife entrapment, and implementing migratory bird protections. TPWD appreciates and supports the proposed BMPs and agrees they would be effective in reducing potential impacts to natural resources.	Texas Parks and Wildlife Department	Thank you for your comment.

Comment Response Matrix Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA January 2017					
#	Location		Comment	Reviewer	Response
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12			5.4	Texas Parks and Wildlife Department	The document has been revised to include state listed species in the environmental awareness training.
			<p>In addition to BMPs to protect wildlife, all contractors, work crews, and CBP personnel will receive environmental awareness training that will include maps indicating the occurrence of potentially affected Federally listed species, ecology, habitat requirements and behavior of those species and penalties for violating the Endangered Species Act (ESA). Additionally, photographs of potentially affected Federally listed species will be incorporated into the training and will be posted.</p> <p>TPWD recommends environmental awareness training also include state-listed species, particularly those most likely to be encountered in the project area (e.g., reticulate collared lizard, speckled racer, Texas horned lizard, Texas indigo snake, Texas tortoise). TPWD provided maps indicating the occurrence of state-listed species as an attachment to the February 5, 2015, letter. Ecology, habitat requirements and behavior information is available online on the Annotated County List of Rare Species (http://tpwd.texas.gov/gis/rtest/).</p> <p>Contractors should also be informed that state law prohibits any take (incidental or otherwise) of state-listed species. Laws and regulations pertaining to state-listed endangered or threatened animals are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code; laws pertaining to endangered or threatened plants are contained in Chapter 88 of the TPW Code. There are penalties, which may include fines and/or jail time in addition to payment of restitution values, associated with the take of state-listed species. Please see “Laws and Regulations Applicable to TPWD Review” at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/habitat_assessment/laws.phtml.</p>		

<p align="center">Comment Response Matrix</p> <p align="center">Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA</p> <p align="center">January 2017</p>					
#	Location		Comment	Reviewer	Response
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13			Table 3-16	Sara Luduena, Texas Historical Commission	The Final EA has been revised to include the information provided, as requested.
14			General	Bryan Winton, USFWS South Texas Refuge Complex	Thank you for the comment; however, CBP does not concur with the statement that McAllen Station AOR tower locations were included in the Draft EA, see Figure 1-1. Also, see response comment #7.
15			The EA Title states RVSS Tower “Upgrade”. The majority of the tower locations proposed in this document are new towers, and not an upgrade of anything currently existing.	Bryan Winton, USFWS South Texas Refuge Complex	This is the name of the project that has consistently been used by the program management office executing the project. This name has been used in all acquisition, program management, and solicitation documents. The term Tower also appears in the title and does reflect the proposed action. Further, the proposed action in the EA, BA, and FONSI clearly identify construction of new towers.

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				Tower heights are identified as being up to 199’ in the EA. When we met with you in 2014 we were informed the towers would be between 80- 120’. The refuge supports the shorter tower heights on refuge lands in order to reduce incidental bird strike collision occurrences. However, the refuge may consider taller (maximum height) towers in one or more refuge areas, if CBP would allow FWS to co-locate/install radio communication infrastructure on the proposed tower. Particularly in the Rio Grande City, TX vicinity, our Fire Management Program pays over \$25K annually for tower rental in order to maintain hand-held communications capability, and this cost has increased annually. Since CBP and FWS are both federal agencies, we would be interested in obtaining space for communication equipment on one or more of the proposed towers, if it can be allowed without impacting the primary purposes for these proposed towers.	Bryan Winton, USFWS South Texas Refuge Complex	Regarding tower height, the majority of the towers will be constructed to a height between 80’-150.’ The “up to 199” language was used to provide flexibility for the few towers located in areas where the terrain may dictate such a height. CBP will continue to coordinate closely with the Refuge during the easement/right-of-way acquisition process regarding tower heights. CBP will take into consideration the collocation of USFWS equipment on the proposed towers.

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Comment Response Matrix Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA January 2017				
#	Location		Comment	Reviewer
	Page	Section		
17			<p>Easements or Rights-of-Way (widths) proposed to access tower locations were identified as 30' or 60'. After speaking with you over the phone on December 1, 2016, you informed me that these requested widths would generally be the extreme maximum or, in general, in excess of what is actually needed in order to access tower locations at many of the proposed sites (on or off refuge). You also made it clear that the proposed 60' wide access easement/ROW was proposed for tower sites that would also need electricity (utilities) supporting them. We strongly recommend that the proposed tower locations on the refuge (and ideally everywhere) will <i>need</i> to be built/accessed with the least amount of habitat impact as possible. Therefore, the refuge will seek to reduce the access route widths, and possibly the tower site dimensions as well, in order to maximize the protection of wildlife and plant resources on the refuge, while affording CBP the ability to install and access the new towers. Note that it is paramount that we be notified immediately upon final determination of all tower locations, so that the refuge can begin processing easement/right-of-way requests associated with those towers located on the refuge, since the timeframe to legally process an easement/right-of-way request can often take upwards of 12 months to complete. In order to avoid unnecessary delays in future tower construction on the refuge, we urge you to continue to maintain open and frequent communication about the status of this proposed project.</p>	<p>Bryan Winton, USFWS South Texas Refuge Complex</p>
				<p>CBP will make every effort throughout the project area, but most importantly within refuge boundaries, that tower access and site design are reduced to the least environmentally damaging as possible. CBP will continue to coordinate closely with the easements/right-of-ways necessary to construct on the Refuge.</p>

<p align="center">Comment Response Matrix</p> <p align="center">Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA</p> <p align="center">January 2017</p>					
#	Location		Comment	Reviewer	Response
	Page	Line	Section		
18				Bryan Winton, USFWS South Texas Refuge Complex	<p>We appreciate this input, tower locations are driven by operational needs of the USBP. CBP will attempt to minimize impacts as much as possible.</p> <p>The site location for FTB Zone 34 Preferred was historically agricultural lands with cattle grazing. If the proposed access road does travel through a wetland area all proper permits and mitigation would be obtained prior to construction activities.</p>
19				Bryan Winton, USFWS South Texas Refuge Complex	<p>Tower locations are driven by operational needs of the USBP. The locations of the towers offer the best operational efficiency the towers can produce and allow the USBP to maximize its efforts while minimizing its footprint. The implementation of the towers will indeed help to minimize and reduce the dramatic footprint left throughout the refuge by cross-border illegal activities.</p>

Comment Response Matrix Draft EA – RGV RVSS for FTB, HRL, FLF, BRP, KIN Stations’ AOR Upgrade EA January 2017				
#	Location		Comment	Reviewer
	Page	Section		
20			<p>HRL Three House Road Southeast Preferred Tower location is located along the La Gloria Tract of the LRGV NWR. The proposed route of egress is located on private property located within the FWS property. The canal systems and ditches that provide irrigation water from two separate pumping locations located on the river bank of our property, were privately held when this property was purchased. In addition, the refuge does not want to see improved access on this private property from HW281 to the IBWC levee because it is adjacent to a 50-acre managed wetland we own, which is a protected area valuable to migratory birds. Construction of a new/improved route of travel in this location will cause excessive disturbance to sensitive species currently using this wetland (like Wood Storks and a variety of other migratory waterfowl and shorebirds). We strongly recommend CBP consider the Alternate route of travel to access the proposed tower on this refuge tract.</p>	<p>Bryan Winton, USFWS South Texas Refuge Complex</p>
				<p>CBP real estate is currently conducting a title search of the properties and will conclusively determine ownership, CBP will then engage with the documented owner for the necessary real estate clearance.</p>



600 W. Interstate 2 | Pharr, Texas 78577-1231 | (956) 702-6100 | www.txdot.gov

January 5, 2017

Mr. Joseph Zidron
US Customs and Border Protection
Border Patrol Facilities and Tactical Infrastructure
Program Management Office
24000 Avila Road, Suite 5020
Laguna Niguel, CA 92677

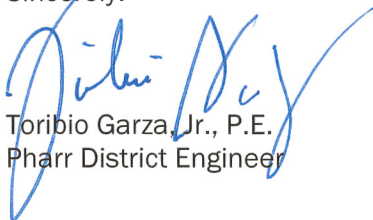
Re: Environmental Assessment and Draft FONSI
Remote Video Surveillance System within Brownsville, Fort Brown, Harlingen,
Falfurrias and Kingsville Station's Areas of Responsibility

Dear Mr. Zidron

In review of the November 2016 EA/ FONSI that you provided in your letter dated November 10, 2016, the FLF Checkpoint Tower preferred alternative along US 281 appears to be within TxDOT right of way (ROW) and would negatively impact approximately 0.7 acres of native habitat. If construction is to occur in TxDOT ROW or you need to connect to any state roadway as you improve or construct access roads to the proposed facilities, you will need to coordinate with our TxDOT Hebbronville Area Office to satisfy TxDOT access management policies and for the permitting process of the access roads once you are in design.

Thank you for the opportunity to comment on your proposed project and if you need any additional information, please connect Rex Costley, Director of Maintenance, who handles access issues and right of way permits, at 956-702-6137.

Sincerely:



Toribio Garza, Jr., P.E.
Pharr District Engineer

cc: Rex Costley, P.E., Director of Maintenance
Eduardo Gracia, Jr., P.E., Hebbronville Area Engineer

