Appendix K
Biological Assessment

Green Eagle Railroad

Eagle Pass & Maverick County, Texas

March
2025

BIOLOGICAL ASSESSMENT

LEAD AGENCY
Surface Transportation Board
Office of Environmental Analysis

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1 Introduction

Green Eagle Railroad, LLC (GER), a non-carrier subsidiary of Puerto Verde Holdings (PVH), has requested authority from the Surface Transportation Board (Board) to construct and operate approximately 1.3 miles of new common carrier rail line (proposed line) in Eagle Pass and Maverick County, Texas. The proposed line would extend from the United States/Mexico border to the existing Union Pacific Railroad (UP) mainline, connecting at approximate UP milepost 31. The proposed line would cross the Rio Grande River on a new rail bridge (New Rail Bridge), approximately three miles upriver from the existing UP International Railroad Bridge in Eagle Pass (UP Rail Bridge). The proposed line would be part of an international commercial transportation corridor proposed by PVH, the Puerto Verde Global Trade Bridge project, also consisting of a new border crossing for commercial motor vehicles (associated CMV Facility) between Piedras Negras, Coahuila, Mexico, and Eagle Pass, Texas. The associated CMV Facility would include a new road bridge (New Road Bridge) and inspection and surveillance facilities; it would be built by PVH. **Figure 1** shows the location of the proposed line and the associated CMV Facility. The United States/Mexico Border, shown in **Figure 1,** is mapped by the U.S. International Boundary and Water Commission (IBWC) (IBWC, 2025).

The Board's Office of Environmental Analysis (OEA) prepared this Biological Assessment (BA) in accordance with legal requirements set forth under Section 7 of the Endangered Species Act (ESA) (16 U.S.C. § 1536(c)). Agencies prepare a BA for "major construction activities" to determine whether a proposed action is likely to: (1) adversely affect listed species or designated critical habitat; (2) jeopardize the continued existence of species that are proposed for listing; or (3) adversely modify proposed critical habitat.

The associated CMV Facility is not within the Board's jurisdiction and does not require a license from the Board. However, both the proposed line and the associated CMV Facility would require permitting by the U.S. Coast Guard (USCG) for the New Rail Bridge and New Road Bridge; authorization from IBWC to ensure that the proposed line and the associated CMV Facility do not adversely impact the normal flow or flood flows of the Rio Grande River; and permits from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act.

Therefore, this BA analyzes the effects of constructing and operating both the proposed line and the associated CMV Facility in sufficient detail to determine whether they may affect any federally protected species or species proposed for federal protection. As applicable, the BA identifies potential mitigation that could be imposed by the Board as part of its authorization of the proposed line and also be adopted, as appropriate, by USCG, IBWC, and USACE as part of their respective permitting.

On October 17, 2023, PVH submitted to the U.S. State Department a Presidential Permit Application for the Puerto Verde Global Trade Bridge project on behalf of Maverick County, Texas, as the Project Sponsor. A Presidential Permit was issued on May 31, 2024. In addition, OEA's understanding is that GER and PVH will be seeking approval for other necessary permits after the issuance of the Final EIS and a final Board decision authorizing construction and operation of the proposed line.

The BA addresses the potential effects of constructing and operating the proposed line and the associated CMV Facility on six federal species of concern. OEA identified species of concern using the United States Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool. These species include:

- Federally endangered Texas hornshell (*Popenaias popeii*);
- Federally threatened piping plover (*Charadrius melodus*);
- Federally threatened rufa red knot (*Calidris canutus rufa*);
- Federally proposed endangered Mexican fawnsfoot (*Truncilla cognata*);
- Federally proposed endangered Salina mucket (*Potamilus metnecktavi*); and
- Federally proposed threatened monarch butterfly (*Danaus plexippus*).

The piping plover and rufa red knot do not require analysis because the Official Species List obtained from IPaC stated that these species only need to be considered for "wind-related projects within a migratory route." The proposed line and the associated CMV Facility are not wind-related projects. Therefore, OEA does not consider these two bird species in this BA. Additionally, through discussions with USFWS and a review of existing information, OEA determined that the proposed project would have *no effect* on the proposed threatened Salina mucket or its proposed critical habitat for the following reasons:

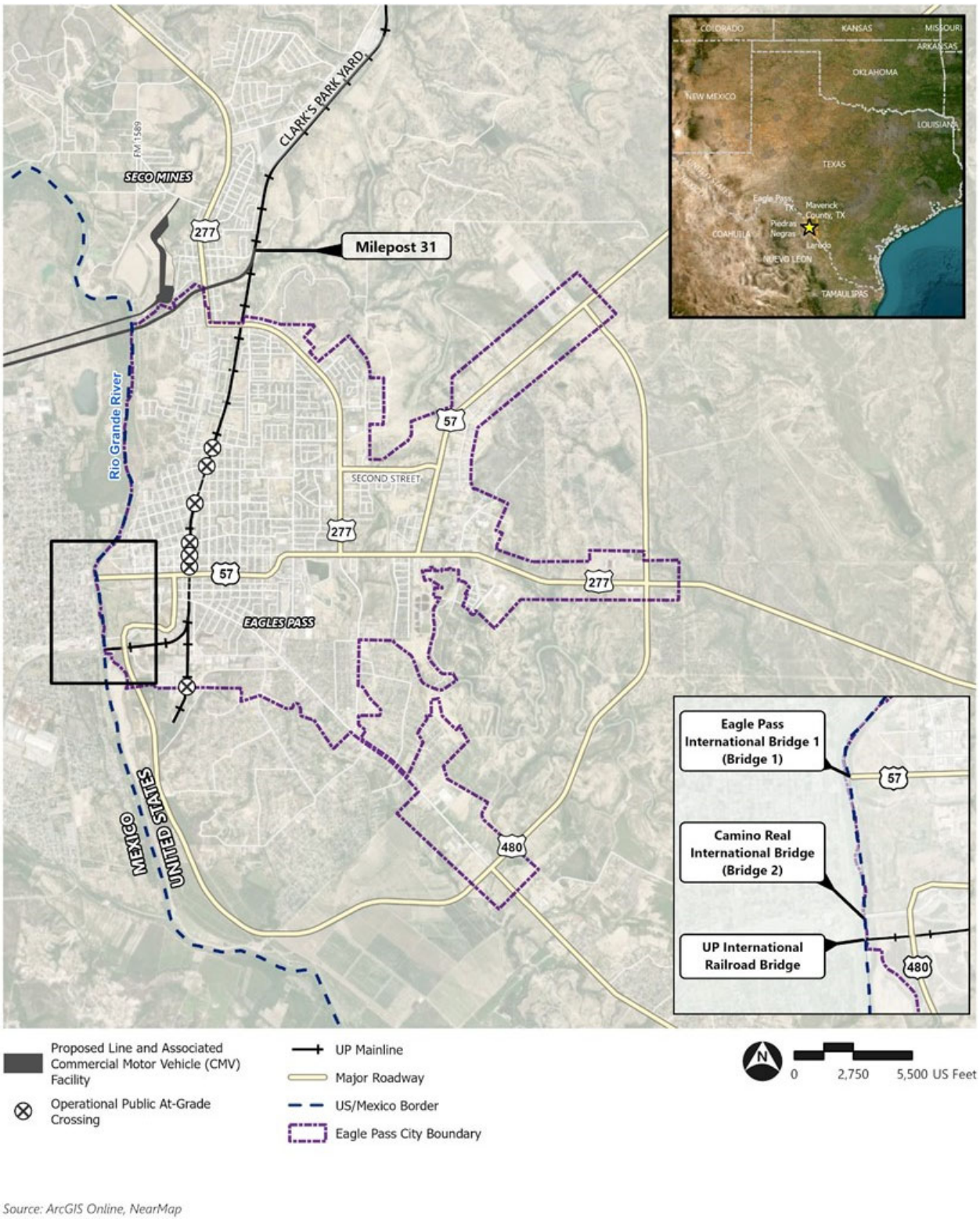
- The Salina mucket was believed to have been extirpated entirely from Texas until 2003, when the species was rediscovered upstream of Lake Amistad; this is the only known population of this species (USFWS, 2023a and b). Lake Amistad is over 50 miles upstream of the proposed line and the associated CMV Facility.
- OEA found no specimens of this species during a recent mussel survey of the project area (see discussions below; BIO-WEST, 2024).
- Suitable habitat for this species is not present in the surveyed area due to extensive sedimentation (see discussion below).
- The project is not located within the proposed critical habitat for this species (USFWS, 2023b).

For these reasons, the Salina mucket and its proposed critical habitat are not considered further in this BA.

No critical habitat currently has been designated for any of the species of concern in this BA; however, the project area overlaps with proposed critical habitat for the Texas hornshell and the Mexican fawnsfoot (see **Figure 2**). Critical habitat has been proposed for the monarch butterfly, but it is restricted to 4,395 acres in California.

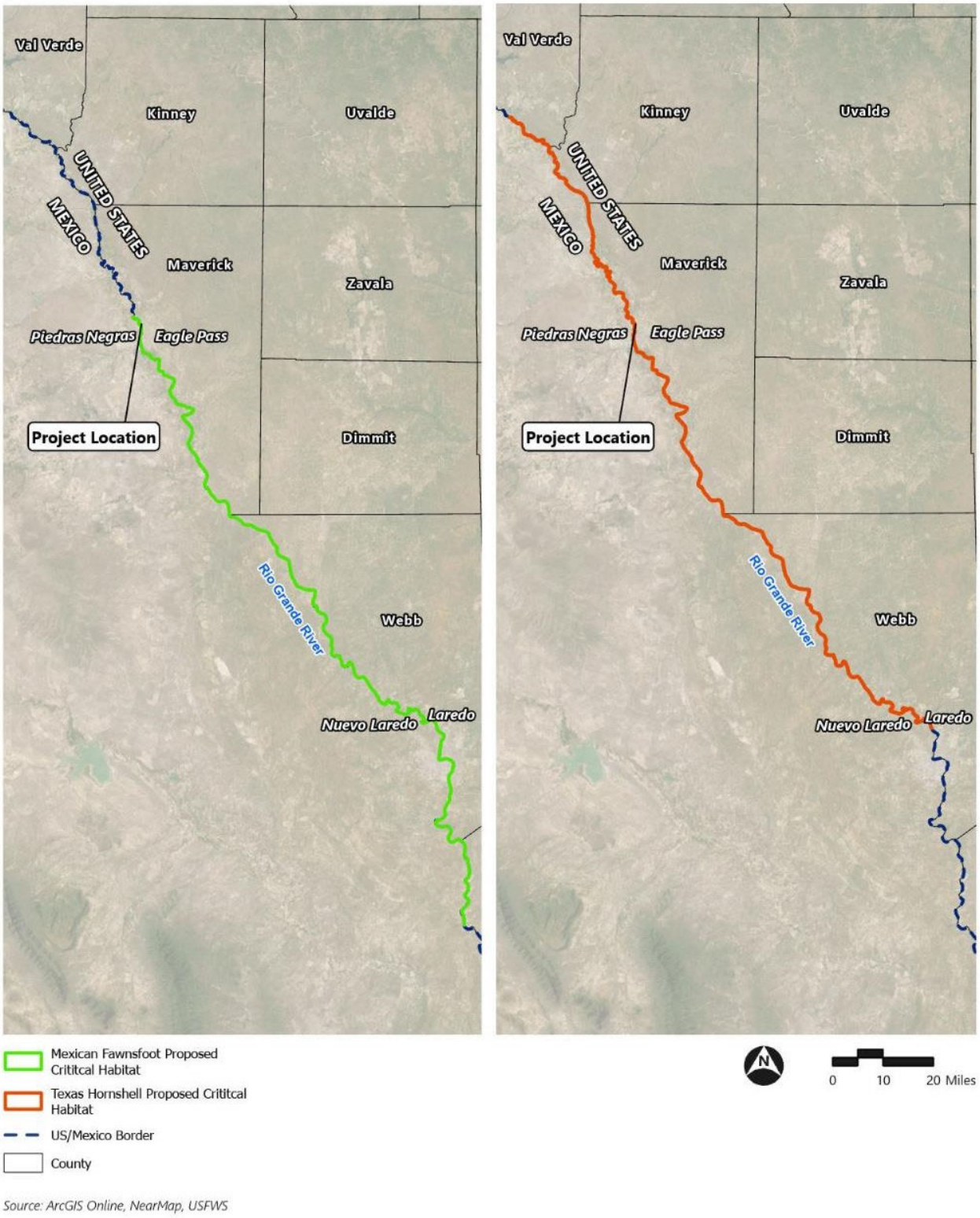
Attachment A includes the IPaC list. OEA has initiated consultation with USFWS and will continue consulting throughout the BA process.

