

LOS EBANOS FERRY
(Los Ebanos-Díaz Ordaz Ferry)
Crossing the Rio Grande River at Flores Street
Los Ebanos vicinity
Hidalgo County
Texas

HAER No TX-119

Also located in
Ciudad Gustavo Díaz Ordaz vicinity
Tamaulipas
Mexico

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA
FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, D.C. 20240-001

HISTORIC AMERICAN ENGINEERING RECORD

LOS EBANOS FERRY

HAER No. TX-119

Location: Los Ebanos Ferry is on Flores Street (also known as County Road 41) on the Rio Grande near Los Ebanos, Hidalgo County, Texas, in the lower Rio Grande Valley. Secondary location is the vicinity of Ciudad Gustavo Díaz Ordaz, Tamaulipas, Mexico.

The ferry crossing approach from the U.S. side is at the terminus of Flores Street (County Road 41) to Camino a Ebano in Mexico. The ferry crosses the Rio Grande just downstream of a broad bend in the river, 204.4 river miles from the mouth. The approach from the Mexico side is at the terminus of Avenida Adolfo López Mateos, approximately 2.0 miles east of Ciudad Gustavo Díaz Ordaz. The center of the river crossing is at latitude 26.23944, longitude -98.56507. The latitude and longitude coordinates were obtained using a Global Positioning System mapping grade unit accurate to +/- 3 meters after differential correction. The coordinates' datum is North American Datum 1983. The location of the resource has no restriction on its release to the public.

Present Owner: Ediberto Reyna Jr. and Linda Reyna, of Houston, Texas, and Armando Garza, of Ciudad Gustavo Díaz Ordaz, Tamaulipas, Mexico.

Present Use: Los Ebanos Ferry remains in use as a ferry, carrying passengers and vehicles across the Rio Grande between the village of Los Ebanos, Texas, and Ciudad Gustavo Díaz Ordaz, Tamaulipas, Mexico.

Significance: In continuous service since 1950, the Los Ebanos Ferry is significant as the only hand-powered river ferry on an international border of the continental United States. It represents a rare example of an older technology of transportation crossing on the Rio Grande and other American rivers.

Historians: Marjorie Nowick, Lori Vermaas, Melissa Wiedenfeld, and Chad Blackwell of HDR, March 2011.

Project Information: This research and documentation project was conducted by HDR under subcontract to Louis Berger and Associates, prime contractor to the U.S. Army Corps of Engineers, Galveston District. The project was sponsored and funded by the U.S. Department of Homeland Security, Customs and Border Protection. Marjorie Nowick, Chad Blackwell, and Melissa Wiedenfeld were the Principal Investigators; historical research was completed by Lori Vermaas, Melissa Wiedenfeld, and Chad Blackwell. Large-format photography was completed by Timothy McGrath, principal of Image West, Colorado as subcontractor to HDR on July 10–11, 2008. Fieldwork to document the ferry and crossing was conducted during several field sessions in July 2008 and August 2009. Drawings were delineated by Susan Cheek, Angles Architecture, Denver, Colorado, as subcontractor to HDR.

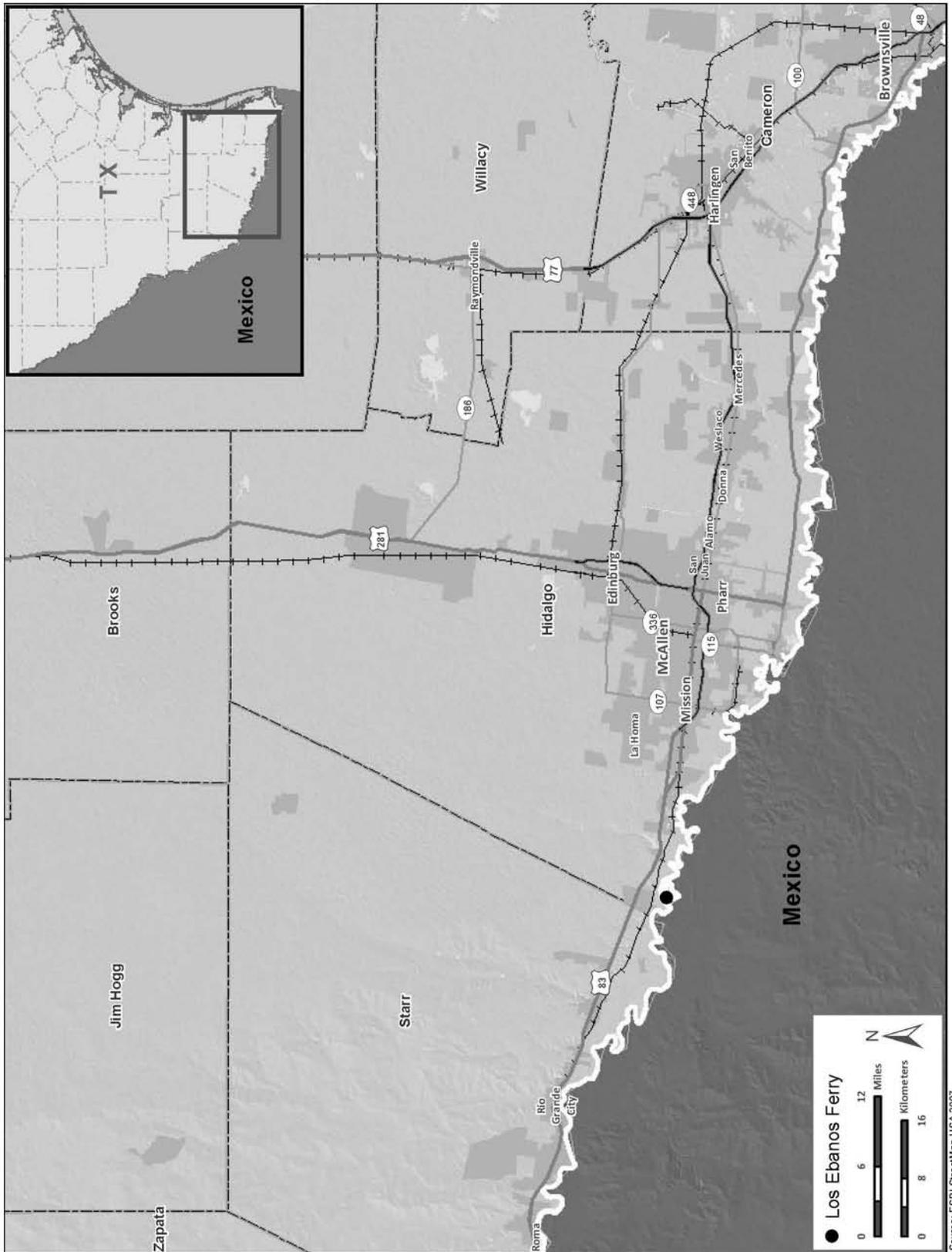


Figure 1. Map showing location of Los Ebanos Ferry in relation to nearby Texas cities.

PART I. Historical Information

A. Physical History:

- 1. Date of Construction:** 1950
- 2. Architect:** Ediberto Reyna Sr.
- 3. Original and Subsequent Owners, Occupants, Uses:** Privately built by Hidalgo County Commissioner Ediberto Reyna Sr. and three Mexican businessmen—Gilberto Martinez Garza, Florentino Chapa, and Daniel Flores. The Los Ebanos Ferry is currently owned by Reyna's children Ediberto Reyna Jr. and Linda Reyna and the operator on the Mexican side is Armando Garza.
- 4. Builder/Contractor/Supplier:** Ediberto Reyna Sr.
- 5. Original Plans:** None known. In an interview with current owner he said no plans were drawn and it was not a design replicated from elsewhere.
- 6. Alterations and Additions:** Beginning in 1950, a wood ferry was used at the crossing and reportedly replaced every 2–3 years. In 1980, the wood ferry was replaced with a new ferry of all-steel construction. Improvements made to the U.S. side include asphalt paving, construction of a wood frame toll booth and metal canopy, construction of a metal frame U.S. Customs and Border Protection checkpoint and awning, and construction of a metal frame building used by U.S. Customs and Border Protection and the U.S. Department of Agriculture. Current buildings replaced an original wood frame building that housed both customs and ferry operations. Improvements to the Mexico side include concrete paving and a picnic and waiting area with concrete pads and planters.