APPENDIX B
BROWNSVILLE, FORT BROWN, HARLINGEN, FALFURRIAS, AND
KINGSVILLE STATIONS' SITE AND ROAD MAPS



BRP Cindy Stone Preferred

September 2016



FTB East of Sable Palm Rd Preferred

September 2016



FTB Armstrong Preferred

September 2016



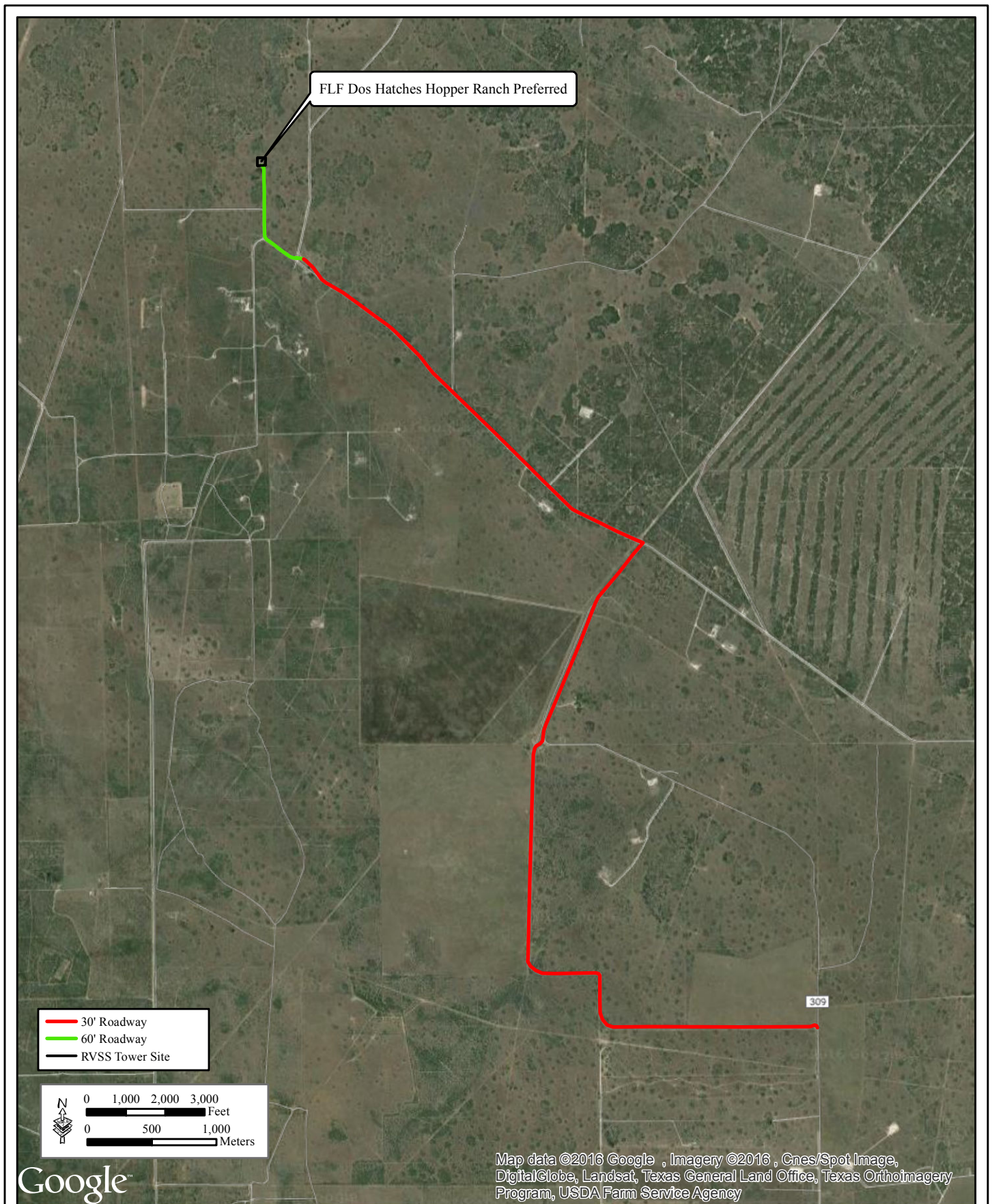
FTB Alaska Rd Preferred

September 2016



FLF King Ranch Preferred

September 2016



FLF Dos Haches Hopper Ranch Preferred

September 2016



FLF Checkpoint Tower Preferred

September 2016



FLF Adairs Ranch Preferred

September 2016



BRP Mulberry Preferred



BRP FTBGC Preferred

September 2016



BRP Extension of Palm Preferred

September 2016



BRP Customs B&M Preferred

September 2016



KIN Juanita Section of Kenedy Ranch Preferred

September 2016



KIN Hwy 77 Armstrong Preferred

September 2016



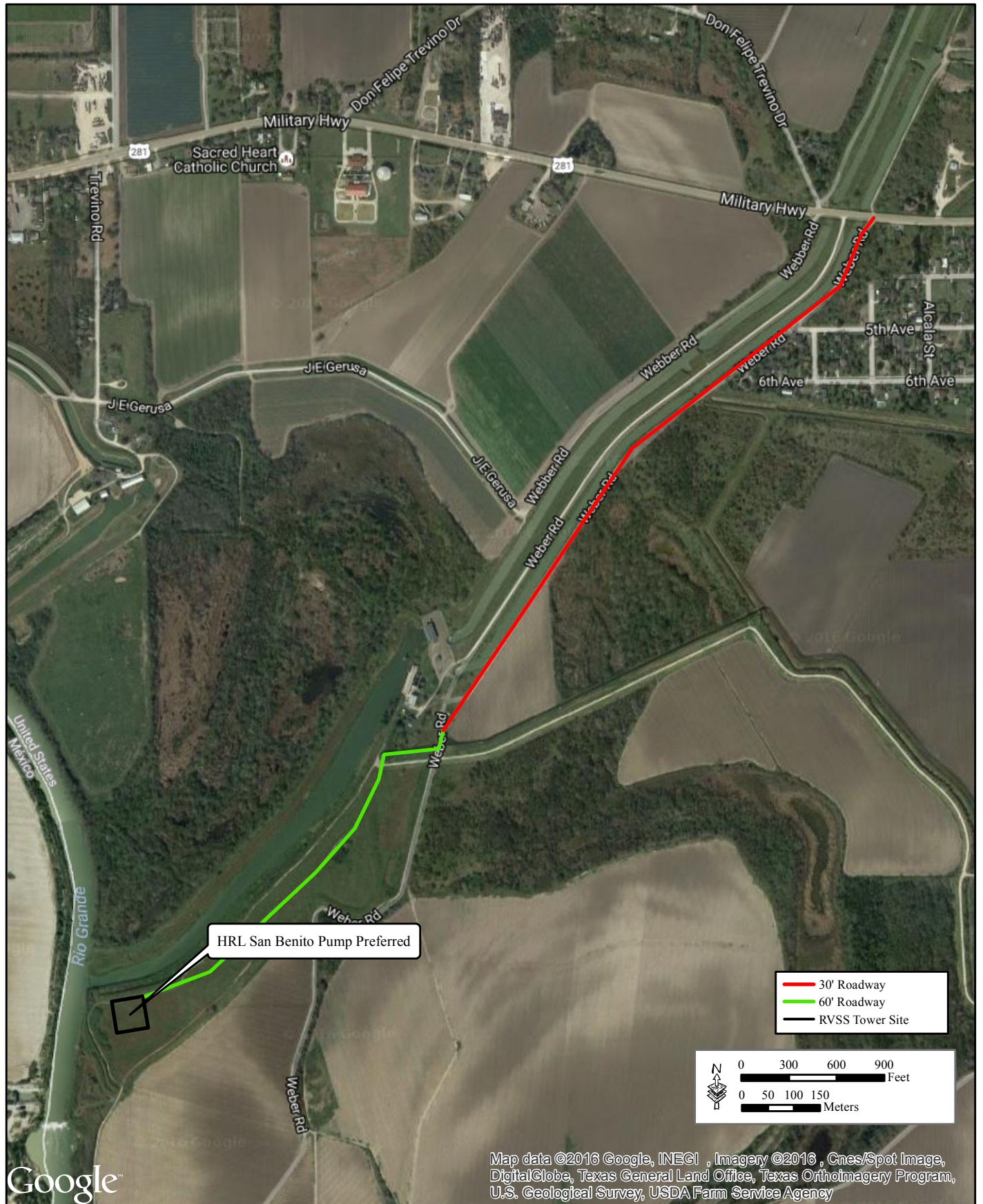
HRL Wells Bros Canal Preferred

September 2016



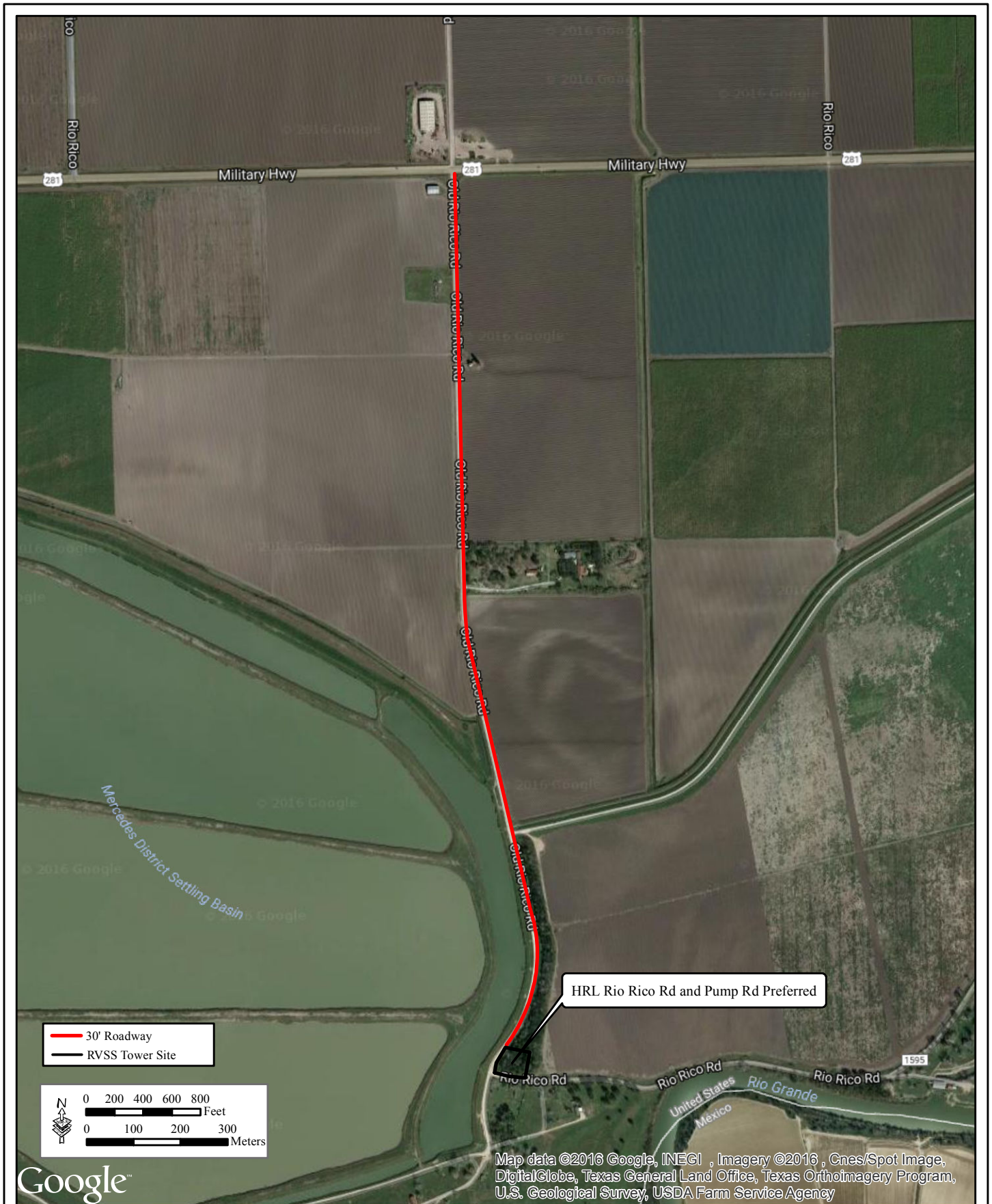
HRL Three House Rd Southeast Preferred

September 2016

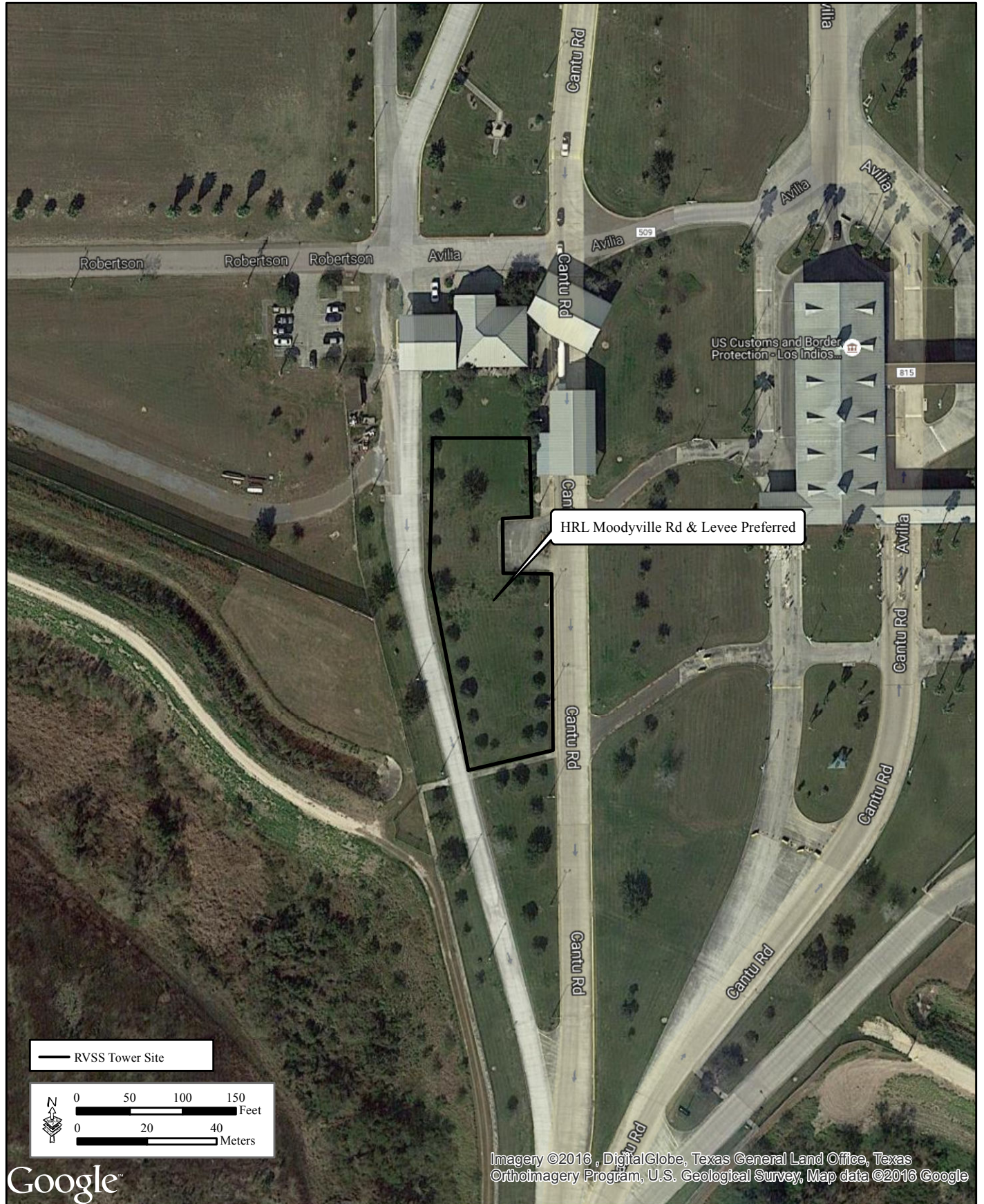


HRL San Benito Pump Preferred

September 2016



HRL Rio Rico Rd and Pump Rd Preferred



HRL Moodyville Rd & Levee Preferred

September 2016



HRL McMannis Bend Preferred

September 2016



HRL Green Barn Rd Preferred

September 2016



HRL Galveston Bend Preferred

September 2016



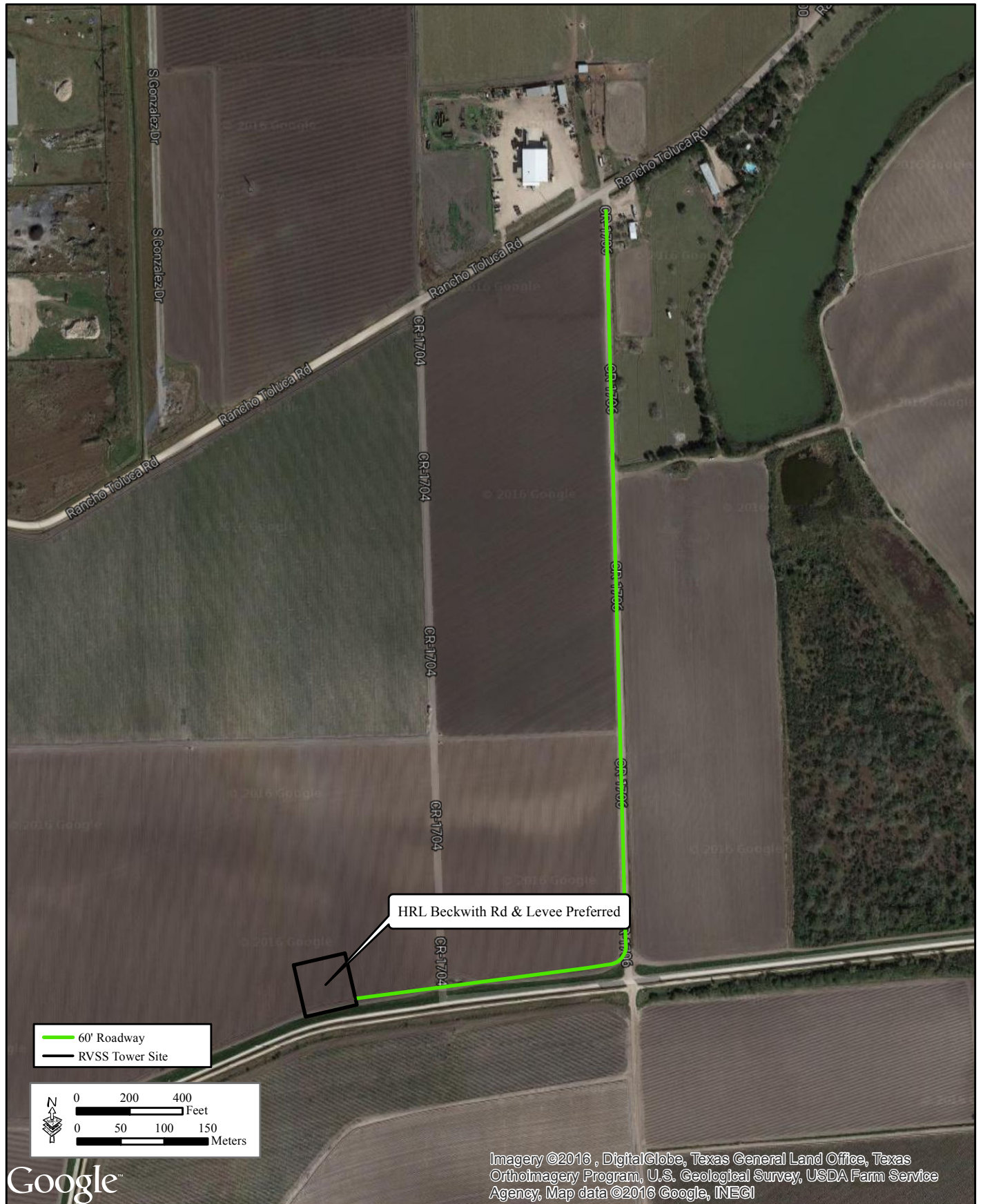
HRL Concrete Canal & Levee Preferred

September 2016



HRL Cantu Rd Preferred

September 2016



HRL Beckwith Rd & Levee Preferred

September 2016



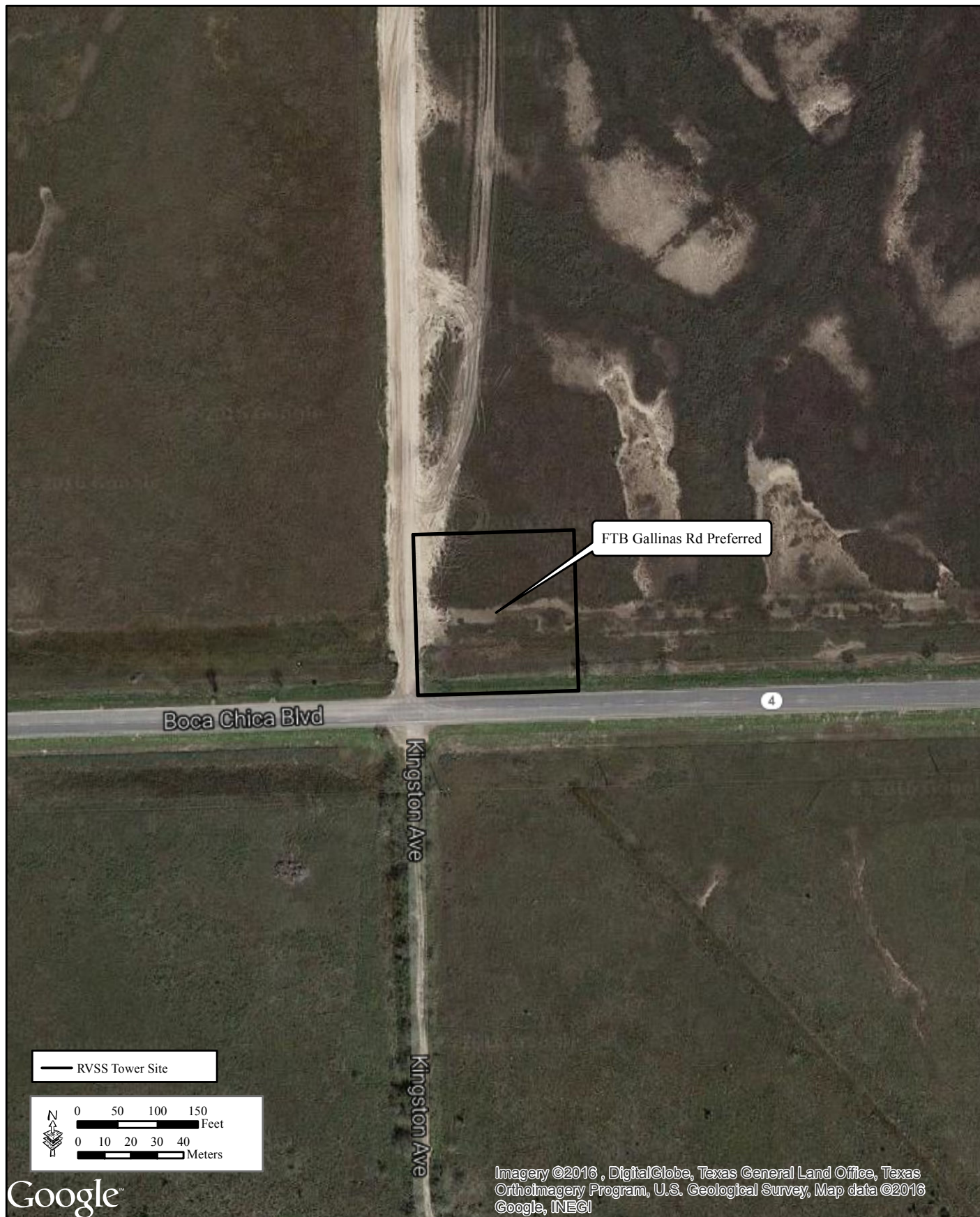
FTB Zone 34 Preferred

September 2016