Figure 1. Project Location Map



Source: ArcGIS Online, NearMap

Figure 2. Proposed Critical Habitat for the Texas Hornshell and Mexican Fawnsfoot



2 Project Description and Action Area Definition

2.1 Project Description

OEA analyzed the impacts of two build alternatives for the proposed line: the Southern Rail Alternative and the Northern Rail Alternative. As noted above, OEA also analyzed the effects of constructing and operating the associated CMV Facility. PVH would construct the associated CMV Facility with either the Southern or the Northern Rail Alternative. The Southern Rail Alternative is GER's preferred alignment, and OEA has preliminarily identified the Southern Rail Alternative as the Preferred Alternative. **Figure 3** illustrates the two build alternatives and the associated CMV Facility.

2.1.1 Southern Rail Alternative (Preliminary Preferred Alternative)

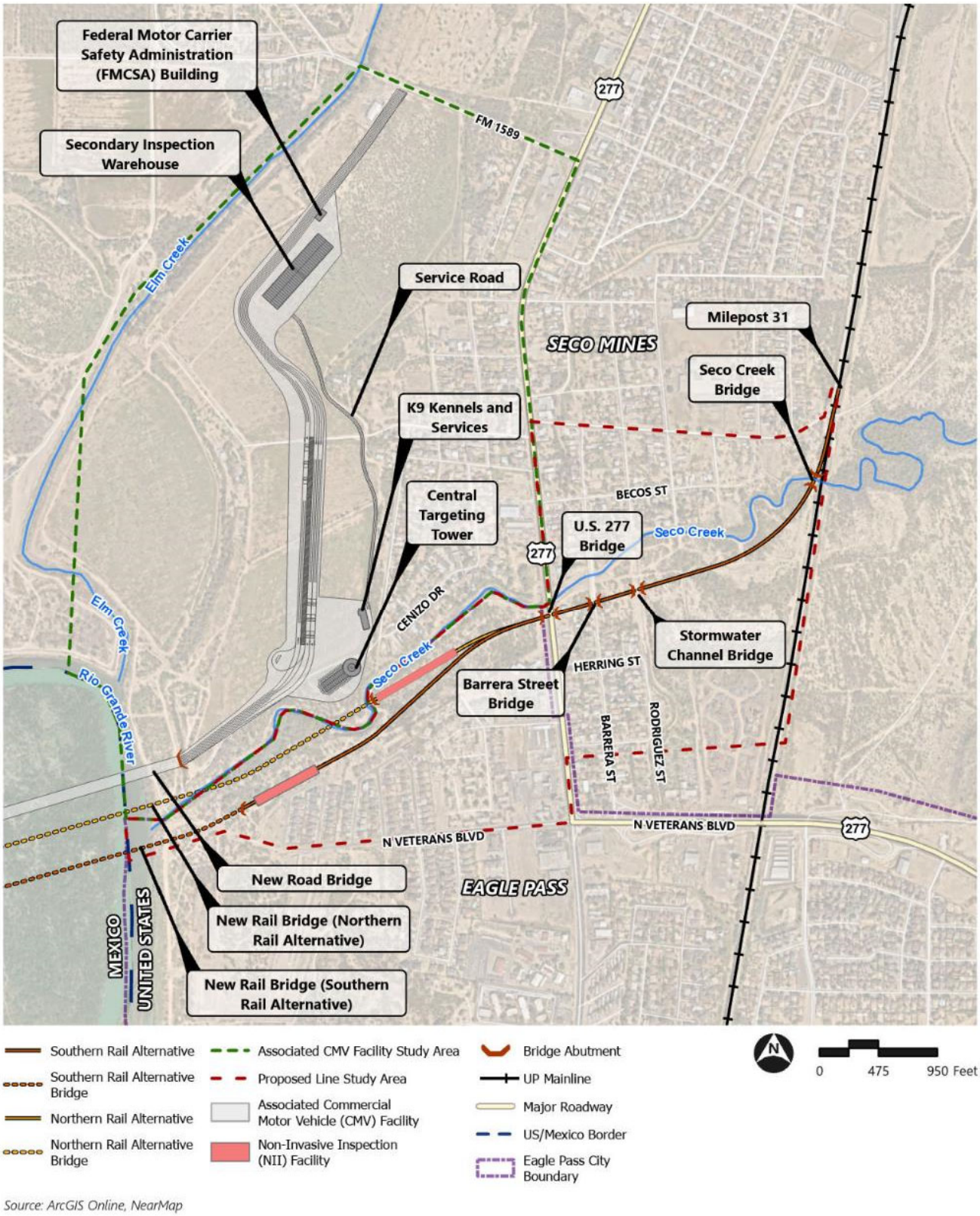
The Southern Rail Alternative is illustrated in **Figure 4**. Under the Southern Rail Alternative, the proposed line would be a secure, double-tracked, approximately 1.3-mile rail line extending between the existing UP mainline at approximate milepost 31 and the United States/Mexico border. The Southern Rail Alternative would cross the Rio Grande River on a new rail bridge (New Rail Bridge). Based on a conceptual design developed by GER and provided to OEA, the New Rail Bridge would stand approximately 60 feet above the water line and would be approximately 45 feet wide. It would consist of 164-foot spans with cast-in-place concrete drilled shaft piers supporting the superstructures. The U.S. portion of the New Rail Bridge would be 968 feet long, supported by five piers on land, whereas the Mexico portion would include one pier within the bed of the Rio Grande River and seven piers on land, making a total bridge length of approximately 2,300 feet with 13 piers. Each pier would be approximately 85 feet by 20 feet. Construction of the New Rail Bridge would involve building a temporary rock embankment (or jetty) on the Mexican side of the border but require no in-water activities on the U.S. side (see **Figure 5**). The eastern end of the bridge would consist of a concrete abutment approximately 66 feet long and 20 feet wide. A portion of the Southern Rail Alternative would be located within the 100-year floodplain.