B. Historical Context:

River Crossings in the Lower Rio Grande Valley

The Rio Grande serves as the political border between Texas and the Mexican states of Sonora, Chihuahua, Coahuila, Nuevo Leon, and Tamaulipas. The river flows from the San Juan Mountains in Colorado, bisects New Mexico, and flows through hundreds of miles of desert before emptying into the Gulf of Mexico. The Lower Rio Grande Valley (downriver from Roma, Texas, which is 33 miles west of Los Ebanos) flows through an alluvial plain shaped by the river and by spurts of rainfall; the area averages 20" to 26" of precipitation annually. Before man-made controls carefully channeled the river, the alluvial processes carved out *resacas* (oxbow lakes) and cut off or deepened *bancos* (curves in the river).

Although the area was originally peopled by Lipan Apache, by the mid-eighteenth century the Spanish began settling the area using the long-lot cadastral system seen along alluvial plains of other major rivers, and granting land in allotments called

porciones. Historically, the river served as a highway uniting a *Tejano* culture that flourished on both sides.

Native Americans, Spaniards, Mexicans, and other settlers established numerous river crossings such as fords or ferry services along the Rio Grande from present-day Brownsville to Roma, Texas. Early ferry crossings in the Lower Rio Grande Valley developed in areas of concentrated settlement, trade routes, or military activity, notably at present-day Brownsville (83 miles east of Los Ebanos) and Rio Grande City (20 miles west of Los Ebanos), with nearby Forts Brown and Ringgold respectively. Most crossings were adapted for military use, especially during the Mexican-American War and the American Civil War. The earliest documented Rio Grande crossing near Los Ebanos was a ford approximately 18 miles east or downstream from Rio Grande City, Texas. According to the Texas Historical Commission, “an ancient ford” south of the village existed and was used by explorers and colonists, including those led by José de Escandón, the Spanish colonel commissioned by the Spanish Crown in the mid-eighteenth century to settle the Lower Rio Grande Valley.¹

Popular throughout its history for general crossings and contraband smuggling, the ford also facilitated raids during wars and other times of crisis. On 28 December 1862 “armed Mexican thieves crossed into Los Ebanos and attacked a Confederate wagon train; three teamsters died, and all the goods were lost.”² Twelve years later, the Texas Rangers used the ford to pursue cattle rustlers, and the following year the U.S. Customs Service joined in on the chase. In 1875 Captain Leander H. McNelly of the Texas Rangers crossed the ford, known then as Las Cuevas Crossing, to raid the nearby Las Cuevas Ranch in Mexico. The Mexican ranch owner, General Juan Flores Salinas, was accused of stealing cattle from American ranchers. The raid violated international law and “precipitated the ‘Las Cuevas War.’” McNelly retrieved some cattle, but the Mexican ranch owner was killed, likely while resisting the retrieval. Regardless of the Texas Rangers’ vigilante tactics, the ford’s use as a smuggling site continued, especially during the Prohibition Era. Reportedly, bootleggers’ mules were so well-trained they could cross the ford themselves, unescorted.³

Because ferries were critical to transportation and the economy, the newly elected Congress of the Republic of Texas passed a law on 20 December 1836 to regulate ferry operation and installment, including defining a ferry’s public function and outlining charter requirements.⁴ By this time operators already had developed many

¹Alicia A. Garza, “Los Ebanos, TX,” *Handbook of Texas Online* (Texas State Historical Association), accessed 06 March 2011, <http://www.tshaonline.org/handbook/online/articles/hll63>.

² Garza, “Los Ebanos, TX.”

³ Brian Robertson, *Rio Grande Heritage: A Pictorial History* (Norfolk, VA: Donning, Hidalgo County Historical Museum, 1985), p. 73.

⁴ “Ferries,” *Handbook of Texas Online* (Texas State Historical Association), accessed 09 March 2011, <http://www.tshaonline.org/handbook/online/articles/rtf01>.

ferry crossings on rivers throughout the Texas Republic. In the Brownsville area (which was politically disputed for another dozen years), there was a ferry service in 1836 named the *Paso Real* ferry, although sources conflict regarding its actual location. It is likely that the ferry crossing existed near Brownsville because of the Texas Republic's and Mexico's wartime strategic needs.⁵

A surer date for the appearance of the earliest ferries on the Rio Grande is 1845. An 1845-46 hand-drawn military map identifies two of three that existed at that time, but pinpointing the ferry's location is difficult. According to this map, one of the ferries operated just northwest of Matamoros, Mexico and northeast of a Mexican fort and connected to a short trail on the U.S. side. Such a location approximates that of a major Rio Grande bridge that was built in the 1910s, the Brownsville and Matamoros International Bridge (B & M Bridge), but the evidence is not definitive. The second crossing appears to have operated south of the present-day Fort Brown Resaca and preceded a river bend at the southern tip of the present-day Fort Brown Memorial Golf Course.⁶

From the mid-nineteenth century to the early twentieth century, a ferry crossing existed at Brownsville in many incarnations, including a pontoon bridge (1866), a pole-propelled skiff ferry (early twentieth century), flat-boat transit (early twentieth century), and a rowboat ferry (early twentieth century). Its popularity as a ferry site was such that in the 1880s ferry operators "built a plank walk from the railroad tracks to the ferry dock because of complaints from passengers who had tired of walking through six inches or more of mud. The walk expanded as the ferry dock relocated several times, and soon the [boardwalk led down from] a variety of shops" and federal offices.⁷ In 1923 the crossing seemed to become more formalized, brandishing the name "the Brownsville Ferry."

Though Brownsville and Matamoros were the largest population centers in the Valley in the nineteenth and early twentieth century, several other ferries operated on the Rio Grande during that period, including at Rio Grande City, Roma, and Hidalgo (30 miles east of Los Ebanos). At Roma, the farthest navigable point on the Rio Grande from its mouth, a riverboat landing contributed to the commercial boom of the town, and ferry operations connected to the still-populated colonial Escandón settlement towns on the south side of the river. At Hidalgo, Crisóforo Vela operated a ferry and rowboat service crossing to the Mexican town of Reynosa roughly between 1910 and 1926 at the Vela Building, whose location at 220 S. Bridge Street has been

⁵ Ruth Musgrave Coole, "Paso Real, TX," *Handbook of Texas Online* (Texas State Historical Association), accessed 24 February 2011, <http://www.tshaonline.org/handbook/online/articles/hrp07>; Texas Historical Commission, *Brownsville-Matamoros Ferries and River Boardwalk* (Historical Marker #12366) (Austin, TX: Texas Historical Commission, 2000), erected in 2000 at 14th and Levee Streets, Brownsville; text available online at <http://atlas.thc.state.tx.us/shell-kword.htm>.

⁶J. E. Blake and G. G. Meade, "Map of the Reconnaissance in Texas" (Washington, DC: Corps of the Topographical Engineers, 1845).