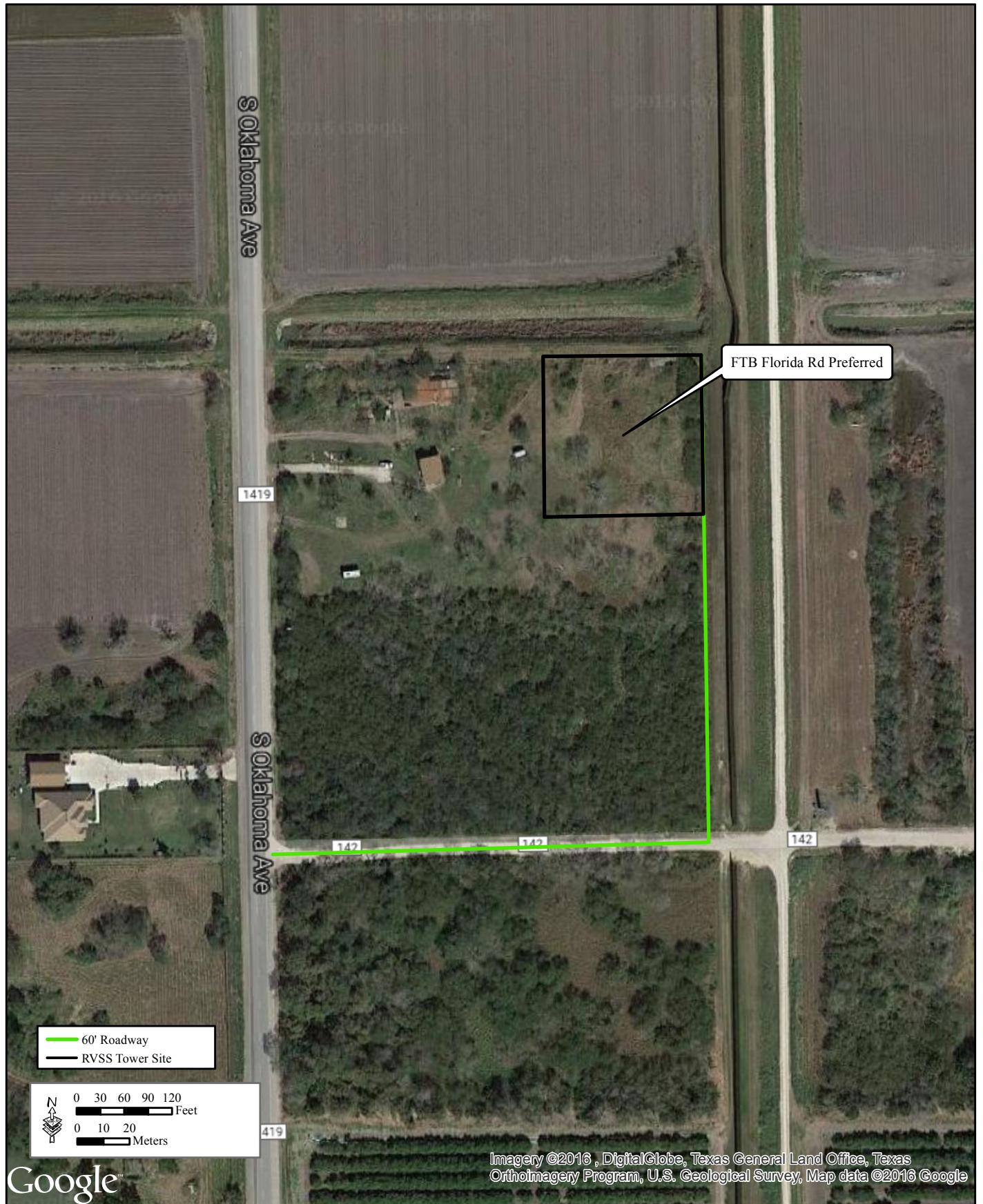
FTB Hwy 4 Checkpoint Preferred

September 2016



FTB Gallinas Rd Preferred

September 2016



FTB Florida Rd Preferred

September 2016



FTB End of Hwy 4 Preferred

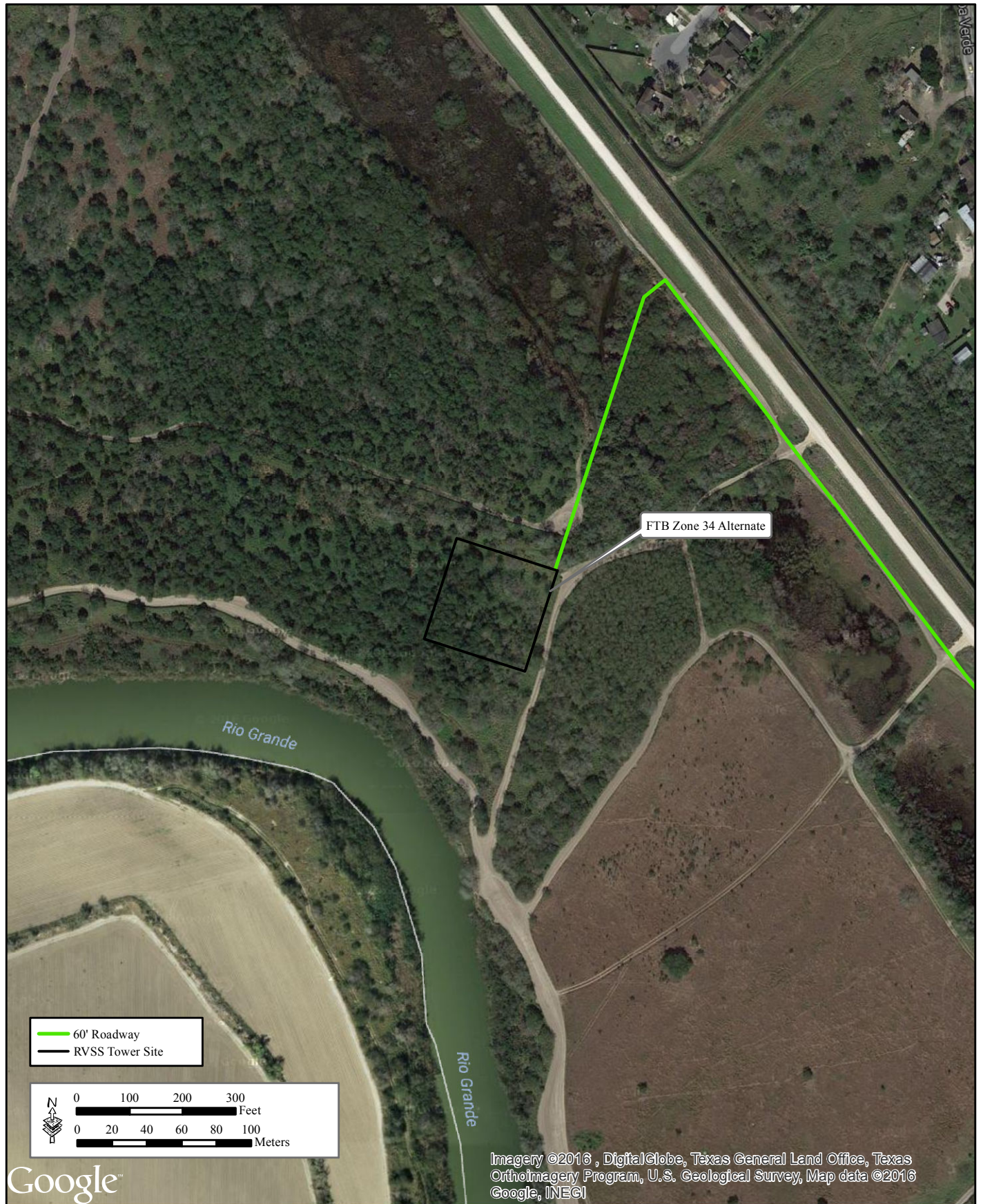
September 2016



HRL Beckwith Rd & Levee Alternate



HRL Hacienda Alternate



FTB Zone 34 Alternate



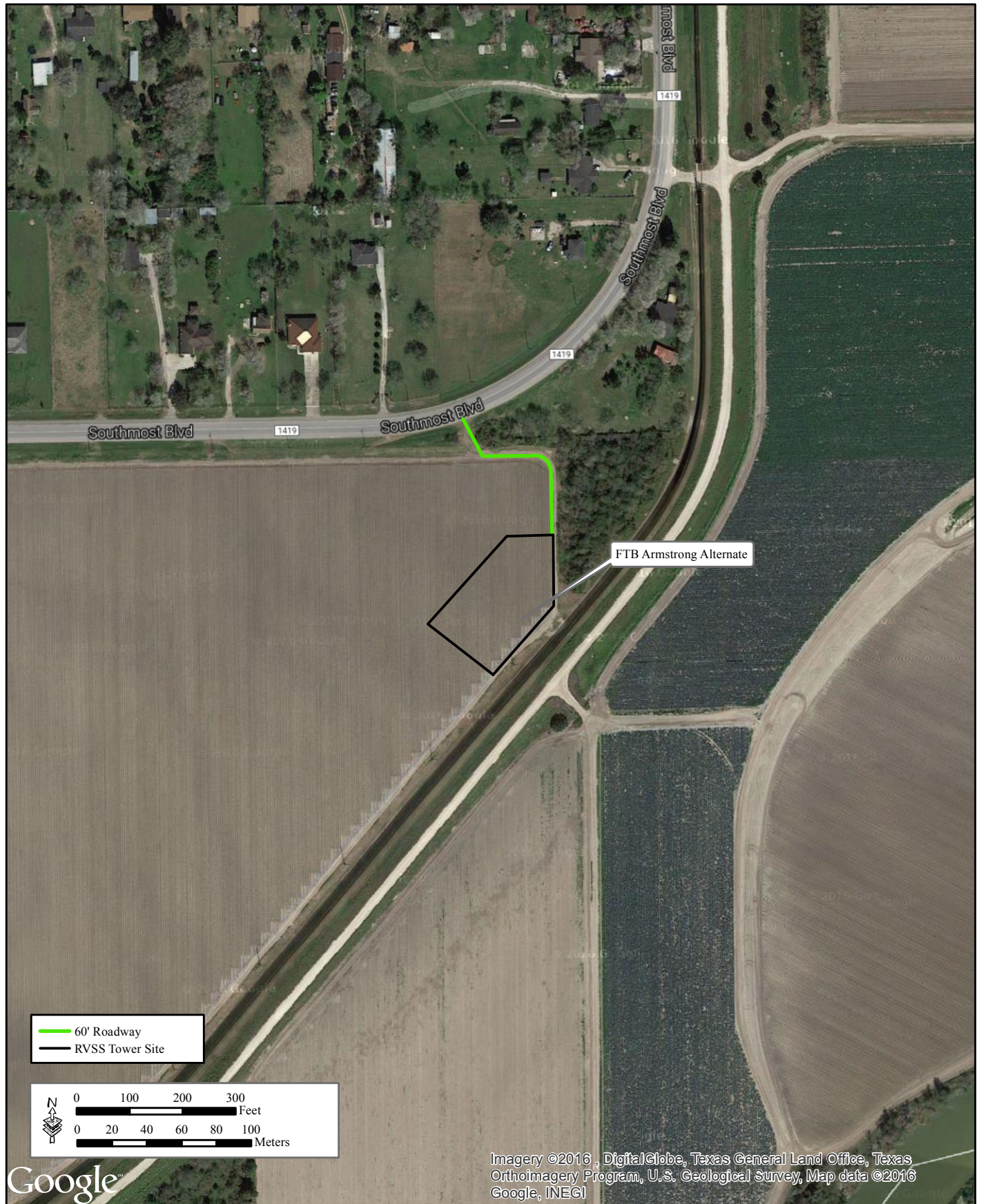
FTB Pig Pens Alternate



FTB Florida Rd Alternate



FTB East of Sable Palm Rd Alternate



FTB Armstrong Alternate

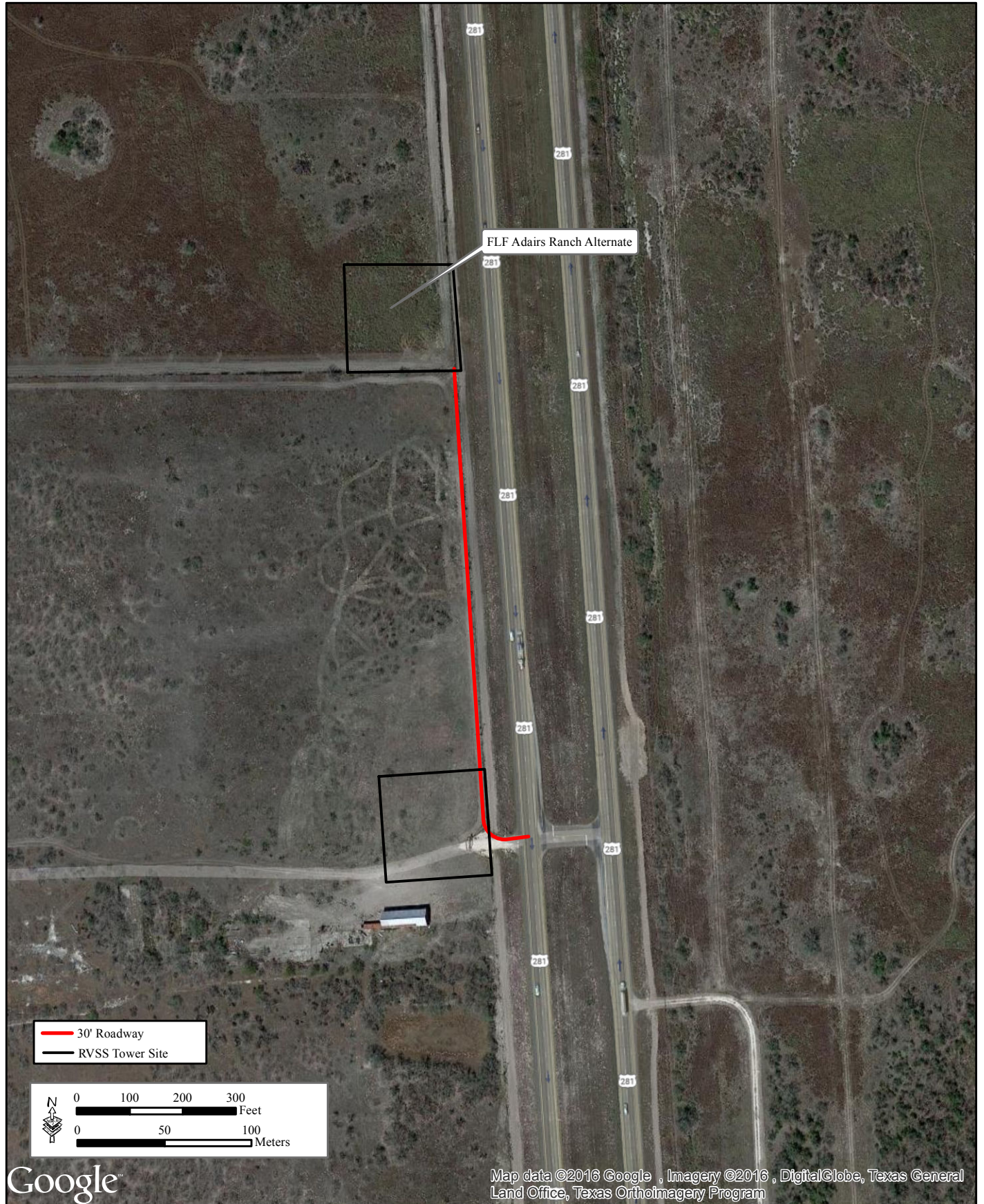
September 2016







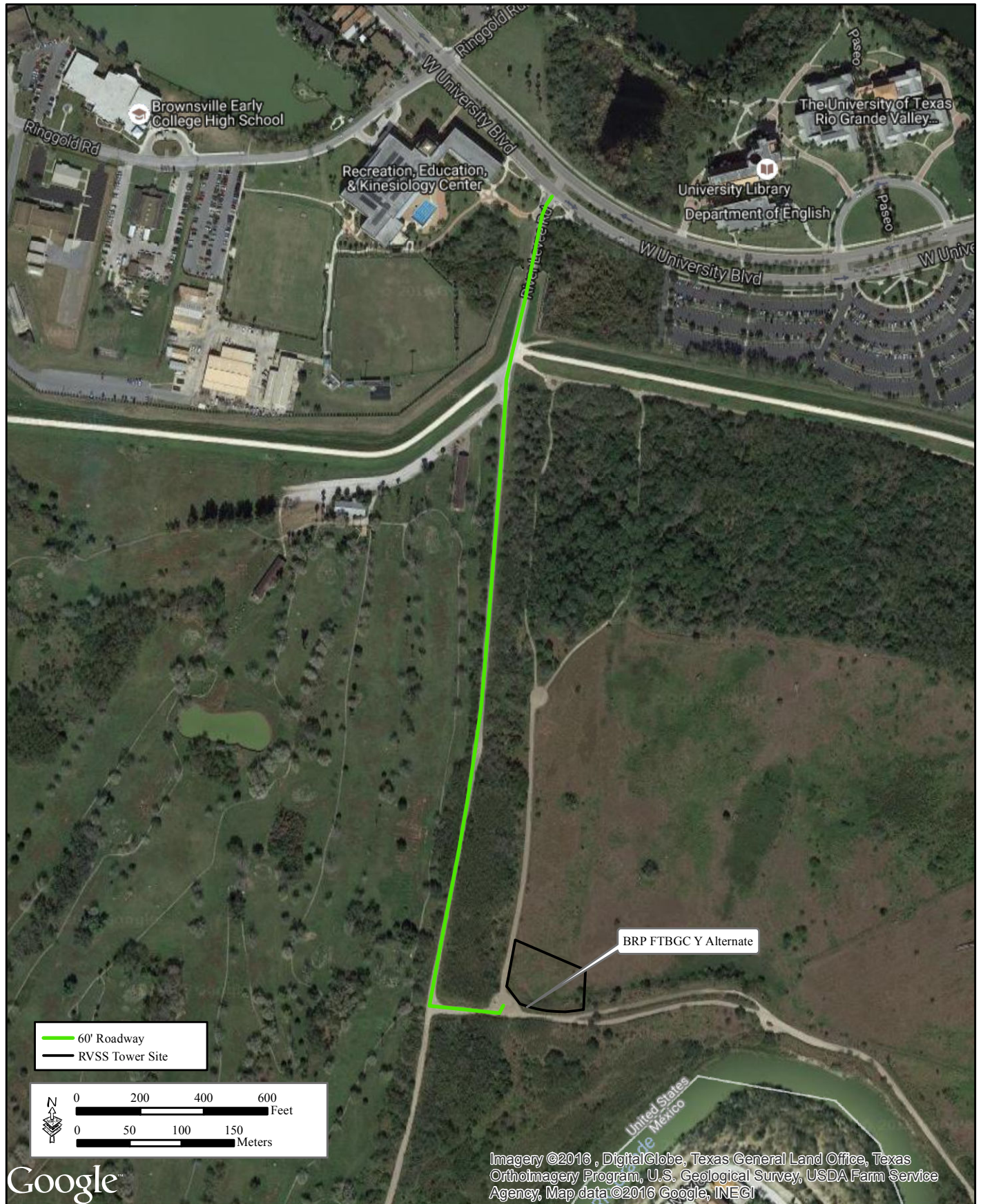
FLF Checkpoint Tower Alternate



FLF Adairs Ranch Alternate



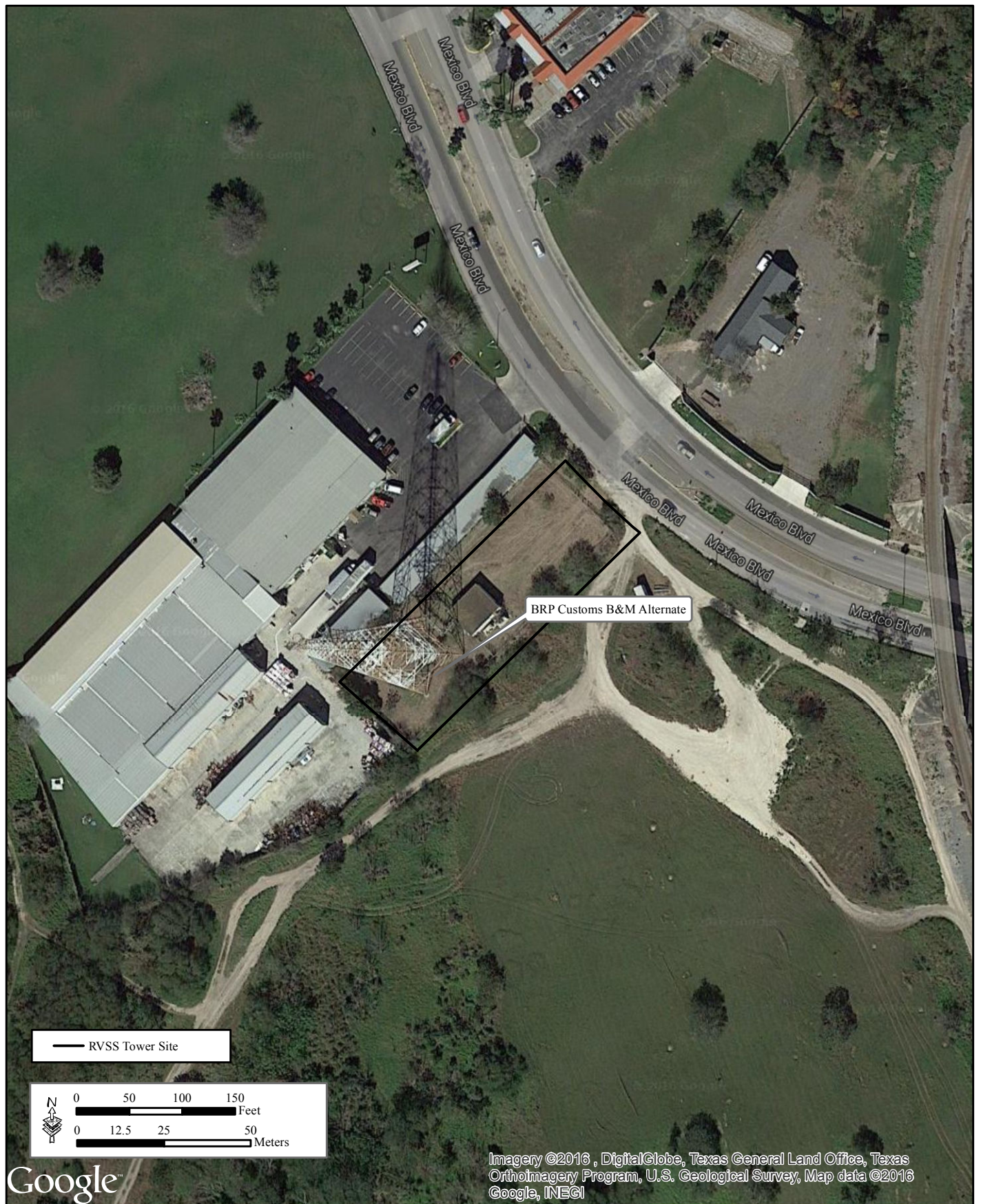
BRP FTBGC Alternate 2



BRP FTBGC Alternate



BRP Extension of Palm Alternate



BRP Customs B&M Alternate

September 2016



KIN Juanita Section of Kennedy Ranch Alternate



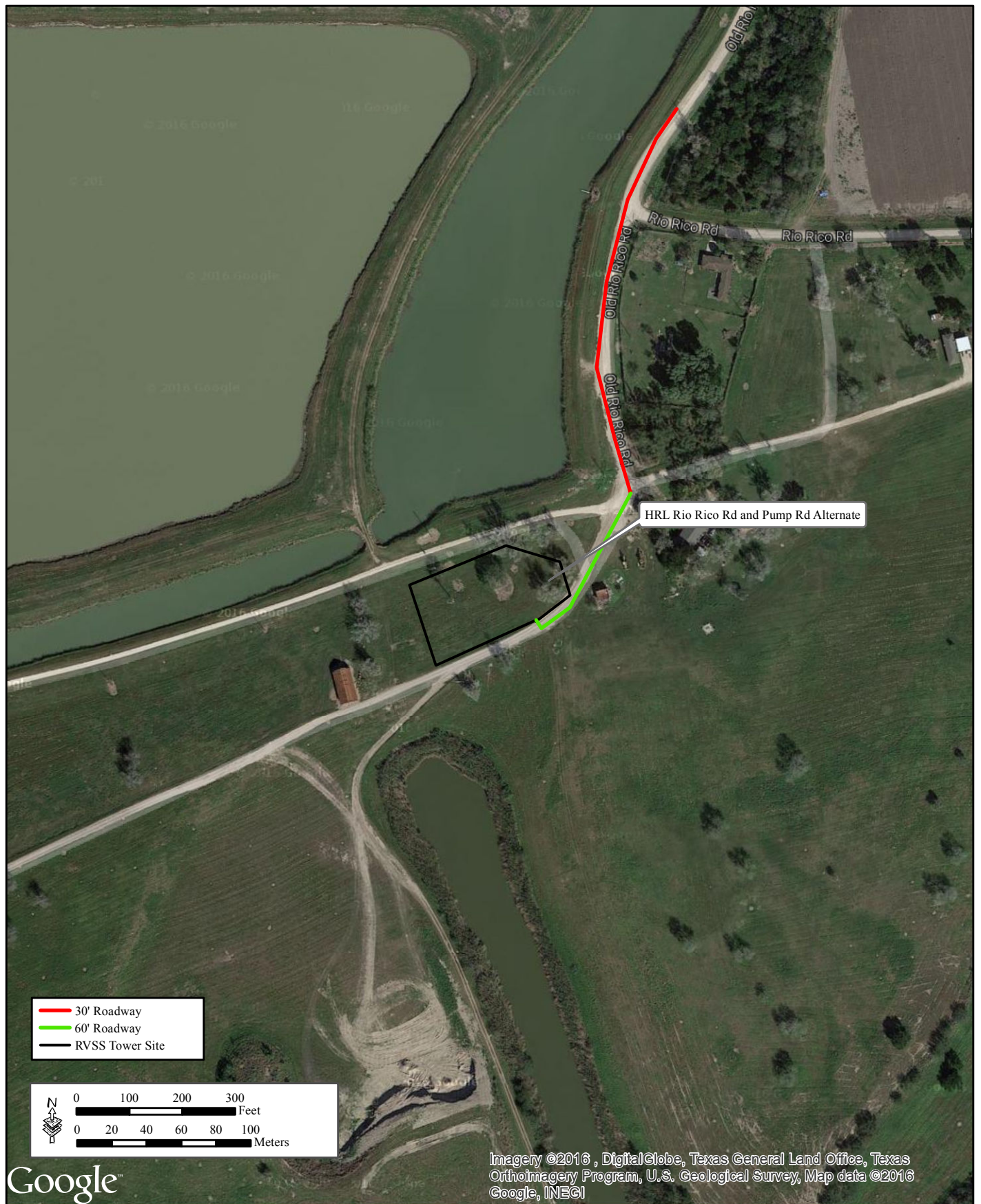
KIN Hwy 77 Armstrong Alternate



HRL Wells Bros Canal Alternate



HRL Three House Road Southeast Alternate



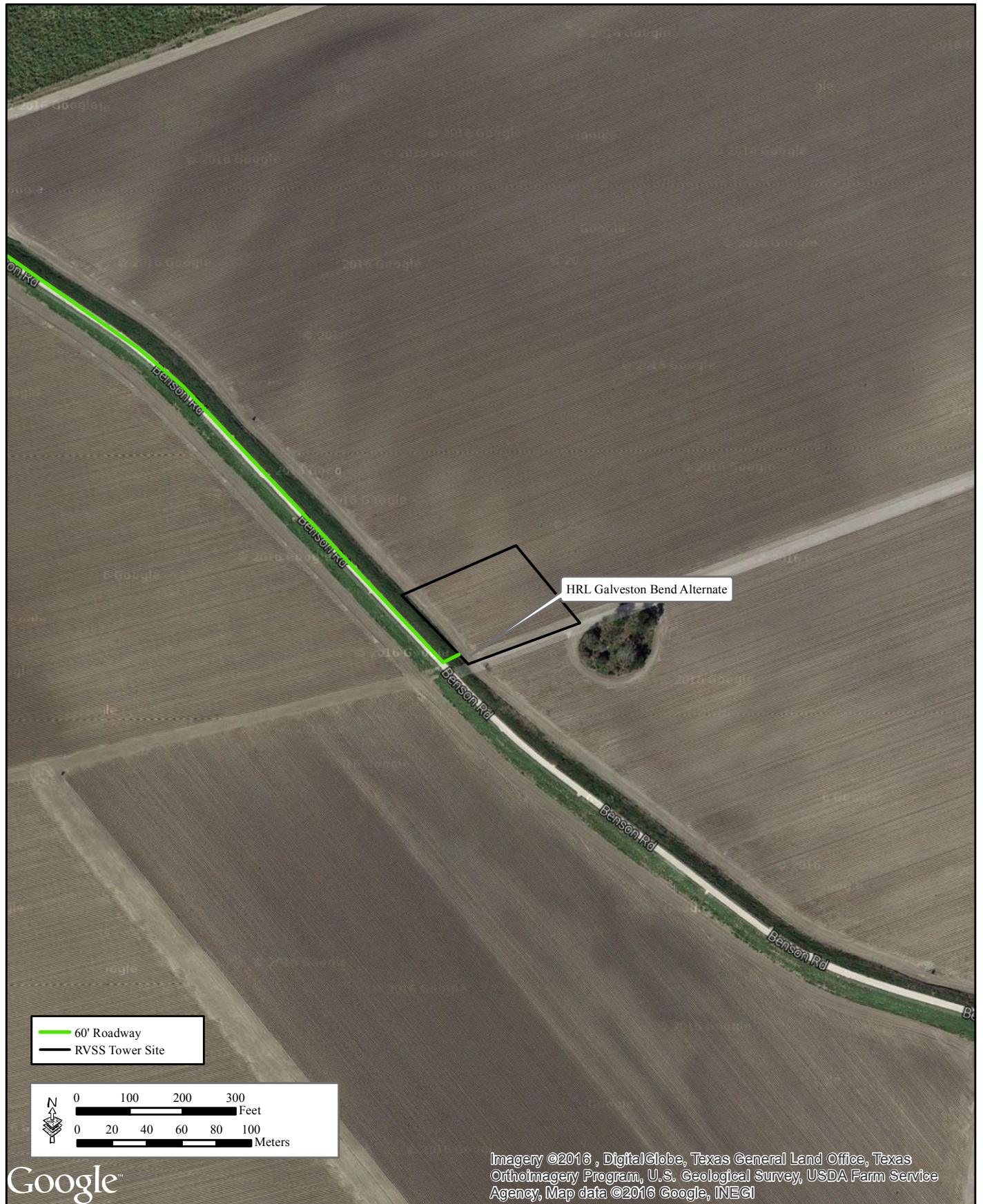
HRL Rio Rico Rd and Pump Rd Alternate



HRL Moodyville Rd & Levee Alternate



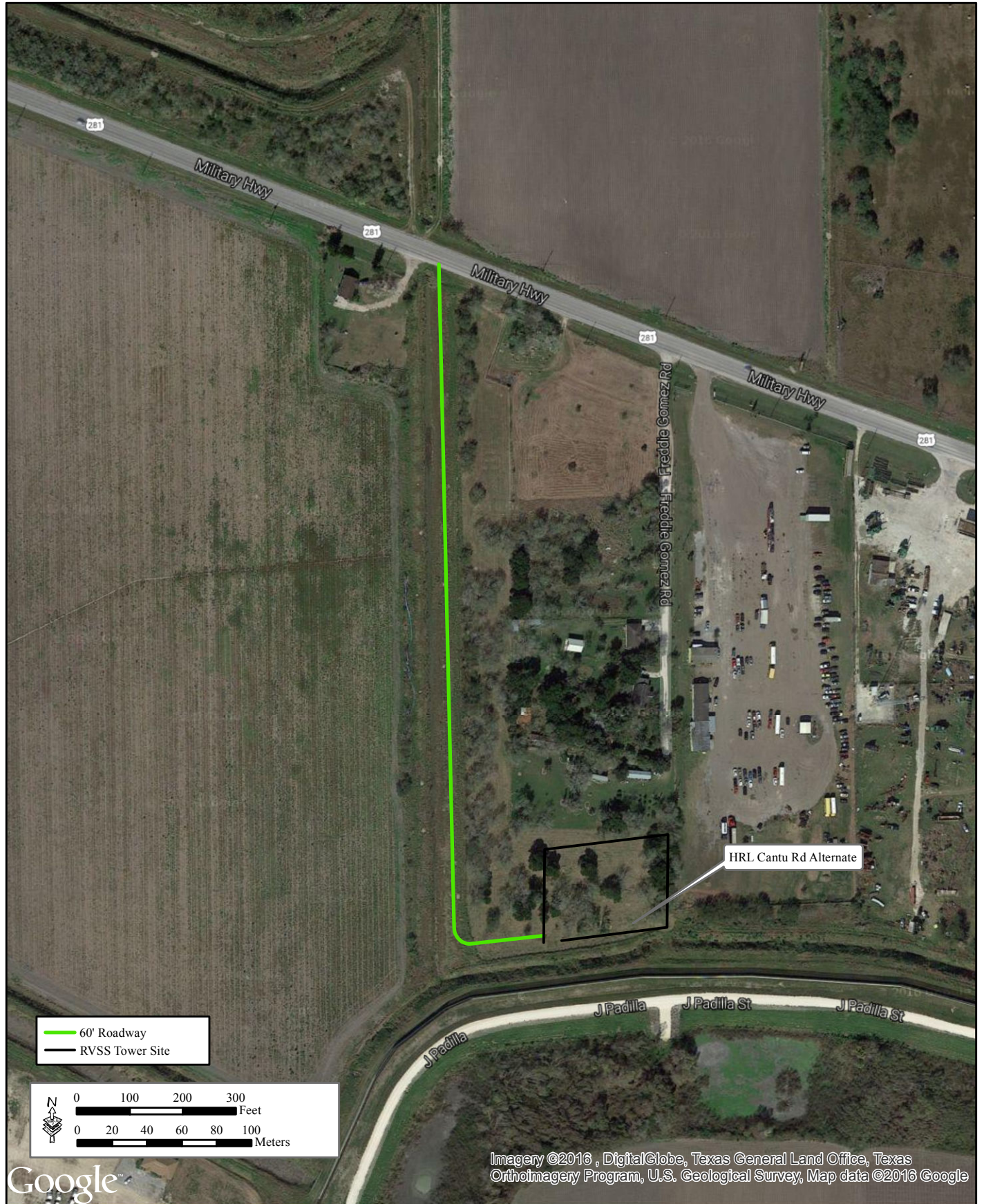
HRL Green Barn Rd Alternate



HRL Galveston Bend Alternate



HRL Concrete Canal & Levee Alternate



HRL Cantu Road Alternate

APPENDIX C
STATE LISTED SPECIES

Taxon	SName	CName	USES	SPROT	Description	# Counties
Amphibians	Notophthalmus meridionalis	Black-spotted newt		T	can be found in wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods; Gulf Coastal Plain south of the San Antonio River	19