East of the Rio Grande River, the Southern Rail Alternative would run to the south of Seco Creek before crossing U.S. 277 (Del Rio Boulevard); Barrera Street; a concrete-lined stormwater drainage channel; and Seco Creek over four other, smaller bridges (U.S. 277 Bridge; Barrera Street Bridge; Stormwater Channel Bridge; and Seco Creek Bridge, respectively). Between the bridges, the Southern Rail Alternative would be constructed on an elevated embankment approximately 18 to 19 feet high and 130 feet in width. Other features of the Southern Rail Alternative include a non-intrusive inspection (NII) facility just past the eastern end of the New Rail Bridge; culverts; fencing; service roads; and 20-feet-high noise barriers on both sides of the tracks between the Stormwater Channel Bridge and the NII facility, except on the U.S. 277 Bridge and the Barrera Street Bridge.

2.1.2 Northern Rail Alternative

The Northern Rail Alternative is illustrated in **Figure 6**. East of U.S. 277, the Northern Rail Alternative would be the same as the Southern Rail Alternative. West of U.S. 277, the Northern Rail Alternative would run along a slightly more northern alignment than the Southern Rail Alternative. The New Rail Bridge under the Northern Rail Alternative would cross the Rio Grande River (with one in-water pier on the Mexican side of the border) and then it would span Seco Creek in three locations.

Figure 3. Proposed Line and Associated CMV Facility



Source: ArcGIS Online, NearMap

Figure 4. Southern Rail Alternative (Preliminary Preferred Alternative)