⁷ Texas Historical Commission, *Brownsville-Matamoros Ferries and River Boardwalk* (Historical Marker #12366).

commemorated with a historical marker. The ferry service ended in 1926 with the opening of an adjacent bridge, which subsequently collapsed only eight years after its construction.⁸

During the twentieth century, bridges supplanted ferries as the primary river crossings in the Lower Rio Grande Valley. With increasing populations on both sides of the river and the rise of the automobile, bridges provided a more efficient transportation corridor across the river. The Brownsville-Matamoros (B & M) International Bridge was the first permanent bridge to cross the Rio Grande in the Valley when it opened in 1910. By its date of completion, its swinging design to allow river traffic to pass was already anachronistic as upriver commercial traffic had largely ceased. The next bridge constructed was at the site of the aforementioned Vela ferry and connected Hidalgo with the town of Reynosa on the south bank in 1926.⁹

The Roma San Pedro International Bridge, a suspension bridge, was completed in 1928 between the towns of Roma and Ciudad Miguel Alemán. The Starr County Bridge Company, working with the Compañía del Puente de San Pedro de Roma in Mexico, privately constructed the bridge; developer Joseph Erastus Pate was the principal stockholder. Pate was responsible for the construction of several suspension bridges across the Rio Grande, including bridges at Thayer, Zapata, and Hidalgo; only the Roma bridge is extant.¹⁰

Also in 1928, the Gateway International Bridge was completed in Brownsville. All of these bridges were constructed at the sites of earlier ferries to serve the increased commerce and transportation first generated by the smaller ferry operations. At one location, ferry service temporarily replaced a bridge crossing in the twentieth century. A bridge constructed in the late 1920s connecting Progreso (47 miles east of Los Ebanos) and Río Rico, a popular south bank destination during Prohibition for its saloons and dog track, was destroyed by a flood in September 1941. After its destruction, locals devised and installed interim river-crossing enterprises: a hand-pulled ferry operated until 1946, which was replaced by a pontoon bridge. Apparently neither service proved satisfactory, so in 1951 builders began constructing the first steel bridge approximately 2 miles upstream at Nuevo Progreso, finishing it on 22 July 1952.¹¹ Several modern concrete bridges have been constructed in the Lower Rio Grande Valley since 1966. Currently, thirteen bridges exist between Brownsville and

⁸ Texas Historical Commission, *Vela Building* (Historical Marker #5641) (Austin, TX: Texas Historical Commission, 1984) erected in 1984 at 220 S. Bridge St., Hidalgo; text available online at <http://atlas.thc.state.tx.us/shell-kword.htm>.

⁹ Texas Historical Commission, *Vela Building* (Marker #5641).

¹⁰ "Bridges of the Area," *Brownsville and Matamoros History* (University of Texas at Brownsville), accessed 7 November 2009, http://blue.utb.edu/localhistory/bridges_of_the_area.htm

¹¹ "Progreso International Bridge," Texas Department of Transportation, accessed 7 March 2011 http://www.txdot.gov/project_information/projects/border_crossing/progreso.htm; Alicia A Garza, "McAllen, TX," *The Handbook of Texas Online* (Texas State Historical Association), accessed 8 November 2009, <http://www.tshaonline.org/handbook/online/articles/hdm01>.

Roma (both operational and non-operational), with two in the planning stages at McAllen and Donna (25 miles and 37 miles east of Los Ebanos, respectively).

Although bridges became the main river crossings throughout the twentieth century, crossings of the earlier types continued to exist, particularly during the 1910s and 1920s. In a 1916 survey, the Mexican Border Service identified a number of smuggler's crossings, fords, and one ferry crossing, although the Los Ebanos (Las Cuevas) crossing was omitted from the inventory. Perhaps the site became more notorious during the 1920s.¹² One noted smuggler's crossing was located south of Mission (18 miles east of Los Ebanos), maybe near Anzalduas Dam Road, and another south of Pharr (28 miles east of Los Ebanos), possibly leading off from today's South Cage Boulevard.

In 1926 the U.S. Army Corps of Engineers recorded additional fords: El Fronton, south-southeast of the town of El Fronton, Texas (5 miles west of Roma-Los Saenz in southwestern Starr County); and Los Arrieros Ford, south of Los Arrieros, Texas (10 miles northwest of Roma-Los Saenz in western Starr County), and northwest of Santa Marguerita, Texas.¹³ The Arrieros Ranch was the site of another ford, the El Cántaro ford near Mier, Tamaulipas (approximately 50 miles west of Los Ebanos), "which played a key role in the development of Nuevo Santander. In the late 1680s, Alonso de León reportedly crossed the ford during one of his attempts to find Fort St. Louis."¹⁴ The Corps also indicated some kind of crossing east of Fronton Island (40 miles west of Los Ebanos) that existed in 1926.¹⁵

Ferry Types and Propulsion

Throughout human history, the crossings of rivers have facilitated exploration, migration, settlement, transportation, and commerce. Shallow crossings were the first focal points of human activity. With the rise of wheeled transports, first animal-drawn wagons and later automobiles, river ferries rose in use to replace shallow ford crossings. Historically, ferries were located throughout the United States temporally and geographically. Those that no longer exist still leave their mark in the names of places and towns across the country. As one author put it, "a ferry is a floating section of highway."¹⁶ Ferries come in many sizes and shapes and use various means of propulsion across a body of water. Pre-industrial ferries typically used oars or poles to move across water. The invention of steam engines provided more efficient propulsion over larger bodies of water.

¹² C. A. Rice, *Map Showing Lines of March and Border Patrols, Mexican Border Service, 1916-1917* (n.p.: C.A. Rice, n.d.).

¹³ U.S. Army Corps of Engineers, *Tactical Map, Roma Quadrangle* (Washington, D.C.: U.S. Geological Survey, 1942) (original survey was 1926).

¹⁴ Dick D. Heller Jr., "Los Arrieros, TX," *Handbook of Texas Online* (Texas State Historical Association), accessed 05 March 2011, <http://www.tshaonline.org/handbook/online/articles/hrlzw>.

¹⁵ U.S. Army Corps of Engineers, *Tactical Map, Roma Quadrangle*.

¹⁶ John Perry, *American Ferryboats* (New York: Wilfred Funk, 1957), 3.

Another form of ferry throughout history has used cabling across a body of water. Pre-industrial designs typically relied on human or animal labor to pull the cable-attached ferry across. The few modern cable ferries in operation today worldwide often use an engine-powered winch to propel the ferry. At an unknown point in human history, man discovered methods for using the river's current to propel a vessel across a river. In astronomer Johannes Kepler's 1609 work, *Astronomia Nova* (or *The New Astronomy*), he references this type of ferry to describe astronomical events:

“Particularly happy and better accommodated to our inquiry are the phenomena exhibited by the propulsion of boats. Imagine a cable or rope hanging high up across a river, suspended from both banks, and a pulley running along the rope, holding, by another rope, a skiff floating in the river. If the ferryman in the skiff, otherwise at rest, fastens his rudder or oar in the right manner, the skiff, carried crosswise by the simple force of the downward-moving river, is transported from one bank to the other, as the pulley runs along the cable above.”¹⁷

The type of ferry described by Kepler is known as a current or reaction ferry. Los Ebanos Ferry is a reaction cable ferry, which is conveyed across the river by converting flow direction of river currents to perpendicular propulsion via the angle of the vessel in relation to the current. A reaction ferry requires several pieces of equipment. A *main cable* is suspended across the river and secured to either side and provides an anchor point to prevent the vessel from being carried downriver with the current. *Traveler pulleys* run along the main cable and provide a point to secure the vessel to the cable without restricting movement along the length and across the river. The vessel is secured to traveler pulleys via *bridle cables* which span the distance between the traveler pulley on the main cable and pulleys secured to the upstream corners of the vessel's deck. Bridle cables are length adjustable to allow the vessel to be angled relative to the river's current and to account for variations in river height. An optional apparatus is a *windlass*, which provides a means of adjusting the length of both bridle cables simultaneously and proportionally. Many current ferries also utilize a secondary propulsion force to speed crossings on rivers with slower currents. Secondary means of propulsion may vary from mechanical engines to human power.¹⁸

¹⁷ Johannes Kepler, *Astronomia nova* [*New astronomy*], trans. W. Donahue (Cambridge, England: Cambridge University Press, 1992), 405.

¹⁸ Perry, *American Ferryboats*, 44–54; also see Linda Lee, “A Ferry Tale: A Factual Account of Old-Fashioned Ferries,” *Bittersweet* (Lebanon High School, MO) 7, no 1 (Fall 1979), available through the Springfield-Greene County Library website, <http://thelibrary.springfield.missouri.org/lochist/periodicals/bittersweet/fa79k.htm>; also see Figure 1 (Parks Ferry across the Oconee River, Greene County, Georgia) in the field records to this written documentation.