Amphibians	Siren sp 1	South Texas siren (large form)		T	wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions; aestivates in the ground during dry periods, but does require some moisture to remain; southern Texas south of Balcones Escarpment; breeds February-June	9
Amphibians	Smilisca baudinii	Mexican treefrog		T	subtropical region of extreme southern Texas; breeds May-October coinciding with rainfall, eggs laid in temporary rain pools	5
Amphibians	Leptodactylus fragilis	White-lipped frog		T	grasslands, cultivated fields, roadside ditches, and a wide variety of other habitats; often hides under rocks or in burrows under clumps of grass; species requirements incompatible with widespread habitat alteration and pesticide use in south Texas	4
Amphibians	Hypopachus variolosus	Sheep frog		T	predominantly grassland and savanna; moist sites in arid areas	19
Birds	Pelecanus occidentalis	Brown Pelican	DL		largely coastal and near shore areas, where it roosts and nests on islands and spoil banks	18
Birds	Egretta rufescens	Reddish Egret		T	resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear	19
Birds	Plegadis chihi	White-faced Ibis		T	prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats	57
Birds	Mycteria americana	Wood Stork		T	forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960	111
Birds	Chondrohierax uncinatus	Hook-billed Kite			dense tropical and subtropical forests, but does occur in open woodlands; uncommon to rare in most of range; accidental in south Texas	3
Birds	Buteogallus anthracinus	Common Black-Hawk		T	cottonwood-lined rivers and streams; willow tree groves on the lower Rio Grande floodplain; formerly bred in south Texas	13