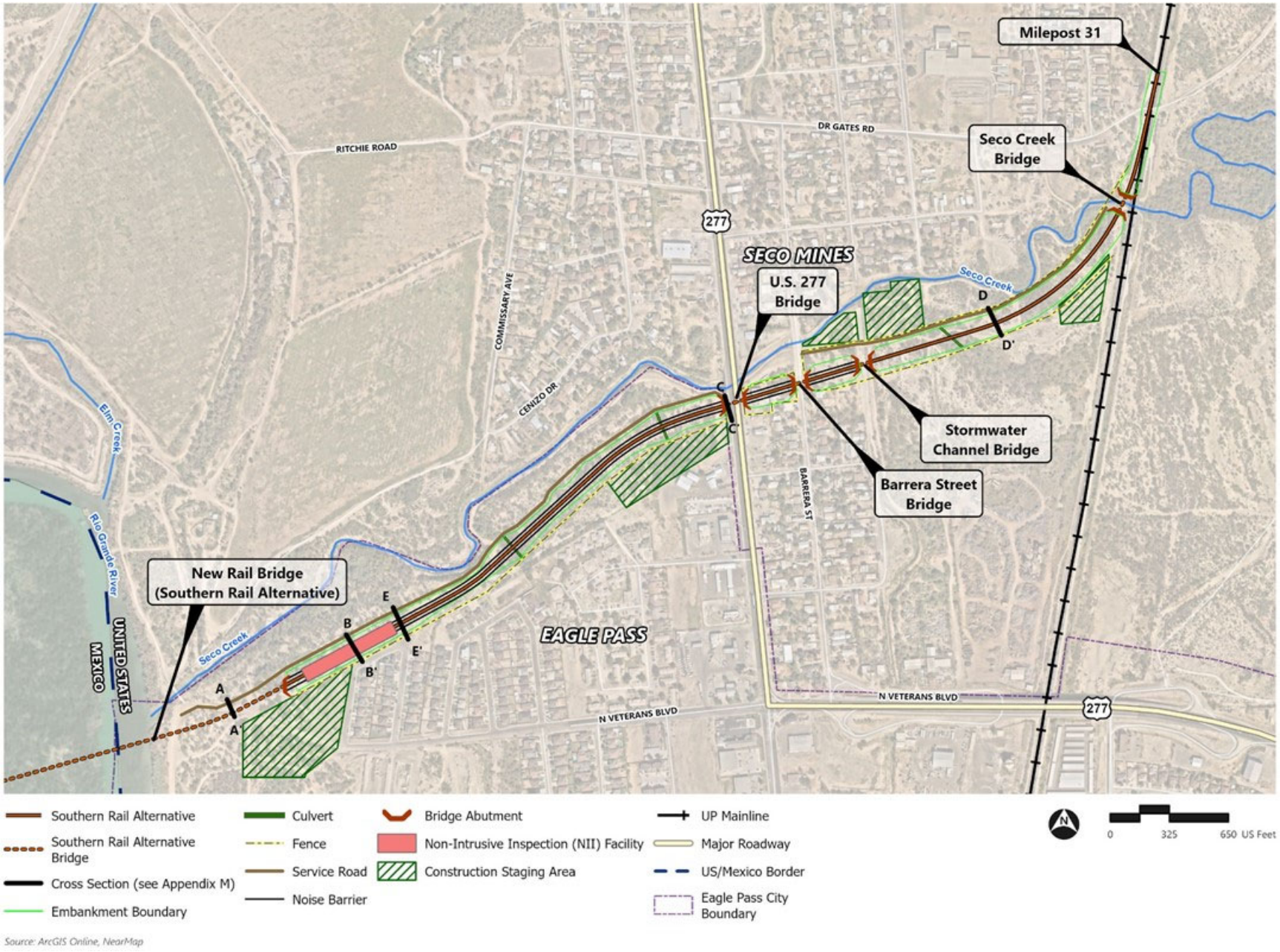


Figure 5. New Rail Bridge (Southern Rail Alternative) and New