The Los Ebanos Ferry

The Rio Grande has shifted course over the centuries of its recorded history, and has changed noticeably near the small town of Los Ebanos. A shallow crossing was used for centuries—providing access to salt at Sal del Rey to the north—although no formal road was built to this particular crossing until the mid-twentieth century. Local lore suggests that smugglers took advantage of the shallow crossing near Los Ebanos, hence the alternate name “Smuggler’s Crossing.” The border skirmishes during the 1910s, followed by the gradually increasing control of the river, coupled with the increasing use of automobiles, helped limit the crossing of what had been more of a conduit than a barrier. Although there had been a ferry located near Los Ebanos, the river has changed significantly and the current crossing is upstream from the original ferry location. Early twentieth-century maps indicate no formal roads leading southwest out of Los Ebanos. In 1941, the ports of entry between Roma and Brownsville were located at Rio Grande City, Hidalgo, and Progreso; 21, 30, and 47 driving miles from Los Ebanos respectively.¹⁹ The crossing at Los Ebanos, when established, became the closest crossing point for travel from Monterrey, Mexico.

The distance between ports of entry/crossings obviously influenced the construction of a ferry at Los Ebanos, but the Sam Fordyce oil and gas field in southwestern Hidalgo County and southeastern Starr County also encouraged the development of a crossing so that laborers could easily get to the oil field. The field was discovered in 1934 and was still active when the ferry was built.

Official efforts to establish a ferry and border crossing began in 1946. On 10 September 1946, Edinburg lawyer Sid L. Hardin wrote to U.S. Representative Milton H. West, who then forwarded the correspondence to the U.S. Secretary of State James Francis Byrnes requesting information on establishing a ferry between Los Ebanos and San Miguel, Tamaulipas. Hardin had a petition with about 1,000 signatures from Hidalgo County citizens requesting ferry services. Frederico Flores of Los Ebanos proposed to operate the ferry, but needed help with the formal process to establish a border crossing. The Department of State responded in October, only noting that the International Boundary and Water Commission needed to first approve any plan for a ferry.²⁰ Despite the petition and inquiries, Flores failed to get the ferry established.

In the postwar economy, with an expansion of the oil, gas, and agricultural economies in the region, the need for more border crossings increased. In 1947, the Roma-San Pedro suspension bridge was rebuilt, but in 1949, a flood washed out the Thayer-Río

¹⁹ “Sinclair Road Map of Texas,” University of Texas at Arlington Virtual Map Library, accessed 7 November 2009, <http://libraries.uta.edu/ccon/scripts/ShowMap.asp?accession=92-213>.

²⁰ Letter from Sid L. Hardin to Milton H. West, 10 September 1946; letter from Milton H. West to the Secretary of State, 20 September 1946; and letter from Dean Acheson, Acting Secretary of State, to Milton H. West 1 October 1946, all in Central Decimal File (CDF) 1945–1949, General Records of the State Department, Record Group 60, National Archives Building, College Park, Maryland.

Rico pontoon bridge, reducing the local crossing capacity.²¹ By 1950, there were few bridges or vehicular ferries across the Rio Grande in this portion of the Valley.²²

The Los Ebanos Ferry was seen as providing economic benefits to both sides of the border by opening the local “trade area to the farm population in the San Miguel de Camargo area” and by stimulating “an influx of American visitors across the border and thus promote the establishment of a curio and entertainment trade in San Miguel de Camargo, similar to that existing in other Mexican border cities.”²³ Recognizing the need for additional crossings, Hidalgo County Commissioner and entrepreneur Ediberto Reyna Sr. privately purchased land on the Rio Grande just southwest of the town of Los Ebanos and built a ferry linking Los Ebanos, Texas, with Ciudad Gustavo Díaz Ordaz (formerly the town of San Miguel) in Tamaulipas, Mexico. Reyna worked in partnership with San Miguel businessmen Gilberto Martínez Garza, Florentino Chapa, and Daniel Flores. Problems securing the final clearance from the Secretaria de Gobernación in Mexico City delayed the ferry opening until December 22, 1950. Initially the ferry operated from 9:00 a.m. to 5:00 p.m. Monday through Saturday, and averaged about 100 persons daily.²⁴

Reyna selected the crossing in part because the river was not very wide and relatively shallow. Other locations had high banks, but the lower bank at Los Ebanos made a ferry crossing easier to construct. In addition, the local population was about 25,000 (both in Mexico and the United States) and the location had been used as a crossing in the past. The U.S. State Department noted that the ferry might “lead to a strengthening of an already lucrative smuggling trade in the area.”²⁵ In 1954, U.S. Representative Lloyd Bentsen introduced a bill that would authorize E. B. Reyna to “construct, maintain, and operate a toll bridge across the Rio Grande at or near Los Ebanos, Texas,” but the bill did not get out of committee.²⁶

The ferry hull was originally built of wood according to Reyna’s specifications and could carry two or three cars, but no trucks. One source states that the wood ferry needed to be replaced every two to three years. A steel-hulled ferry replaced the wood ferry in 1980.²⁷ A cable tied to an ebony tree anchors the ferry and keeps it on track as it crosses the river. Human power—typically five men called *chalaneros*—moved the ferry or *lancha* across the river and continues to power the ferry today. Because

²¹ Edward S. Benet (American Consul in Reynosa, Mexico), New Ferry Connecting Los Ebanos, Texas, with San Miguel de Camargo, Mexico, January 9, 1951, CDF 1950–1954, General Records of the State Department, Record Group 60, National Archives Building, College Park, Maryland.

²² Benet, *New Ferry Connecting Los Ebanos*.

²³ Benet, *New Ferry Connecting Los Ebanos*.

²⁴ Benet, *New Ferry Connecting Los Ebanos*.

²⁵ Benet, *New Ferry Connecting Los Ebanos*.

²⁶ H.R. 8792, 83rd Congress, 2nd Session (1954).

²⁷ Suzanne Benavides, “Old Time Ferry Gets New Look,” *Upper Valley Progress’ Winter Texan Edition* (Winter 1979-80): 24.

the crossing was international, a port of entry had to be built. The first port of entry building had one large room and was originally manned by an immigration officer and a customs officer, as well as the toll-collector. Currently, the port of entry is staffed by U.S. Customs and Border Protection agents. Because the ferry is parked on the American side of the river at night and the *chalaneros* live in Mexico, every morning the crew canoes across the Rio Grande to the U.S. side to start moving cars across the river; the raising of the U.S. flag signals that the ferry is open for business. Although originally operating Monday through Saturday, the ferry currently operates seven days a week, but the hours of operation have been reduced in recent years.²⁸

The ferry is licensed by the U.S. Coast Guard (USCG) because it travels in international waters. It must meet USCG safety standards and is routinely inspected by the USCG. Mark Alvarez, a great-nephew of Ediberto Reyna Sr. and the current captain, attended a USCG school to obtain a license to operate the ferry. In 2007, the USCG required a vessel inspection out of the water.²⁹

The Reyna family does not operate the ferry alone; Mr. Armando Garza owns and operates the ferry on the Mexican side. Garza collects the tolls on the Mexican side, while the Reyna family collects the tolls on the American side. The toll is fifty cents each for pedestrians or \$2.50 per vehicle. The ferry has operated with few incidents during the past sixty years. One car was driven into the water, but the driver ran off. The ferry remains hand-powered, although the original wood ferry was replaced with a steel-hulled ferry in 1980.³⁰

PART II. Structural/Design Information

A. General Description:

- 1. Character:** Los Ebanos Ferry is significant as the only remaining hand-powered international ferry on the border of the continental United States. The ferry carries pedestrians and vehicles across the Rio Grande between the village of Los Ebanos, Hidalgo County, Texas, and the town of Ciudad Gustavo Díaz Ordaz on the Mexico side, 204.4 river miles from the river mouth at the Gulf of Mexico. The ferry operates as a privately owned, small scale enterprise during daylight hours carrying local American and Mexican residents and tourists in either direction for a small fee. The ferry is a simple, barge-type river vessel of welded steel that moves slowly across the Rio Grande via human power and river current. To convey the ferry, three to five boatmen pull a simple hemp conveyance rope in unison in a pumping motion from the upstream side, aft end of the boat. The conveyance rope stretches across the river and is anchored on both the United

²⁸ Ediberto (Ed) Reyna Jr., phone interview 2 March 2010 with Melissa Wiedenfeld, HDR.