Birds	Asturina nitida	Gray Hawk		T	locally and irregularly along U.S.-Mexico border; mature riparian woodlands and nearby semiarid mesquite and scrub grasslands; breeding range formerly extended north to southernmost Rio Grande floodplain of Texas	7
Birds	Buteo albicaudatus	White-tailed Hawk		T	near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May	29

Taxon	SName	CName	USES	SPROT	Description	# Counties
Birds	Buteo albonotatus	Zone-tailed Hawk		T	arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions	33
Birds	Falco femoralis septentrionalis	Northern Aplomado Falcon	LE	E	open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species	21
Birds	Falco peregrinus	Peregrine Falcon	DL	T	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	254
Birds	Falco peregrinus anatum	American Peregrine Falcon	DL	T	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	254
Birds	Falco peregrinus tundrius	Arctic Peregrine Falcon	DL		migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	254
Birds	Grus americana	Whooping Crane	LE	E	potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties	186
Birds	Charadrius alexandrinus	Snowy Plover			formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast	81
Birds	Charadrius alexandrinus nivosus	Western Snowy Plover			uncommon breeder in the Panhandle; potential migrant; winter along coast	79
Birds	Charadrius melodus	Piping Plover	LT	T	wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats	64
Birds	Charadrius montanus	Mountain Plover			breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous	174