Road Bridge Construction

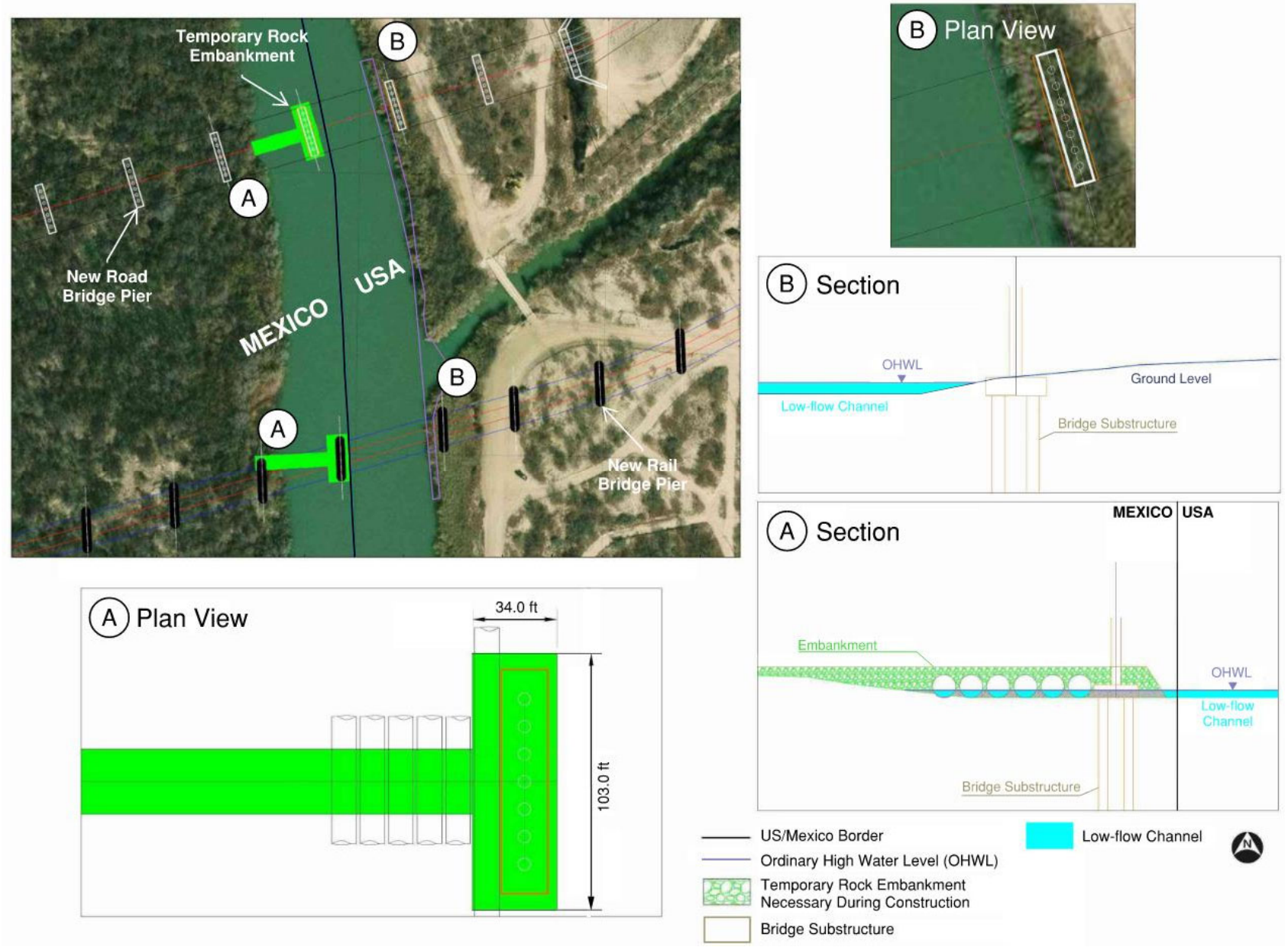
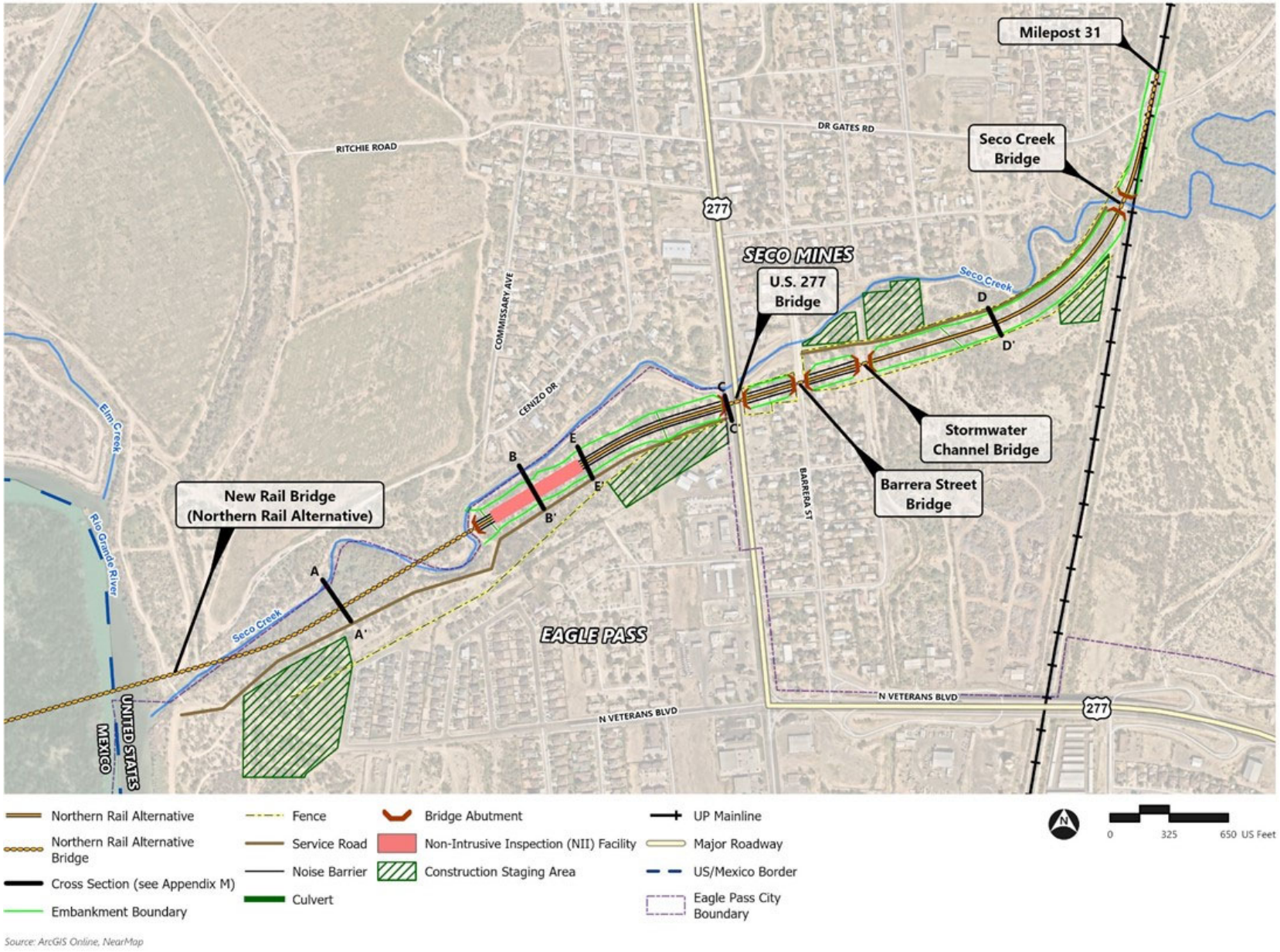