²⁹ Mark Alvarez, phone interview 11 August 2009 with Melissa Wiedenfeld, HDR.

³⁰ Reyna, phone interview 2 March 2010.

States and Mexico sides. Two bridle ropes with pulley apparatus connect the boat to a main steel cable that extends across the river and also is anchored on both sides. The main cable is higher than the conveyance rope and serves to keep the ferry from being carried downstream and maintains the proper angle alignment of the boat relative to the river current.

As an international crossing, the ferry has connections and associated landscapes on both the United States and Mexico sides of the river. Important elements include the river; ferry vessel; cable and rope apparatus and its anchors on both sides of the river; boatmen who convey the ferry, take tolls, prepare the banks, and secure the boat; and the landscape on the United States and Mexico sides including ebony trees and grassy banks, road approaches opening to an undeveloped clearing on both sides, and simple buildings. The ferry does not operate on a precise, fixed schedule. Instead it crosses the river in about 15 minutes, unloads, reloads with pedestrian passengers and a maximum of three vehicles, and then makes its return crossing. The general character of Los Ebanos Ferry and crossing is of a picturesque anachronism. The gentle river, simple ferry boat hand-powered by the boatmen, and open landscape of the crossing surrounded by dense stands of shady ebony trees evoke an earlier time and place. The crossing is isolated and quiet. The slow rhythm and gentle character of the ferry is further accentuated by the motions of the boatmen pulling on the conveyance cable, the slow and quiet crossing of the ferry, and the subdued collecting of tolls and tickets on the boat. The ferry and the crossing process is low technology, an entirely human enterprise.

- 2. Condition of Fabric:** As a continuously operated hand-drawn ferry for the last 60 years, the Los Ebanos Ferry has had minor alterations made to it as part of routine maintenance and repair. The original ferry from the first date of operation was a wood-hulled ferry. It is unknown if the original wood ferry was replaced periodically, though one source suggests it was replaced every 2–3 years. In 1980, the original wood ferry was completely replaced with a steel one, which is the current vessel.³¹

Historic photographs dating from 1950 to 1960 show a single structure on the U.S. side and a small complex of structures on the Mexico side. Both sides have been developed and improved since these photographs. On both sides the access roads leading to the crossing have been paved—bituminous asphalt on the U.S. side and concrete on the Mexico side—except for the immediate portions adjacent to the riverbank. U.S. Customs and Border Protection and the U.S. Department of Agriculture have constructed modern, metal siding buildings on the U.S. side. On the Mexico side are a picnic and waiting area with tree planters to either side of the access road above the riverbank and a covered sidewalk leading from the picnic area to the Mexico port of entry. The access road and approach on the Mexican side are paved with concrete with curbs to within 20' of the river edge.

³¹ Benavides, "Old Time Ferry Gets New Look," 24.

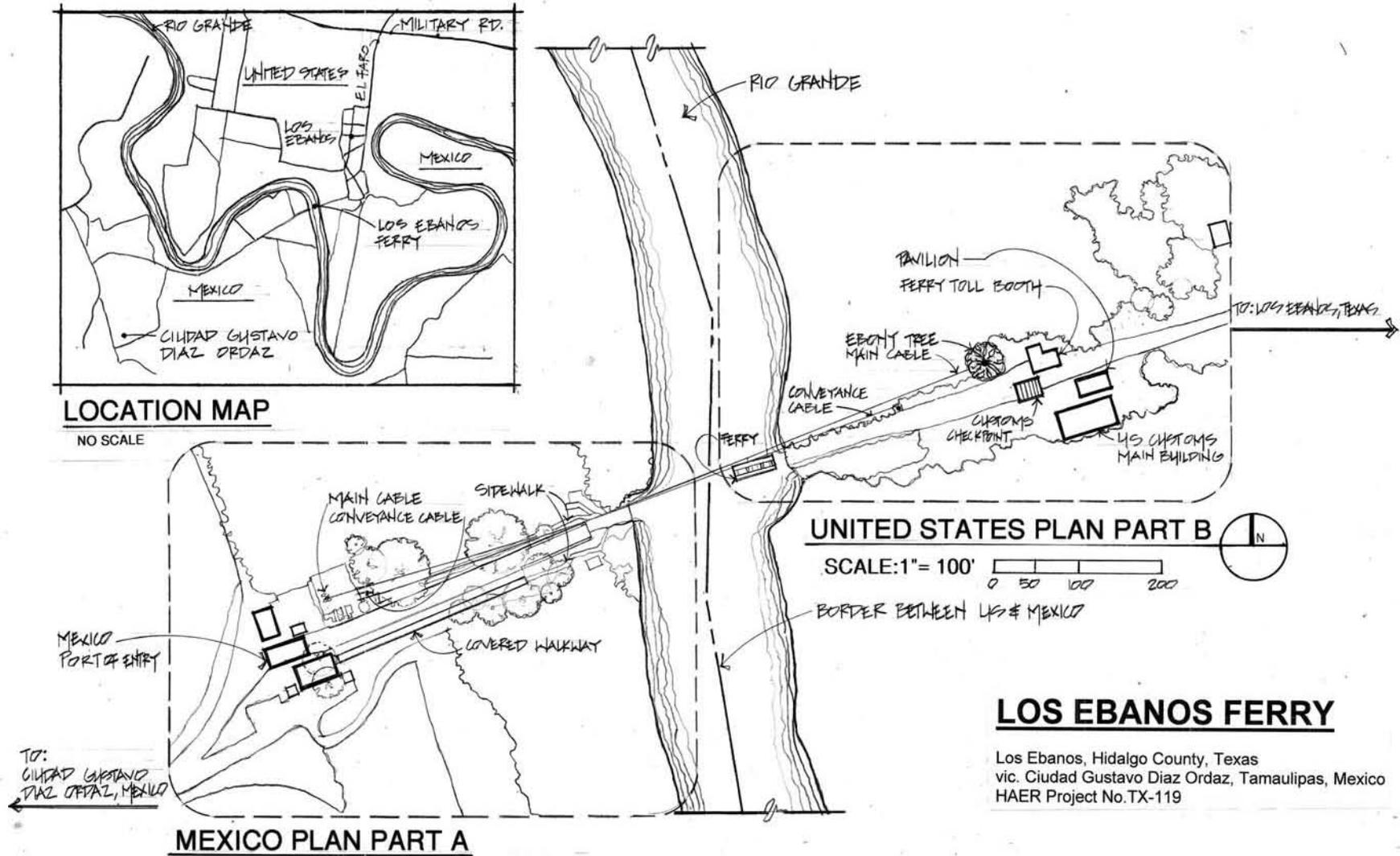


Figure 2. Overview Drawing of Los Ebanos Ferry.