Taxon	SName	CName	USES A	SPROT	Description	# Counties
Birds	Numenius borealis	Eskimo Curlew	LE	E	historic; nonbreeding: grasslands, pastures, plowed fields, and less frequently, marshes and mudflats	15
Birds	Calidris canutus rufa	Red Knot	T		Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot's prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (Donax spp.) on beaches and dwarf surf clam (Mulinia lateralis) in bays, at least in the Laguna Madre. Wintering Range includes- Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.	80
Birds	Sterna antillarum athalassos	Interior Least Tern	LE	E	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	148
Birds	Sterna fuscata	Sooty Tern		T	predominately 'on the wing'; does not dive, but snatches small fish and squid with bill as it flies or hovers over water; breeding April-July	13
Birds	Glaucidium brasilianum cactorum	Cactus Ferruginous Pygmy-Owl		T	riparian trees, brush, palm, and mesquite thickets; during day also roosts in small caves and recesses on slopes of low hills; breeding April to June	7
Birds	Athene cunicularia hypugaea	Western Burrowing Owl			open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows	199
Birds	Camptostoma imberbe	Northern Beardless-Tyrannulet		T	mesquite woodlands; near Rio Grande frequents cottonwood, willow, elm, and great leadtree; breeding April to July	8
Birds	Pachyramphus aglaiae	Rose-throated Becard		T	riparian trees, woodlands, open forest, scrub, and mangroves; breeding April to July	5

Taxon	SName	CName	USESA	SPROT	Description	# Counties
Birds	Anthus spragueii	Sprague's Pipit			only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.	216
Birds	Parula pitiayumi	Tropical Parula		T	dense or open woods, undergrowth, brush, and trees along edges of rivers and resacas; breeding April to July	5
Birds	Geothlypis trichas inasperata	Brownsville Common Yellowthroat			tall grasses and bushes near ponds, marshes, and swamps; breeding April to July	3
Birds	Aimophila botterii texana	Texas Botteri's Sparrow		T	grassland and short-grass plains with scattered bushes or shrubs, sagebrush, mesquite, or yucca; nests on ground of low clump of grasses	9
Birds	Icterus cucullatus sennetti	Sennett's Hooded Oriole			often builds nests in and of Spanish moss (Tillandsia unioides); feeds on invertebrates, fruit, and nectar; breeding March to August	24
Birds	Icterus graduacauda audubonii	Audubon's Oriole			scrub, mesquite; nests in dense trees, or thickets, usually along water courses	19
Fishes	Anguilla rostrata	American eel			coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters, metamorphose, then females move into freshwater; most aquatic habitats with access to ocean, muddy bottoms, still waters, large streams, lakes; can travel overland in wet areas; males in brackish estuaries; diet varies widely, geographically, and seasonally	36
Fishes	Hybognathus amarus	Rio Grande silvery minnow	LE	E	extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves	12
Fishes	Notropis jemezanus	Rio Grande shiner			Rio Grande and upper Pecos River basins; large, open, weedless rivers or large creeks with bottom of rubble, gravel and sand, often overlain with silt	12
Fishes	Microphis brachyurus	Opossum pipefish		T	brooding adults found in fresh or low salinity waters and young move or are carried into more saline waters after birth; southern coastal areas	9
Fishes	Awaous banana	River goby		T	Southern coastal waters; clear water with slow to moderate current, sandy or hard bottom, and little or no vegetation; also enters brackish and ocean waters	2
Fishes	Ctenogobius claytonii	Mexican goby		T	Southern coastal area; brackish and freshwater coastal streams	1

Taxon	SName	CName	USES A	SPROT	Description	# Counties
Fishes	Pristis pectinata	Smalltooth sawfish	LE	E	different life history stages have different patterns of habitat use; young found very close to shore in muddy and sandy bottoms, seldom descending to depths greater than 32 ft (10 m); in sheltered bays, on shallow banks, and in estuaries or river mouths; adult sawfish are encountered in various habitat types (mangrove, reef, seagrass, and coral), in varying salinity regimes and temperatures, and at various water depths, feed on a variety of fish species and crustaceans	16
Mammals	Choeronycteris mexicana	Mexican long-tongued bat			deep canyons where uses caves and mine tunnels as day roosts; also found in buildings and often associated with big-eared bats (Plecotus spp.); single TX record from Santa Ana NWR	4
Mammals	Myotis velifer	Cave myotis bat			colonial and cave-dwelling; also roosts in rock crevices, old buildings, carpools, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore	132
Mammals	Lasiurus ega	Southern yellow bat		T	associated with trees, such as palm trees (Sabal mexicana) in Brownsville, which provide them with daytime roosts; insectivorous; breeding in late winter	8
Mammals	Oryzomys couesi	Coues' rice rat		T	cattail-bulrush marsh with shallower zone of aquatic grasses near the shoreline; shade trees around the shoreline are important features; prefers salt and freshwater, as well as grassy areas near water; breeds April-August	5
Mammals	Canis rufus	Red wolf	LE	E	extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies	160
Mammals	Nasua narica	White-nosed coati		T	woodlands, riparian corridors and canyons; most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade	31
Mammals	Spilogale putorius interrupta	Plains spotted skunk			catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie	204
Mammals	Leopardus pardalis	Ocelot	LE	E	dense chaparral thickets; mesquite-thorn scrub and live oak mottes; avoids open areas; breeds and raises young June-November	38
Mammals	Herpailurus yaguarondi	Jaguarundi	LE	E	thick brushlands, near water favored; 60 to 75 day gestation, young born sometimes twice per year in March and August, elsewhere the beginning of the rainy season and end of the dry season	20
Mammals	Panthera onca	Jaguar	LE	E	extirpated; dense chaparral; no reliable TX sightings since 1952	6
Mammals	Trichechus manatus	West Indian manatee	LE	E	Gulf and bay system; opportunistic, aquatic herbivore	13

Taxon	SName	CName	USES	SPROT	Description	# Counties
Reptiles	Caretta caretta	Loggerhead sea turtle	LT	T	Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles; omnivorous, shows a preference for mollusks, crustaceans, and coral; nests from April through November	16
Reptiles	Chelonia mydas	Green sea turtle	LT	T	Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island beaches; adults are herbivorous feeding on sea grass and seaweed; juveniles are omnivorous feeding initially on marine invertebrates, then increasingly on sea grasses and seaweeds; nesting behavior extends from March to October, with peak activity in May and June	16
Reptiles	Eretmochelys imbricata	Atlantic hawksbill sea turtle	LE	E	Gulf and bay system, warm shallow waters especially in rocky marine environments, such as coral reefs and jetties; juveniles found in floating mats of sea plants; feed on sponges, jellyfish, sea urchins, molluscs, and crustaceans, nests April through November	14
Reptiles	Lepidochelys kempii	Kemp's Ridley sea turtle	LE	E	Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico; feed primarily on crabs, but also snails, clams, other crustaceans and plants, juveniles feed on sargassum and its associated fauna; nests April through August	16
Reptiles	Dermodochelys coriacea	Leatherback sea turtle	LE	E	Gulf and bay systems, and widest ranging open water reptile; omnivorous, shows a preference for jellyfish; in the US portion of their western Atlantic nesting territories, nesting season ranges from March to August	15
Reptiles	Gopherus berlandieri	Texas tortoise		T	open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November	45
Reptiles	Crotaphytus reticulatus	Reticulate collared lizard		T	requires open brush-grasslands; thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils; often on scattered flat rocks below escarpments or isolated rock outcrops among scattered clumps of prickly pear and mesquite	17
Reptiles	Holbrookia lacerata	Spot-tailed earless lizard			central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground	76
Reptiles	Holbrookia propinqua	Keeled earless lizard			coastal dunes, barrier islands, and other sandy areas; eats insects and likely other small invertebrates; eggs laid underground March-September (most May-August)	6
Reptiles	Phrynosoma cornutum	Texas horned lizard		T	open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September	236

Taxon	SName	CName	USES A	SPROT	Description	# Counties
Reptiles	Cemophora coccinea lineri	Texas scarlet snake		T	mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September	14
Reptiles	Coniophanes imperialis	Black-striped snake		T	extreme south Texas; semi-arid coastal plain, warm, moist micro-habitats and sandy soils; proficient burrower; eggs laid April-June	4
Reptiles	Drymarchon melanurus erebennus	Texas indigo snake		T	Texas south of the Guadalupe River and Balcones Escarpment; thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; can do well in suburban and irrigated croplands if not molested or indirectly poisoned; requires moist microhabitats, such as rodent burrows, for shelter	35
Reptiles	Drymobius margaritiferus	Speckled racer		T	extreme south Texas; dense thickets near water, Texas palm groves, riparian woodlands; often in areas with much vegetation litter on ground; breeds April-August	3
Reptiles	Leptodeira septentrionalis septentrionalis	Northern cat-eyed snake		T	Gulf Coastal Plain south of the Nueces River; thorn brush woodland; dense thickets bordering ponds and streams; semi-arboreal; nocturnal	7
Insects	Cicindela chlorocephala smythi	Smyth's tiger beetle			most tiger beetles are active, usually brightly colored, and found in open, sunny areas; adult tiger beetles are predaceous and feed on a variety of small insects; larvae of tiger beetles are also predaceous and live in vertical burrows in soil of dry paths, fields, or sandy beaches	1
Insects	Cicindela nevadica olmosa	Los Olmos tiger beetle			most tiger beetles are active, usually brightly colored, and found in open, sunny areas; adult tiger beetles are predaceous and feed on a variety of small insects; larvae of tiger beetles are also predaceous and live in vertical burrows in soil of dry paths, fields, or sandy beaches	5
Insects	Cicindela nigrocoerulea subtropica	Subtropical blue-black tiger beetle			most tiger beetles are active, usually brightly colored, and found in open, sunny areas; adult tiger beetles are predaceous and feed on a variety of small insects; larvae of tiger beetles are also predaceous and live in vertical burrows in soil of dry paths, fields, or sandy beaches	2
Insects	Cicindela obsoleta neojuvenilis	Neojuvile tiger beetle			bare or sparsely vegetated, dry, hard-packed soil; typically in previously disturbed areas; peak adult activity in Jul	6
Insects	Tetracha affinis angustata	A tiger beetle			most tiger beetles diurnal, open sandy areas, beaches, open paths or lanes, or on mudflats; larvae in hard-packed ground in vertical burrows	3
Insects	Asaphomyia texensis	Texas asaphomyian tabanid fly			globally historic; adults of tabanid spp. found near slow-moving water; eggs laid in masses on leaves or other objects near or over water; larvae are aquatic and predaceous; females of tabanid spp. bite, while males chiefly feed on pollen and nectar; using sight, carbon dioxide, and odor for selection, tabanid spp. lie in wait in shady areas under bushes and trees for a host to happen by	4

Taxon	SName	CName	USES	SPROT	Description	# Counties
Insects	Campsurus decoloratus	A mayfly			TX and MX; possibly clay substrates; mayflies distinguished by aquatic larval stage; adult stage generally found in shoreline vegetation	2
Insects	Stallingsia maculosus	Manfreda giant-skipper			most skippers are small and stout-bodied; name derives from fast, erratic flight; at rest most skippers hold front and hind wings at different angles; skipper larvae are smooth, with the head and neck constricted; skipper larvae usually feed inside a leaf shelter and pupate in a cocoon made of leaves fastened together with silk	10
Insects	Sphingicampa blanchardi	A Royal moth			woodland - hardwood; Tamaulipan thornscrub with caterpillar's host plant, Texas Ebony (Pithecellobium flexicaule) an important element	2
Insects	Agapema galbina	Tamaulipan agapema			Tamaulipan thornscrub with adequate densities of the caterpillar foodplant Condalia hookeri (= obovata); adults occur Sep - Oct; eggs hatch within two weeks and larvae mature 'rapidly'	2
Insects	Aeshna dugesi	Arroyo darner			creek, high - moderate gradient; eggs laid in aquatic plants, larvae cling to bottom of pools of streams, adults forage widely in pools in streams, from desert up to pine-oak zone; invertivore, diurnal; larvae overwinter, flight season late June to early September	3
Insects	Eximacris superbum	Superb grasshopper			collected in south Texas, but repeated efforts to collect not successful; may over-winter in adult stage	4
Mollusks	Popenaia popeii	Texas hornshell	C	T	both ends of narrow shallow runs over bedrock, in areas where small-grained materials collect in crevices, along river banks, and at the base of boulders; not known from impoundments; Rio Grande Basin and several rivers in Mexico	17
Mollusks	Truncilla cognata	Mexican fawnsfoot mussel		T	largely unknown; possibly intolerant of impoundment; possibly needs flowing streams and rivers with sand or gravel bottoms based on related species needs; Rio Grande basin	11
Mollusks	Potamilus metnecktayi	Salina mucket		T	lotic waters; submerged soft sediment (clay and silt) along river bank; other habitat requirements are poorly understood; Rio Grande Basin	11
Plants	Justicia runyonii	Runyon's water-willow			margins of and openings within subtropical woodlands or thorn shrublands on calcareous, alluvial, silty or clayey soils derived from Holocene silt and sand floodplain deposits of the Rio Grande Delta; can be common in narrow openings such as those provided by trails through dense ebony woodlands and is sometimes restricted to microdepressions; flowering (July-) September-November	4
Plants	Sesuvium trianthemoides	Roughseed sea-purslane			Texas endemic; dunes and perhaps in saline clay of tidal flats or ephemeral ponds within a dune landscape; likely flowering June-August	1
Plants	Matelea brevicoronata	Shortcrown milkvine			GLOBAL RANK: G3; Primarily in grasslands on tight sandy or silty substrates; Perennial; Flowering March-Sept; Fruiting May-Sept	8