Figure 6 Northern Rail Alternative



Between the bridges, the Northern Rail Alternative would be constructed on an elevated embankment like the Southern Rail Alternative.

Under the Northern Rail Alternative, the New Rail Bridge, which would cross the Rio Grande River slightly to the north of where the New Rail Bridge would be located under the Southern Rail Alternative, would have a total length of approximately 3,482 feet, of which approximately 2,175 feet would be on the U.S. side of the border. The New Rail Bridge would have a total of 21 piers, of which 13 would be on the U.S. side of the border. As under the Southern Rail Alternative, the New Rail Bridge would have one in-water pier only, on the Mexican side of the river. Construction would involve building a temporary rock embankment (or jetty) on the Mexican side of the border but require no in-water activities on the U.S. side (see **Figure 7**). Other features of the Northern Rail Alternative include an NII facility between Seco Creek and U.S. 277; culverts; fencing; service roads; and 20-feet-high noise barriers on both sides of the tracks between the Stormwater Channel Bridge and the NII facility, except on the Barrera Street Bridge and the U.S. 277 Bridge. There also would be no noise barriers on the New Rail Bridge. A portion of the Northern Rail Alternative would be located within the 100-year floodplain.

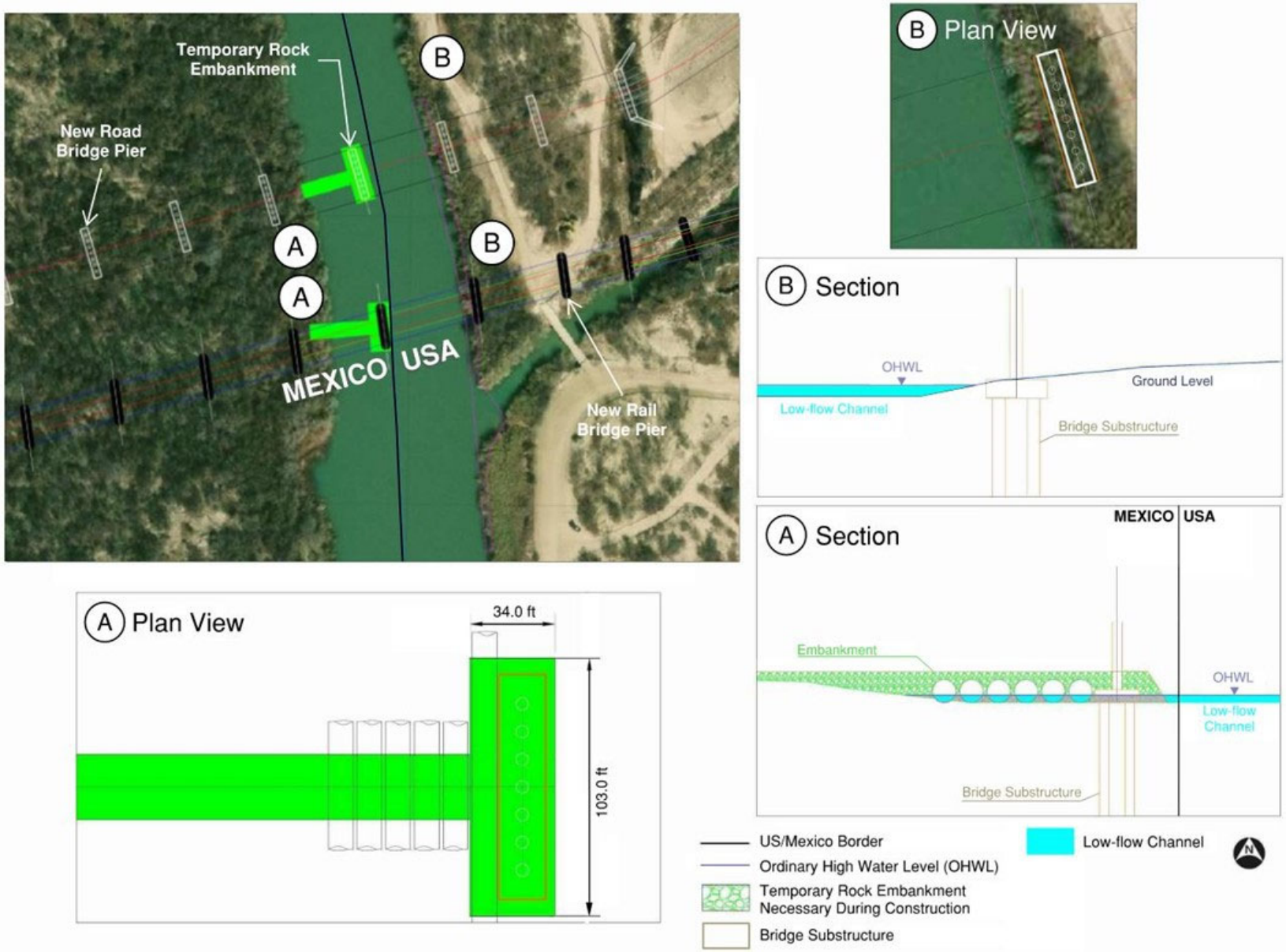
2.1.3 Associated CMV Facility

The associated CMV Facility (illustrated in **Figure 2** above) would be constructed a short distance to the north of the proposed line, on what is currently agricultural land. The associated CMV Facility would consist of a new bridge (New Road Bridge) across the Rio Grande River just north of the New Rail Bridge; a new road (CMV Road) connecting the New Road Bridge to Farm-to-Market Road (FM) 1589 (Hopedale Road); and associated border inspection facilities. The New Road Bridge would be approximately 89 feet wide and 1,980 feet long, with 470 feet on the U.S. side of the border. It would rise about 60 feet above the water and feature six, 12-foot-wide traffic lanes. The structure would include 11 piers—two on the U.S. side, both on land, and nine on the Mexico side, with one in-water pier. Each pier would be approximately 104 by 13 feet. The eastern end abutment would measure approximately 90 feet by 13 feet, including 50-foot wingwalls. Similar to the New Rail Bridge, construction of the New Road Bridge would require a temporary rock embankment (or jetty) on the Mexican side of the Rio Grande River (see **Figure 5** and **Figure 7**).

2.2 Purpose and Need

The Purpose and Need for the proposed line and the associated CMV Facility is to develop an economically viable solution that meets the need for border infrastructure improvements at Eagle Pass; increases safety, and facilitates binational trade between the United States and Mexico, consistent with the Texas Department of Transportation's Texas-Mexico Border Transportation Master Plan. According to GER, the proposed line and the associated CMV Facility would alleviate rail and truck congestion, reduce cross-border wait times, and route rail traffic around the urban centers of Eagle Pass and Piedras Negras.

Figure 7. New Rail Bridge (Northern Rail Alternative) and New Road Bridge Construction



2.3 Construction Timeline and Sequence

According to GER, construction of the proposed line and the associated CMV Facility is anticipated to take approximately 1.5 years. Some of the construction phases described below would overlap. The information provided is based on schematic-level design and is subject to change because a detailed project construction schedule for this work is not yet available (September 4, 2024, letter to OEA). *Section 2.3.1* provides an overview of the construction sequence. *Sections 2.3.2 and 2.3.3* describe the anticipated construction activities based on information GER provided to OEA. *Attachment B* contains a list of the equipment GER and PVH would use for constructing the proposed line and the associated CMV Facility. OEA anticipates that construction may start in late 2025 or early 2026.

2.3.1 Construction Sequence

- Phase 1 (approximately 7 months):
  - Staging for rail line construction
  - Site preparation for rail line construction
  - Construction of embankment
- Phase 2 (approximately 5 months)
  - Placement of sub-ballast and ballast layers
  - Installation of track
- Phase 3 (approximately 18 months)
  - Site preparation for construction of New Rail Bridge
  - Construction of New Rail Bridge
- Phase 4 (approximately 9.5 months)
  - Site preparation for bridges over roadways and culverts
  - Construction of roadway bridges and culverts
  - Construction of inspection building
  - Construction of perimeter fencing
  - Construction of noise barrier

Construction of the associated CMV Facility would be concurrent with construction of the proposed line and would also be completed in several overlapping phases (or components).