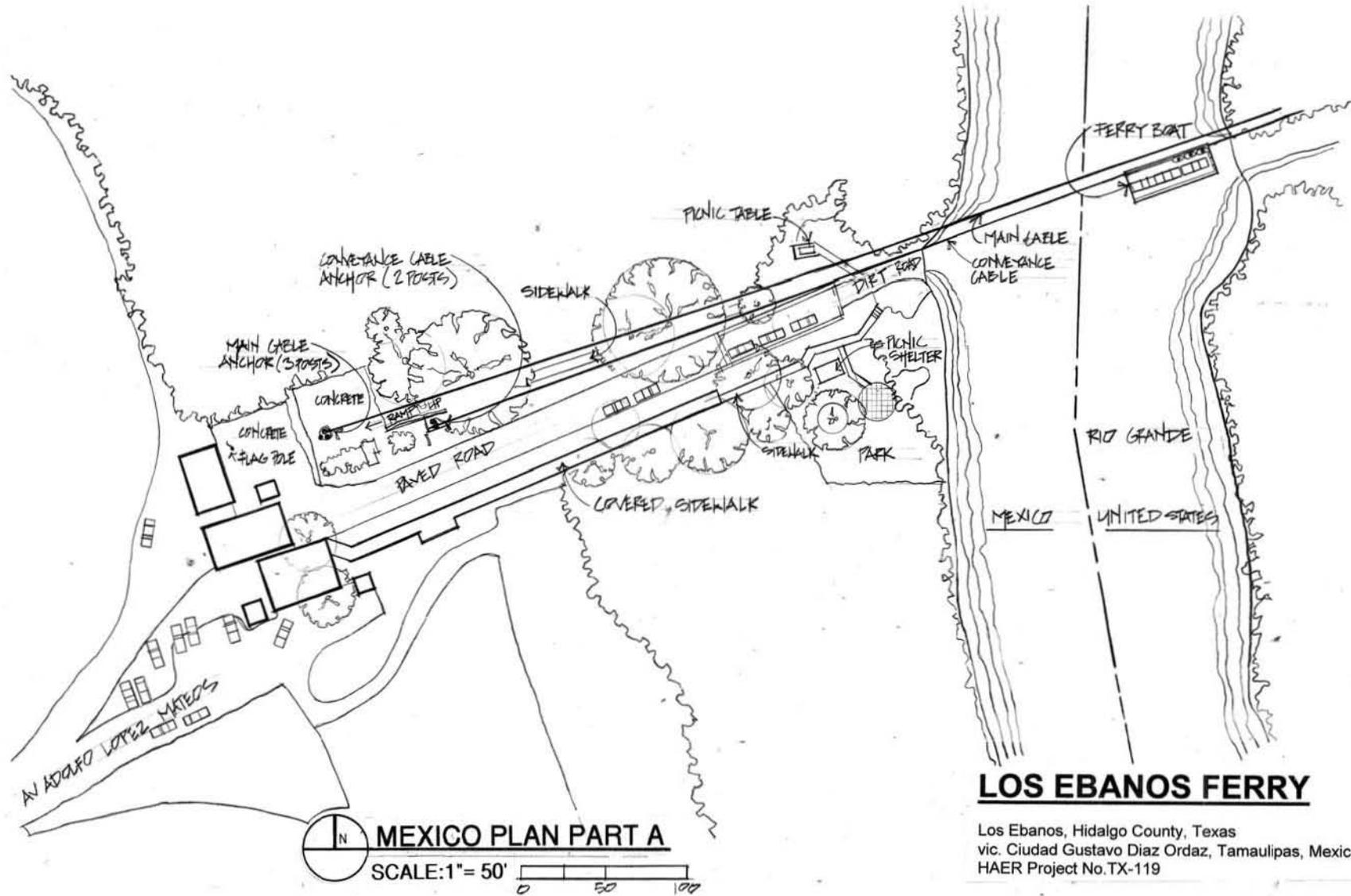


Figure 3

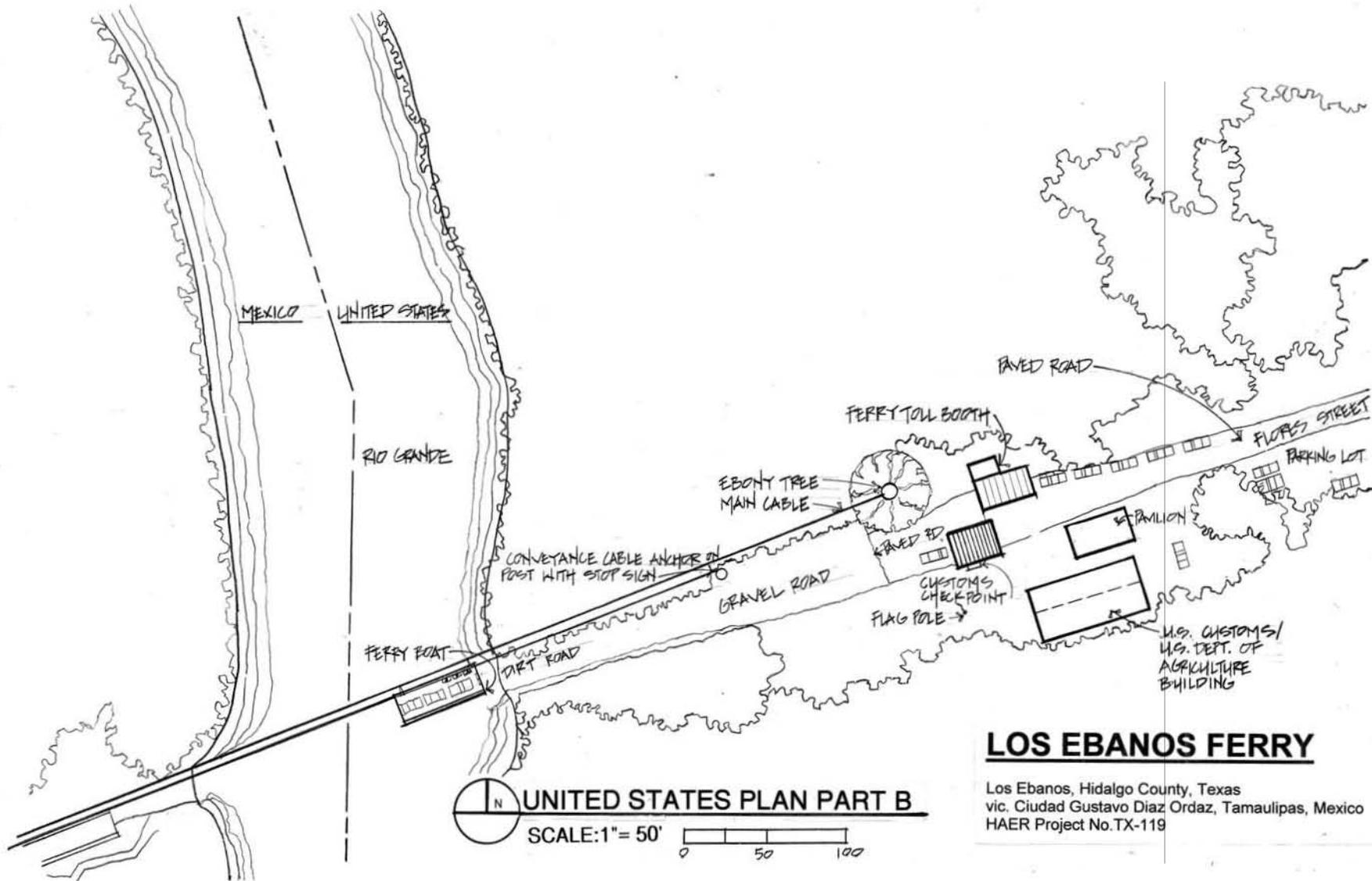
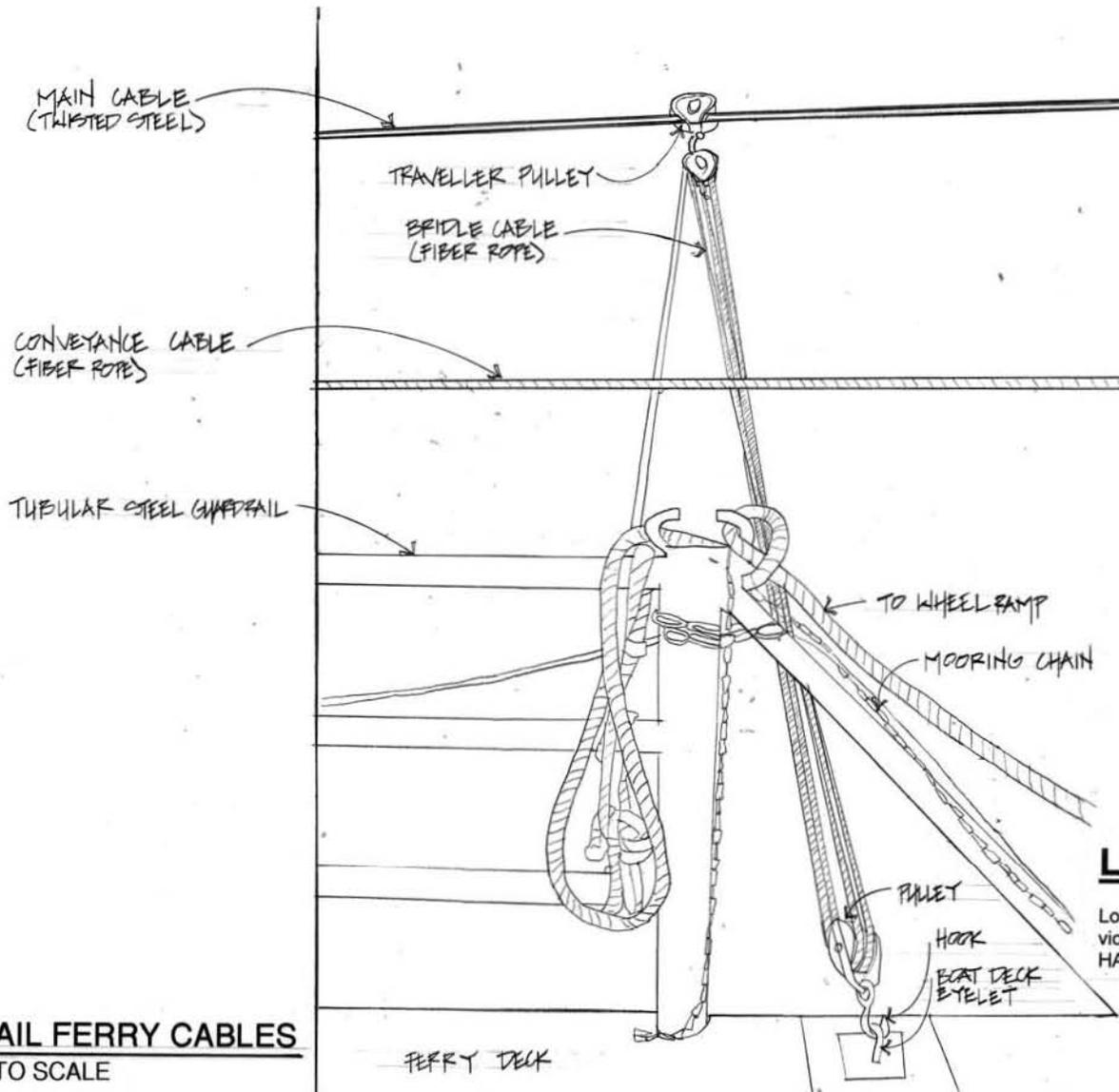