Taxon	SName	CName	USES	SPROT	Description	# Counties
Plants	Matelea radiata	Falfurrias milkvine			Texas endemic; uncertain, only two known specimens; one from clay soil on dry gravel hills at altitude of approximately 45 m (150 ft); other from Falfurrias, no habitat description; probably flowering May-June	2
Plants	Matelea sagittifolia	Arrowleaf milkvine			GLOBAL RANK: G3; Most consistently encountered in thornscrub in South Texas; Perennial; Flowering March-July; Fruiting April-July & Dec?	15
Plants	Ambrosia cheiranthifolia	South Texas ambrosia	LE	E	Grasslands and mesquite-dominated shrublands on various soils ranging from heavy clays to lighter textured sandy loams, mostly over the Beaumont Formation on the Coastal Plain; in modified unplowed sites such as railroad and highway right-of-ways, cemeteries, mowed fields, erosional areas along small creeks; Perennial; Flowering July-November	4
Plants	Grindelia oolepis	Plains gumweed			coastal prairies on heavy clay (blackland) soils, often in depressional areas, sometimes persisting in areas where management (mowing) may maintain or mimic natural prairie disturbance regimes; 'crawfish lands'; on nearly level Victoria clay, Edroy clay, claypan, possibly Greta within Orella fine sandy loam over the Beaumont Formation, and Harlingen clay; roadsides, railroad rights-of-ways, vacant lots in urban areas, cemeteries; flowering April-December	5
Plants	Thelesperma burridgeanum	Burridge greenthread			GLOBAL RANK: G3; Sandy open areas; Annual; Flowering March-Nov; Fruiting March-June	14
Plants	Trichocoronis wrightii var. wrightii	Wright's trichocoronis			GLOBAL RANK: G4T3; Most records from Texas are historical, perhaps indicating a decline as a result of alteration of wetland habitats; Annual; Flowering Feb-Oct; Fruiting Feb-Sept	18
Plants	Selenia grandis	Large selenia			GLOBAL RANK: G4; Occurs in seasonally wet clayey soils in open areas; Annual; Flowering Jan-April; Fruiting Feb-April	9
Plants	Thelypodopsis shinnensis	Shinners' rocket			mostly along margins of Tamaulipan thornscrub on clay soils of the Rio Grande Delta, including lomas near the mouth of the river; Tamaulipas, Mexico specimens are from mountains, with no further detail; flowering mostly March-April, with one collection in December	2
Plants	Coryphantha macromeris var runyonii	Runyon's cory cactus			gravely to sandy or clayey, calcareous, sometimes gypsiferous or saline soils, often over the Catahoula and Frio formations, on gentle hills and slopes to the flats between, at elevations ranging from 10 to 150 m (30 to 500 ft); ?late spring or early summer, November, fruit has been collected in August	3
Plants	Echinocereus papillosus	Yellow-flowered alicocha			GLOBAL RANK: G3; Under shrubs or in open areas on various substrates; Perennial; Flowering Jan-April	9

Taxon	SName	CName	USES A	SPROT	Description	# Counties
Plants	<i>Astrophytum asterias</i>	Star cactus	LE	E	gravelly clays or loams, possibly of the Catarina Series (deep, droughty, saline clays), over the Catahoula and Frio formations, on gentle slopes and flats in sparsely vegetated openings between shrub thickets within mesquite grasslands or mesquite-blackbrush thorn shrublands; plants sink into or below ground during dry periods; flowering from mid March-May, may also flower in warmer months after sufficient rainfall, flowers most reliably in early April; fruiting mid April-June	4
Plants	<i>Paronychia jonesii</i>	Jones' nailwort			GLOBAL RANK: G3; Occurs in early successional open areas on deep well-drained sand; Biennial Annual; Flowering March-Nov; Fruiting April-Nov	7
Plants	<i>Paronychia setacea</i>	Bristle nailwort			Flowering vascular plant endemic to eastern southcentral Texas, occurring in sandy soils	13
Plants	<i>Lenophyllum texanum</i>	Texas stonecrop			GLOBAL RANK: G3; Found in shrublands on clay dunes (lomas) at the mouth of the Rio Grande and on xeric calcareous rock outcrops at scattered inland sites; Perennial; Flowering/Fruiting Nov-Feb	10
Plants	<i>Cuscuta attenuata</i>	Marsh-elder dodder			GLOBAL RANK: G1G3; Parasitizes a particular sumpweed (Iva annua) almost exclusively as well as ragweed and heath aster. Host plants typically found in open, disturbed habitats like fallow fields and creek bottomlands; Annual; Flowering late summer through October	6
Plants	<i>Adelia vaseyi</i>	Vasey's adelia			Mostly subtropical evergreen/deciduous woodlands on loamy soils of Rio Grande Delta, but occasionally in shrublands on more xeric sandy to gravelly upland sites; Perennial; Flowering January-June	4
Plants	<i>Croton coryi</i>	Cory's croton			GLOBAL RANK: G3; Grasslands and woodland openings on barrier islands and coastal sands of South Texas, inland on South Texas Sand Sheet; Annual; Flowering July-Oct; Fruiting July-Nov	9
Plants	<i>Euphorbia innocua</i>	Velvet spurge			GLOBAL RANK: G3; Open or brushy areas on coastal sands and the South Texas Sand Sheet; Perennial; Flowering Sept-April; Fruiting Nov-July	10
Plants	<i>Manihot walkerae</i>	Walker's manioc	LE	E	periphery of native brush in sandy loam; also on caliche cuernas?; flowering April-September (following rains?)	3
Plants	<i>Phyllanthus abnormis</i> var. <i>riograndensis</i>	Sand sheet leaf-flower			GLOBAL RANK: G5T3; Semi-desert scrub of deep South Texas; Annual; Flowering Feb-July; Fruiting Oct-March	6
Plants	<i>Astragalus reflexus</i>	Texas milk vetch			GLOBAL RANK: G3; Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June	16
Plants	<i>Pomaria austrotexana</i>	Stinking rushpea			GLOBAL RANK: G3; In open areas on deep well drained sands; Perennial; Flowering Feb-Oct; Fruiting April-Oct	7
Plants	<i>Brazoria arenaria</i>	Sand Brazos mint			GLOBAL RANK: G3; Sandy areas in South Texas; Annual; Flowering/Fruiting March-April	12

Taxon	SName	CName	USES	SPROT	Description	# Counties
Plants	Wissadula parvifolia	Small-leaved yellow velvet-leaf			Occurs on sandy loams or clays in shrublands or woodlands on gently undulating terrain of the Holocene sand sheet over the Goliad Formation.	2
Plants	Abronia ameliae	Amelia's abronia			Endemic to South Texas; Occurs on deep, well-drained sandy soils of the South Texas Sand Sheet in grassy and/or herbaceous dominated openings within coastal live oak woodlands or mesquite-coastal live oak woodlands. Perennial; Flowering Mar-June	7
Plants	Eriogonum greggii	Gregg's wild-buckwheat			sparingly vegetated openings in thorn shrublands in shallow soils on xeric ridges along the Rio Grande; also on excessively drained, sandy soil over caliche and calcareous sandstone of the Goliad Formation and over sandstone or fossiliferous layers of the Jackson Group; flowering February-July, probably opportunistically during the growing season	2
Plants	Gilia ludens	South Texas gilia			GLOBAL RANK: G3; Occurs in open areas in shrublands on shallow sandy loam over rock outcrops; Perennial; Flowering Dec-April; Fruiting March	8
Plants	Prunus texana	Texas peachbush			GLOBAL RANK: G3; Occurs at scattered sites in various well drained sandy situations; deep sand, plains and sand hills, grasslands, oak woods, 0-200 m elevation; Perennial; Flowering Feb-Mar; Fruiting Apr-Jun	26
Plants	Cardiospermum dissectum	Chihuahu balloon-vine			Thorn shrublands or low woodlands on well to excessively well drained, calcareous, sandy to gravelly soils in drier uplands of the Lower Rio Grande Valley, in areas underlain by the Goliad formation, Catahoula and Frio formations undivided, Jackson Group, and other Eocene formations; during drought conditions the normally inconspicuous slender twining vine turns a more conspicuous deep reddish-purple; flowering (April-) July-September, probably throughout the growing season in response to rainfall.	3
Plants	Ayenia limitaris	Texas ayenia	LE	E	Subtropical thorn woodland or tall shrubland on loamy soils of the Rio Grande Delta; known site soils include well-drained, calcareous, sandy clay loam (Hidalgo Series) and neutral to moderately alkaline, fine sandy loam (Willacy Series); also under or among taller shrubs in thorn woodland/thorn shrubland; flowering throughout the year with sufficient rainfall	3
Plants	Manfreda longiflora	St. Joseph's staff			thorn shrublands on clays and loams with various concentrations of salt; caliche, sand, and gravel; rosettes are often obscured by low shrubs; flowering September-October	3
Plants	Manfreda sileri	Siler's huaco			GLOBAL RANK: G3; Rare in a variety of grasslands and shrublands on dry sites; Perennial; Flowering April-July; Fruiting June-July	6

Taxon	SName	CName	USES A	SPROT	Description	# Counties
Plants	<i>Tillandsia baileyi</i>	Bailey's ballmoss			epiphytic on various trees and tall shrubs, perhaps most common in mottes of Live oak on vegetated dunes and flats in coastal portions of the South Texas Sand Sheet, but also on evergreen sub-tropical woodlands along resacas in the Lower Rio Grande Valley; flowering (February-)April-May, but conspicuous throughout the year	7
Plants	<i>Tradescantia buckleyi</i>	Buckley's spiderwort			Occurs on sandy loam or clay soils in grasslands or shrublands underlain by the Beaumont Formation.	5
Plants	<i>Eleocharis austrotexana</i>	South Texas spikesedge			GLOBAL RANK: G3; Occurring in miscellaneous wetlands at scattered locations on the coastal plain; Perennial; Flowering/Fruiting Sept	11
Plants	<i>Allium elmendorffii</i>	Elmendorff's onion			Texas endemic; grassland openings in oak woodlands on deep, loose, well-drained sands; in Coastal Bend, on Pleistocene barrier island ridges and Holocene Sand Sheet that support live oak woodlands; to the north it occurs in post oak-black hickory-live oak woodlands over Queen City and similar Eocene formations; one anomalous specimen found on Llano Uplift in wet pockets of granitic loam; Perennial; Flowering March-April, May	14
Plants	<i>Echeandia chandleri</i>	Lila de los llanos			most commonly encountered among shrubs or in grassy openings in subtropical thorn shrublands on somewhat saline clays of lomas along Gulf Coast near mouth of Rio Grande; also observed in a few upland coastal prairie remnants on clay soils over the Beaumont Formation at inland sites well to the north and along railroad right-of-ways and cemeteries; flowering (May-) September-December, fruiting October-December	3
Plants	<i>Echeandia texensis</i>	Green Island echeandia			on somewhat saline clays of lomas along the Gulf Coast near the mouth of Rio Grande, a habitat shared with <i>E. chandleri</i> ; both species grow in areas dominated by herbaceous species with scattered brush and stunted trees, or in grassy openings in subtropical thorn shrublands; flowers April, June, and November, and likely in other months, as well	1
Plants	<i>Heteranthera mexicana</i>	Mexican mud-plantain			wet clayey soils of resacas and ephemeral wetlands in South Texas and along margins of playas in the Panhandle; flowering June-December, only after sufficient rainfall	12

APPENDIX D
AIR QUALITY CALCULATIONS

CALCULATION SHEET-COMBUSTION EMISSIONS-CONSTRUCTION

Assumptions for Combustion Emissions					
Type of Construction Equipment	Num. of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Water Truck	1	300	8	320	768,000
Diesel Road Compactors	1	100	8	320	256,000
Diesel Dump Truck	2	300	8	160	768,000
Diesel Excavator	1	300	8	480	1,152,000
Diesel Hole Trenchers	1	175	8	320	448,000
Diesel Bore/Drill Rigs	1	300	8	320	768,000
Diesel Cement & Mortar Mixers	2	300	8	160	768,000
Diesel Cranes	1	175	8	320	448,000
Diesel Graders	1	300	8	160	384,000
Diesel Tractors/Loaders/Backhoes	0	100	8	0	-
Diesel Bulldozers	1	300	8	160	384,000
Diesel Front-End Loaders	1	300	8	320	768,000
Diesel Forklifts	1	100	8	160	128,000
Diesel Generator Set	0	40	8	0	-

Emission Factors ¹						
Type of Construction Equipment	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	PM-10 g/hp-hr	PM-2.5 g/hp-hr	SO ₂ g/hp-hr
Water Truck	0.440	2.070	5.490	0.410	0.400	0.740
Diesel Road Compactors	0.370	1.480	4.900	0.340	0.330	0.740
Diesel Dump Truck	0.440	2.070	5.490	0.410	0.400	0.740
Diesel Excavator	0.340	1.300	4.600	0.320	0.310	0.740
Diesel Trenchers	0.510	2.440	5.810	0.460	0.440	0.740
Diesel Bore/Drill Rigs	0.600	2.290	7.150	0.500	0.490	0.730
Diesel Cement & Mortar Mixers	0.610	2.320	7.280	0.480	0.470	0.730
Diesel Cranes	0.440	1.300	5.720	0.340	0.330	0.730
Diesel Graders	0.350	1.360	4.730	0.330	0.320	0.740
Diesel Tractors/Loaders/Backhoes	1.850	8.210	7.220	1.370	1.330	0.950
Diesel Bulldozers	0.360	1.380	4.760	0.330	0.320	0.740
Diesel Front-end Loaders	0.380	1.550	5.000	0.350	0.340	0.740
Diesel Forklifts	1.980	7.760	8.560	1.390	1.350	0.950
Diesel Generator Set	1.210	3.760	5.970	0.730	0.710	0.810

CALCULATION SHEET-COMBUSTION EMISSIONS-CONSTRUCTION

1. Emission factors (EF) were generated using USEPA's preferred model for nonroad sources, the NONROAD2008 model. Emissions were modeled for the 2007 calendar year. The VOC EFs include exhaust and evaporative emissions. The VOC evaporative components included in the NONROAD2008 model are diurnal, hotsoak, running loss, tank permeation, hose permeation, displacement, and spillage. The construction equipment age distribution in the NONROAD2008 model is based on the population in U.S. for the 2007 calendar year.