Figure 4. Drawing of Los Ebanos Ferry – U.S. side.



LOS EBANOS FERRY

Los Ebanos, Hidalgo County, Texas
vic. Ciudad Gustavo Diaz Ordaz, Tamaulipas, Mexico
HAER Project No. TX-119

DETAIL FERRY CABLES
NOT TO SCALE

Figure 5. Detail Drawing of Ferry Cables.

B. Construction

The physical aspects of the ferry and its engineering including cabling apparatus and anchoring are discussed here. The ferry crossing of which the ferry is a part is described in the site section below.

Los Ebanos Ferry vessel is a steel-hulled ferry with a flat deck of welded steel plates. The vessel is 16'-0" wide and 55'-6" long. Steel handrails of three horizontal simple pipes run the length of the upstream and downstream sides of the deck and stand with an overall height of 3'-5". On the downstream side of the deck are two wood benches. A low wood locker between the benches contains life vests. Along the upstream side of the vessel is a cantilevered canopy of angled steel beams and plywood that shelters the boatmen and passengers from the sun and rain. On both the fore and aft ends of the vessel are two steel hinged ramps or flaps that are lowered when the boat is docked for loading and unloading vehicles and raised while the boat is crossing. The ramps also help stabilize the boat when docked against the river bank. Running lengthwise on the deck between the wheel ramps are two strips of raised diamond plate steel, providing traction for the motor vehicles. The boat has a capacity of three passenger vehicles and an unspecified number of pedestrian passengers. It does not transport trucks.

A steel cable, hereafter referred to as the *main cable*, and a natural fiber rope, hereafter referred to as the *conveyance cable*, extend across the river. The main cable is of twisted steel strands and extends tightly across the river to maintain the alignment of the ferry vessel against the river current. On the Mexico side, the main cable is anchored around a base of three wood piles, then extends 425' to the river's edge. It extends 196' across the width of the river, and then an additional 263' from the river to the anchor location — the base of a large and ancient ebony tree — on the U.S. side. The tree has been recognized as a Famous Tree of Texas by the Texas Forest Service. The cable crosses 10' above the river average surface elevation of 127' above mean sea level. The cable height is established by the higher ground of its two anchors relative to the downsloped approaches and the surface of the river. From the boat, the main cable extends 7' higher than the deck and 3' above the conveyance rope. The cable anchor on the Mexico side is at latitude 26.23907, longitude -98.5666; and the ebony tree cable anchor on the U.S. side is at latitude 26.23985, longitude -98.56406.³²

The ferry vessel is conveyed by the boatmen pulling on the conveyance cable as described below in the operations section. This natural fiber rope is not attached to the boat; rather it stretches below the main cable at the approximate waist height of the boatmen standing on the boat deck. The conveyance cable extends across the river and is anchored on the United States and Mexico sides at locations different from the

³² Latitude and longitude coordinates listed here and in the following paragraph were obtained using a Global Positioning System mapping grade unit accurate to +/- 3 meters after differential correction. The coordinates' datum is North American Datum 1983. The locations of the resources have no restriction on their release to the public.

main cable described above. On the U.S. side, the conveyance cable is tied around the base of a wooden post. On the Mexico side, the cable is secured to a ratchet cylinder attached by twisted steel cable to two wood posts, allowing the cable tension to be adjusted. From the Mexico side anchor, the rope extends 365' to the river's edge, 196' across the river, and 112' to the anchor on the U.S. side. The conveyance cable anchor on the Mexico side is at latitude 26.23906, longitude -98.56644; the cable's wood post anchor on the U.S. side is at latitude 26.23906, longitude -98.56452.

The boat is attached on its upstream side to the main cable by a pair of bridle cables of natural fiber rope. The bridle cables connect the boat to the main cable through a double tackle, with the traveler pulley running along the main cable and the second pulley blocks hooked to steel eyelets at the upstream corners of the ferry. One end of the bridle rope is secured to the upper pulley hooked to the traveler pulley and the other end is lashed to a point on the railing. The length of both bridle cables is readjusted conversely with each crossing to angle the ferry into the current. The lashed end of the bridle cables can be adjusted by the boatmen to account for river height and flow variations.

The boatmen convey the vessel across the river by rhythmically pulling the conveyance cable together toward the approaching bank. Their pulling on the conveyance cable converts the downstream current in a horizontal direction to propel the ferry boat across the river. The main cable and two bridle cables stabilize the boat in its forward, horizontal alignment.

Both riverbanks where the ferry vessel lands are unimproved save for sandbags that are continuously reapplied to stabilize the bank to prevent it from washing out. Two wood piles are driven into the riverbank on either side of the docking location on both sides. The ferry vessel is secured to these piles with a looped steel chain when docked for loading and unloading.

C. Mechanicals/Operation:

Cable ferries are typically categorized by type of propulsion as reaction ferries, motorized ferries, and hand-pulled ferries. Los Ebanos Ferry is actually a hybrid of the first and third types. The conveyance of a reaction ferry across a river can be achieved through several methods all of which involve angling the vessel in the current. Reaction ferries are most often employed on rivers with strong currents. When launching off of a bank, the fore of the vessel is angled upstream, which provides stronger propulsion to aid in pulling the vessel off the bank. Typically, once the vessel has passed the midpoint in the river, the angle of the vessel is reversed with the aft pointed upstream. This change slows the speed of the vessel and eases the vessel into the landing. The Rio Grande at the Los Ebanos crossing has a slow current. On the Los Ebanos Ferry, the bridle cables are adjusted between trips to slightly angle the vessel depending on the direction of crossing. When crossing from the U.S. side to Mexico, which is slightly downstream, the bridle cable nearest the Mexico side is shortened and the one nearest the U.S. side is lengthened, thereby

angling the fore of the vessel upstream slightly. The repeated pulling on the conveyance cable by the workers on the aft end provides a pumping motion aiding the current propulsion. After docking on the Mexico side, the bridle cable closest to the bank is lengthened and the one nearest the U.S. side is shortened for the return trip, which is slightly upstream.



Photograph 1. Ferry crossing over to U.S. side (10 July 2008; Photographer: Chad Blackwell, HDR).



Photograph 2. Chalaneros (ferry workers) pulling conveyance cable to angle fore of ferry upstream to catch current (10 July 2008; Photographer: Chad Blackwell, HDR).

Overall, the operation of the Los Ebanos Ferry depends on the “human machine.” The process is entirely human driven, from the toll booth to the ferry boat conveyance to the constant reconstruction of the riverbank. The simplest way to understand all of the processes and interactions at work is to follow the process sequentially.

To cross from the U.S. side of the river to the Mexico side, a passenger approaches either by foot or motor vehicle. The first step is to pay a fare to purchase a small paper ticket from the toll booth. As of 2010, the fare on the U.S. side was fifty cents for pedestrians and \$2.50 for motor vehicles. To dock the arriving ferry, a boatman hands the steel mooring chains of the boat to the bankman who has been preparing the bank; the bankman then loops the two chains around wood posts on the riverbank. Once the ferry has docked and been secured to the bank, the two hinged wheel ramps at fore end of the boat are lowered against the bank, and the arriving passengers and motor vehicles disembark. They walk or drive up the approach where they are greeted by U.S. Customs and Border Protection personnel who check the identification and credentials of the passengers and inspect the vehicles. When the arriving passengers and vehicles have disembarked, the passengers from the U.S. side board the ferry.

Motor vehicles are loaded one at a time with a maximum of three; the vehicles drive down the sloped bank approach, across the wheel ramps, and across the raised diamond steel along the center axis of the vessel. The vehicles are parked front to back along the center axis of the ferry boat. Pedestrian passengers may sit on a bench on the downstream side of the ferry boat or stand. One ferry boat worker takes the toll tickets from the passengers while the others raise the vehicle ramps and undock the securing chains of the boat from its mooring piers.

The crew of the ferry vessel numbers six in total. One worker collects tickets from passengers after boarding. Typically between three and five boatmen pull the conveyance cable. Once every few crossings, two workers stay on one of the two riverbanks to rebuild the docking location with sand and sandbags. They gently shovel sand and mud of the bank and rearrange sandbags as necessary to rebuild and stabilize the riverbank. Once the crossing is underway, three workers stand at the aft of the vessel on the upstream side and grasp the conveyance cable. The workers pull the cable downstream and towards the vessel, leaning back to add their body weight to the motion. This motion continues as a rhythmic and synchronized action among all three or five workers. This pumping action at one corner of the boat slightly angles the aft upstream to catch the slow current and gently propel the vessel across the river.

As the vessel approaches the Mexico side, two workers jump onto the riverbank with mooring chains in hand and ease the vessel up to the bank. The mooring chains are looped around two mooring piers. The wheel ramps are lowered from the fore end of the vessel to rest on the bank and pedestrians are allowed to disembark first. The motor vehicles are then allowed to drive off, one at a time.

Passengers crossing from Mexico purchase tickets from the operator on the Mexico side. Rather than pulling up to a booth, a boatman walks up to each car or passenger to sell toll tickets. He works out of a small pack worn around his waist. The boatmen who collect the tolls and tickets on the United States and Mexico sides are different because the ferry is operated by different operators on each side. Once cars and passengers are loaded onto the vessel, the wheel ramps are raised once again and the vessel casts off from the mooring piers. The toll collector begins collecting tickets. The remaining workers move to the fore upstream corner of the boat to begin pulling the conveyance cable in the aforementioned pumping motion to propel the ferry boat across the Rio Grande back to the U.S. side.

Upon docking on the U.S. side, passengers and then motor vehicles disembark from the vessel and climb the slope to the port of entry checkpoint. A road ascends the riverbank and slope to the U.S. Customs and Border Protection checkpoint. The checkpoint booth is a small structure with metal walls and a flat roof, and a corrugated canopy covering half the booth. It is staffed by two or more U.S. Customs and Border Protection agents. Vehicles pull up to the booth on the north side and stop under the canopy to present identification and documents and undergo an inspection. Pedestrian passengers walk around to the door on the south side of the booth to

present their identification and documents personally to an agent. From that point on, the vehicles and pedestrian passengers are in the United States and continue on their route up Flores Street and to or through the village of Los Ebanos.

D. Site Information

The Los Ebanos Ferry crossing sits just downstream from the apex of a broad sweeping bend in the Rio Grande. Though the course of the Rio Grande through its lower portion had been constantly shifting historically, it has remained stable since the construction of the Falcon Dam approximately 50 miles upstream in the early 1950s. The site of the Los Ebanos Ferry on the U.S. side is composed of a long narrow clearing leading from the settlement of Los Ebanos west to the Rio Grande and the ferry crossing site. The site is graded and predominantly flat with a graded slope leading down to the river level. The ferry crossing is just downstream and on the same side as the outside bend and has a steeper bank than the Mexico side due to erosion. In total, the site is a long narrow transportation corridor bisected by the Rio Grande. The two sides are connected physically by the cables strung across the river and anchored to each side. The sides are also connected by the land use and the daily patterns of human activity.

The U.S. side complex is a long, narrow clearing between dense wooded areas that stretches from the Rio Grande east-northeast to an access road that intersects with Jose Garcia Avenue. The site is predominantly level and graded except at the river bank where the road slopes down to the river level.

The Mexico side complex is a narrow corridor with a tree canopy above composed of an access road leading from the crossing with adjacent picnic and waiting areas and customs structures located approximately ¼ mile from the crossing.

The road leading to the ferry on the U.S. side is packed dirt from the riverbank up the slope to the level area containing the toll booth and port of entry. Bitumen paving begins where the slope ends. On the Mexico side, concrete paving begins approximately 20' from the riverbank and continues up the long, gradual slope to the Mexico port of entry. Concrete block retaining walls are on either side of the concrete paved area and transition to low concrete curbs after approximately 20'.

The wooded areas surrounding the ferry site are predominantly composed of dense honey mesquite trees with sugarberry closer to the riverbank on the north side of the ferry site. A few small open grassy areas with buffelgrass are northeast of the ferry site and punctuated by singular mature hardwoods. The most dominant natural feature within the ferry site is an expansive mature ebony tree that is the namesake of the ferry site.

The long narrow site is bisected lengthwise by the main access road leading from Jose Garcia Avenue in the village of Los Ebanos down to the river crossing. The access road is approximately 530' long from the intersection to the access gate to the ferry

complex. A gravel parking lot is on the south side of the access road adjacent to the access gate. The ferry complex is approximately 500' long from the access gate to the riverbank with a width that varies from 100' to 120' with a total approximate acreage of 1.73 acres. The complex is bisected by a road, which is paved for most of its length and gravel where it slopes down to the river. The sloped road grade is cut into the high river bank on the U.S. side. A ferry tollbooth is located on the north side of the road. On the south side of the road are several U.S. Customs buildings structures — a customs checkpoint, a customs office, a covered pavilion, and a vehicle lift. The tollbooth and customs checkpoint each have a corrugated metal canopy that covers a portion of each structure and its respective side of the road.

The cables across the river are secured in different configurations on either side of the river. The main or guide cable is wrapped around the large ebony tree on the U.S. side and around three wood utility poles on the Mexico side. The conveyance rope is attached to a single utility pole on the U.S. side and to a steel cable stretched between two utility poles on the Mexico side. The conveyance rope anchor on the Mexico side also has a ratchet, presumably to stretch the rope taut across the river when the ferry is in operation.

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