Emission Calculations							
Type of Construction Equipment	VOC tons/yr	CO tons/yr	NOx tons/yr	PM-10 tons/yr	PM-2.5 tons/yr	SO ₂ tons/yr	CO ₂ tons/yr
Water Truck	0.372	1.752	4.646	0.347	0.339	0.626	453.636
Diesel Road Paver	0.104	0.418	1.382	0.096	0.093	0.209	151.268
Diesel Dump Truck	0.372	1.752	4.646	0.347	0.339	0.626	453.636
Diesel Excavator	0.432	1.650	5.840	0.406	0.394	0.939	680.835
Diesel Hole Cleaners/Trenchers	0.252	1.205	2.868	0.227	0.217	0.365	264.522
Diesel Bore/Drill Rigs	0.508	1.938	6.051	0.423	0.415	0.618	448.304
Diesel Cement & Mortar Mixers	0.516	1.963	6.161	0.406	0.398	0.618	448.304
Diesel Cranes	0.217	0.642	2.824	0.168	0.163	0.360	261.758
Diesel Graders	0.148	0.576	2.002	0.140	0.135	0.313	226.945
Diesel Tractors/Loaders/Backhoes	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Diesel Bulldozers	0.152	0.584	2.014	0.140	0.135	0.313	226.945
Diesel Front-end Loaders	0.322	1.312	4.232	0.296	0.288	0.626	453.805
Diesel Forklift	0.279	1.095	1.207	0.196	0.190	0.134	97.441
Diesel Generator Set	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Emissions	3.675	14.886	43.875	3.192	3.105	5.749	4167.401

Conversion factors	
Grams to tons	1.102E-06

MOVES2010a MODEL ON-ROAD TRANSPORTATION AIR EMISSIONS-
DELIVERY MATERIALS AND COMMUTING DURING CONSTRUCTION ACTIVITIES

MOVES 2010a					
Source	Fuel type	Number of vehicles	Miles traveled per day	Days of travel per year	Miles traveled per year
Passenger cars	Gasoline	48	60	60	172,800
Passenger truck	Gasoline	48	60	60	172,800
Light commercial truck	Diesel	32	60	60	115,200
Short-haul truck	Diesel	64	80	6	30,720
Long-haul truck	Diesel	16	80	6	7,680

Emission Factors (MOVES 2010a Emission Rates) ¹							
Source	VOC (g/mile)	CO (g/mile)	NOx (g/mile)	PM-10 (g/mile)	PM-2.5 (g/mile)	SO ₂ (g/mile)	CO ₂ and CO ₂ Equivalents (g/mile)
Passenger cars	8.497	2.892	0.576	0.019	0.018	0.005	320
Passenger truck	3.645	5.449	1.168	0.027	0.025	0.007	439
Light commercial truck	4.460	2.158	2.986	0.164	0.190	0.005	609
Short-haul truck	2.438	2.273	6.095	0.270	0.313	0.007	929
Long-haul truck	2.519	3.610	14.776	0.625	0.726	0.016	2,020

Total Emission for On-Road Construction Activities (tons/year)							
Source	VOC	CO	NOx	PM-10	PM-2.5	SO ₂	CO ₂ and CO ₂ Equivalents
Passenger cars	1.618	0.551	0.110	0.004	0.003	0.001	61
Passenger truck	0.694	1.038	0.222	0.005	0.005	0.001	84
Light commercial truck	0.566	0.274	0.379	0.021	0.024	0.001	77
Short-haul truck	0.083	0.077	0.206	0.009	0.011	0.000	31
Long-haul truck	0.021	0.031	0.125	0.005	0.006	0.000	17
Total	2.982	1.970	1.043	0.044	0.049	0.003	271

Key:

Short-haul trucks category includes trucks such as dump trucks and cement trucks.

Long-haul trucks category includes trucks such as semi-trailers (18-wheelers).

1. Emission factors were generated by the USEPA preferred model MOVES2010a. MOVES simulates daily motor vehicle operations and produces emission rates. MOVES emission rates include sources from engine combustion, tire wear, brake wear, evaporative fuel permeation, vapor venting and leaking (running and parking), and crankcase loss. Emission rates are daily averages for each of the criteria pollutants. The averages are from a combination of vehicle operations such as stop and go, highway travel, acceleration at on-ramps, parking, start-up, extended idle, etc.

MOVES2010a MODEL ON-ROAD TRANSPORTATION AIR EMISSIONS- ONGOING OPERATIONS

MOVES 2010a					
Source	Fuel type	Number of vehicles	Miles traveled per day	Days of travel per year	Miles traveled per year
Passenger cars	Gasoline	32	60	24	46,080
Passenger truck	Gasoline	32	60	24	46,080
Light commercial truck	Diesel	16	60	24	23,040
Short-haul truck	Diesel	16	60	24	23,040
Long-haul truck	Diesel	16	60	24	23,040

Emission Factors (MOVES 2010a Emission Rates) ¹							
Source	VOC (g/mile)	CO (g/mile)	NOx (g/mile)	PM-10 (g/mile)	PM-2.5 (g/mile)	SO ₂ (g/mile)	CO ₂ and CO ₂ Equivalents (g/mile)
Passenger cars	8.497	2.892	0.576	0.019	0.018	0.005	320
Passenger truck	3.645	5.449	1.168	0.027	0.025	0.007	439
Light commercial truck	4.460	2.158	2.986	0.164	0.190	0.005	609
Short-haul truck	2.438	2.273	6.095	0.270	0.313	0.007	929
Long-haul truck	2.519	3.610	14.776	0.625	0.726	0.016	2,020

Total Emission for On-Road Commuter Activities (tons/year)							
Source	VOC	CO	NOx	PM-10	PM-2.5	SO ₂	CO ₂ and CO ₂ Equivalents
Passenger cars	0.43	0.15	0.03	0.00	0.00	0.00	16
Passenger truck	0.19	0.28	0.06	0.00	0.00	0.00	22
Light commercial truck	0.11	0.05	0.08	0.00	0.00	0.00	15
Short-haul truck	0.06	0.06	0.15	0.01	0.01	0.00	24
Long-haul truck	0.06	0.09	0.38	0.02	0.02	0.00	51
Total	0.86	0.63	0.69	0.03	0.03	0.00	129

Key:

Short-haul trucks category includes trucks such as dump trucks and cement trucks.

Long-haul trucks category includes trucks such as semi-trailers (18-wheelers).

1. Emission factors were generated by the USEPA preferred model MOVES2010a. MOVES simulates daily motor vehicle operations and produces emission rates. MOVES emission rates include sources from engine combustion, tire wear, brake wear, evaporative fuel permeation, vapor venting and leaking (running and parking), and crankcase loss. Emission rates are daily averages for each of the criteria pollutants. The averages are from a combination of vehicle operations such as stop and go, highway travel, acceleration at on-ramps, parking, start-up, extended idle, etc.

CALCULATION SHEET-FUGITIVE DUST-CONSTRUCTION

Assumptions for Combustion Emissions

Construction Fugitive Dust Emission Factors

	Emission Factor	Units	Source
General Construction Activities	0.19 ton PM-10/acre-month	MRI 1996; EPA 2001; EPA 2006	
New Road Construction	0.42 ton PM-10/acre-month	MRI 1996; EPA 2001; EPA 2006	

PM-2.5 Emissions
PM-2.5 Multiplier

0.10 (10% of PM-10 emissions assumed to be PM-2.5)

Control Efficiency

0.50 (assume 50% control efficiency for PM-10 and PM-2.5 emissions)

Project Assumptions

Construction Area (0.19 ton PM-10/acre-month,			Conversion Factors
Duration of Soil Disturbance in Project	12 months		0.000022957 acres per foot
Length	2 miles		5280 feet per mile
Length (converted)	10560 feet		
Width	45 feet		
Area	10.91 acres		

Staging Areas

Duration of Construction Project	12 months
Length	miles
Length (converted)	feet
Width	feet
Area	acres

* Assume that construction activities during road modification are limited to 10 miles area during any given construction day.

Project Emissions (tons/year)			
	PM-10 uncontrolled	PM-10 controlled	PM-2.5 uncontrolled PM-2.5 controlled
Construction Area (0.19 ton PM-10/a	24.87	12.44	2.49 1.24
Staging Areas	0.19	0.10	0.02 0.01
Total	25.06	12.53	2.51 1.25

References:

- USEPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999*. EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.
- USEPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants*. Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.
- MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1)*. Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

General Construction Activities Emission Factor

0.19 ton PM-10/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The area-based emission factor for construction activities is based on a study completed by the Midwest Research Institute (MRI) Improvement of Specific Emission Factors (BACM Project No. 1), March 29, 1996. The MRI study evaluated seven construction projects in Nevada and California (Las Vegas, Coachella Valley, South Coast Air Basin, and the San Joaquin Valley). The study determined an average emission factor of 0.11 ton PM-10/acre-month for sites without large-scale cut/fill operations. A worst-case emission factor of 0.42 ton PM-10/acre-month was calculated for sites with active large-scale earth moving operations. The monthly emission factors are based on 168 work-hours per month (MRI 1996). A subsequent MRI Report in 1999, Estimating Particulate Matter Emissions from Construction Operations, calculated the 0.19 ton PM-10/acre-month emission factor by applying 25% of the large-scale earthmoving emission factor (0.42 ton PM-10/acre-month) and 75% of the average emission factor (0.11 ton PM-10/acre-month).

The 0.19 ton PM-10/acre-month emission factor is referenced by the EPA for non-residential construction activities in recent procedures documents for the National Emission Inventory (EPA 2001; EPA 2006). The 0.19 ton PM-10/acre-month emission factor represents a refinement of EPA's original AP-42 area-based total suspended particle (TSP) emission factor in Section 13.2.3 Heavy Construction Operations. In addition to the EPA, this methodology is also supported by the South Coast Air Quality Management District and the Western Regional Air Partnership (WRAP) which is funded by the EPA and is administered jointly by the Western Governor's Association and the National Tribal Environmental Council. The emission factor is assumed to encompass a variety of non-residential construction activities including building construction (commercial, industrial, institutional, governmental), public works, and travel on unpaved roads. The EPA National Emission Inventory documentation assumes that the emission factors are uncontrolled and recommends a control efficiency of 50% for PM-10 and PM-2.5 in PM nonattainment areas.

New Road Construction Emission Factor

0.42 ton PM-10/acre-month Source: MRI 1996; EPA 2001; EPA 2006

The emission factor for new road construction is based on the worst-case conditions emission factor from the MRI 1996 study described above (0.42 tons PM-10/acre-month). It is assumed that road construction involves extensive earthmoving and heavy construction vehicle travel resulting in emissions that are higher than other general construction projects. The 0.42 ton PM-10/acre-month emission factor for road construction is referenced in recent procedures documents for the EPA National Emission Inventory (EPA 2001; EPA 2006).

PM-2.5 Multiplier 0.10

PM-2.5 emissions are estimated by applying a particle size multiplier of 0.10 to PM-10 emissions. This methodology is consistent with the procedures documents for the National Emission Inventory (EPA 2006).

Control Efficiency for PM-10 and PM-2.5 0.50

The EPA National Emission Inventory documentation recommends a control efficiency of 50% for PM-10 and PM-2.5 in PM nonattainment areas. Wetting controls will be applied during project construction (EPA 2006).

References:

- EPA 2001. *Procedures Document for National Emissions Inventory, Criteria Air Pollutants, 1985-1999*. EPA-454/R-01-006. Office of Air Quality Planning and Standards, United States Environmental Protection Agency. March 2001.
- EPA 2006. *Documentation for the Final 2002 Nonpoint Sector (Feb 06 version) National Emission Inventory for Criteria and Hazardous Air Pollutants*. Prepared for: Emissions Inventory and Analysis Group (C339-02) Air Quality Assessment Division Office of Air Quality Planning and Standards, United States Environmental Protection Agency. July 2006.
- MRI 1996. *Improvement of Specific Emission Factors (BACM Project No. 1)*. Midwest Research Institute (MRI). Prepared for the California South Coast Air Quality Management District, March 29, 1996.

GENERATOR EMISSIONS

Assumptions for Combustion Emissions					
Type of Construction Equipment	Num. of Units	HP Rated	Hrs/day	Days/yr	Total hp-hrs
Propane Generator Set Back-up	0	25	0	0	0
Propane Generator Set-Primary	16	25	5	24	48000

Emission Factors ¹						
Type of Construction Equipment	VOC g/hp-hr	CO g/hp-hr	NOx g/hp-hr	PM-10 g/hp-hr	PM-2.5 g/hp-hr	CO ₂ g/hp-hr
Propane Generator Set Back-up	2.03	31.91	9.93	0.06	0.06	653.9
Propane Generator Set-Primary	2.03	31.91	9.93	0.06	0.06	653.9

Emission Calculations						
Type of Construction Equipment	VOC tons/yr	CO tons/yr	NOx tons/yr	PM-10 tons/yr	PM-2.5 tons/yr	CO ₂ tons/yr
Propane Generator Set Back-up	0.00	0.00	0.00	0.00	0.00	0.00
Propane Generator Set-Primary	0.11	1.69	0.53	0.00	0.00	34.59
Total Emissions	0.11	1.69	0.53	0.00	0.00	34.59

Conversion factors	
Grams to tons	0.00

1. Emission factors (EF) were generated using USEPA's preferred model for nonroad sources, the NONROAD2008 model. Emissions were modeled for the 2007 calendar year. The VOC EFs includes exhaust and evaporative emissions. The VOC evaporative components included in the NONROAD2008 model are diurnal, hotsoak, running loss, tank permeation, hose permeation, displacement, and spillage. The construction equipment age distribution in the NONROAD2008 model is based on the population in U.S. for the 2007 calendar year.

CALCULATION SHEET-SUMMARY OF EMISSIONS

Summary of Emissions (tons/year/16 towers)										
Emission Source	VOC	CO	NOx	PM-10	PM-2.5	SO ₂	CO ₂	CO ₂ Equivalents	Total CO ₂	
Combustion Emissions	3.68	14.89	43.87	3.19	3.11	5.75	4167.40	13,737	17,904	
Construction Site-Fugitive PM-10	NA	NA	NA	12.53	1.25	NA	NA	NA	NA	
Construction Workers Commuter & Trucking	2.98	1.97	1.04	0.04	0.05	0.00	NA	271	271	
Total Emissions-CONSTRUCTION	6.66	16.86	44.92	15.77	4.41	5.75	4167	14,007	18,175	
Operational Emissions	0.86	0.63	0.69	0.03	0.03	0.00	NA	129	129	
Generators	0.11	1.69	0.53	0.00	0.00	0.00	34.59	166	201	
Total Operational Emissions	0.96	2.32	1.22	0.03	0.04	0.00	35	295	330	
<i>De minimis</i> Threshold (1)	100	100	100	70	100	100	NA	NA	25,000	

1. Note that Pima County is a moderate non-attainment area for PM-10 area for CO (USEPA 2013b).

Carbon Equivalents	Conversion Factor
N ₂ O or NOx	311
Methane or VOCs	25

Source: EPA 2010 Reference, Tables and Conversions, Inventory of U.S. Greenhouse Gas Emissions and Sinks; <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>