- Component 1 (approximately 12.5 months)
  - Site preparation
- Component 2 (approximately 5 months)
  - Paving
- Component 3 (approximately 8.5 months)
  - Construction of the four support buildings

- Component 4 (approximately 1.5 years)
  - Construction of New Road Bridge
- Component 5 (approximately 4.5 months)
  - Construction of perimeter fencing
- Component 6 (approximately 2.5 months)
  - Excavation for and installation of utility connections and drainage structures

2.3.2 Construction of the Southern or Northern Rail Alternative

Track

GER would begin construction of the proposed line with removal of vegetation, including roots and stumps, along the track alignment. Topsoil and unsuitable material would be removed to a maximum depth of 6 inches. The remaining soils along the track alignment would be compacted, and the embankment would be built up to reach the desired elevation. Suitable material from the grading work would be used to cover and soften the slope of the embankment. This phase of the construction work would take place over approximately seven months, with work on other elements, such as the New Rail Bridge and the NII facility, being conducted at the same time.

Following completion of the embankment, GER would spread a 12-inch deep and compacted sub-ballast layer. Track switches and track segments would be placed on top of the embankment using cranes, and they would be fixed in place. A 12-inch layer of ballast would then be spread out, after which the tracks would be leveled, and the final welds performed.

Bridges

Construction of the New Rail Bridge, U.S. 277 Bridge, Barrera Street Bridge, Stormwater Channel Bridge, and Seco Creek Bridge would involve ground preparation similar to what would be done for the railroad track, followed by construction of concrete piles of a sufficient size and depth to support the bridge structure. This would involve drilling holes, reinforcing them with steel, then pouring pre-mixed concrete. Concrete would also be used to construct the above-ground portion of the piers and abutments supporting the bridges. Bridge superstructure elements would be placed last, using cranes.

Construction of the New Rail Bridge across the Rio Grande River would take place over approximately 1.5 years, while the rest of the proposed line would be built at the same time. Construction of the other four bridges would occur over approximately nine months, starting in the second year of construction. Construction of the New Rail Bridge would involve building a temporary embankment (or jetty) on the Mexican side of the border but require no in-water activities on the U.S. side.

Facilities

Construction of the NII facility would take place over approximately 1.5 months. It would begin after the track inside the facility is laid. Foundations and a concrete slab would be installed first, followed by walls and cladding. Construction of the perimeter fencing would involve the excavation of holes for fence posts and excavation of a base for chain-link fence. The access road would be built by removing the topsoil along the road alignment, compacting the base, and spreading gravel on top of it.

Staging Areas

GER would use five staging areas to support construction of both the Southern and the Northern Rail Alternative, all five on land owned by PVH. The staging areas, shown in **Figures 4** and **6**, would be located west of the western end of North Veterans Boulevard; west of U.S. 277; east of Barrera Street and south of Seco Creek on either side of the concrete-lined stormwater channel; and south of the connection point between the line and the existing UP mainline. Prior to being used, the staging areas would be fenced and cleared of vegetation. Activities conducted in these areas would include the stockpiling of materials; storage of equipment; and assembly of structural elements, such as bridge decks, prior to installation.

Post-construction Activities

OEA anticipated that post-construction activities would include the grading and seeding and stabilizing of unpaved areas (including staging areas) followed by regular mowing and other maintenance activities. Post-construction activities would be conducted in accordance with the applicable conservation, minimization, and mitigative measures identified in *Section 6* of this BA.

2.3.3 Construction of the Associated CMV Facility

The associated CMV Facility would be constructed in several overlapping phases (or components) over approximately 1.5 years. Component 1 (approximately 12.5 months) would start with vegetation clearing, including tree cutting and stump removal. Topsoil removal and compaction would follow. Component 2 (approximately 5 months) would include laying down the pavement, including subbase and base layers of stone materials and concrete or asphalt for the paved surfaces.

The four support buildings would be built during Component 3 (approximately 8.5 months, starting when Component 1 is ending). For each building, work would involve foundation excavation and construction, structural framing, wall construction, and finishings.

Component 4 would include construction of the New Road Bridge across the Rio Grande River (approximately 1.5 years, starting at the same time as Component 1). This would involve vegetation clearing and material removal. Construction of reinforced concrete piles up to 65 feet in depth, pile caps, and abutments would come next, followed by the installation of post-tensioned girders and 8-inch-thick concrete slab. The last steps would include the construction of curbs, parapets, and sidewalks.

Component 5 would include construction of perimeter fencing (approximately 4.5 months, starting at the same time as Component 1). In Component 6 (approximately 2.5 months), the final component, utility connections and drainage structures would be excavated. This would include trenching to depths of 3 to 9 feet to establish two sewer lines connecting the support buildings to existing drainage infrastructure. OEA anticipates that post-construction activities would be similar to those for the proposed line.

2.4 Action Area

As defined in the ESA Section 7 regulations (50 C.F.R. § 402.02), “action” means “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the U.S. or upon the high seas.” The “action area” is defined as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action.”

OEA defined the action area in this BA as the terrestrial (on land) construction limits of the proposed line and the associated CMV Facility (approximately 221 acres). The action area also includes the mussel survey area (area of potential direct impact plus upstream and downstream buffers [USFWS and TPWD, 2024]) within the Rio Grande River and a small mussel relocation area immediately upstream of the survey area, which totals approximately 1,200 linear feet (366 meters) of the Rio Grande River, or 6 acres (24,280 square meters) (see **Figure 8**). The aquatic area includes the entire width of the Rio Grande River, *i.e.,* area on Mexican and U.S. sides. OEA is yet to establish the exact location of the mussel relocation area, which would be determined in consultation with USFWS. In this BA, the mussel relocation area is assumed to be immediately upstream of the mussel survey area and downstream of an existing shoal in the river bend, in a small site approximately 100 feet (30 meters) long by 100 feet (30 meters) wide.

3 Species Information and Critical Habitat

3.1 Natural/Life History Information of Species of Concern

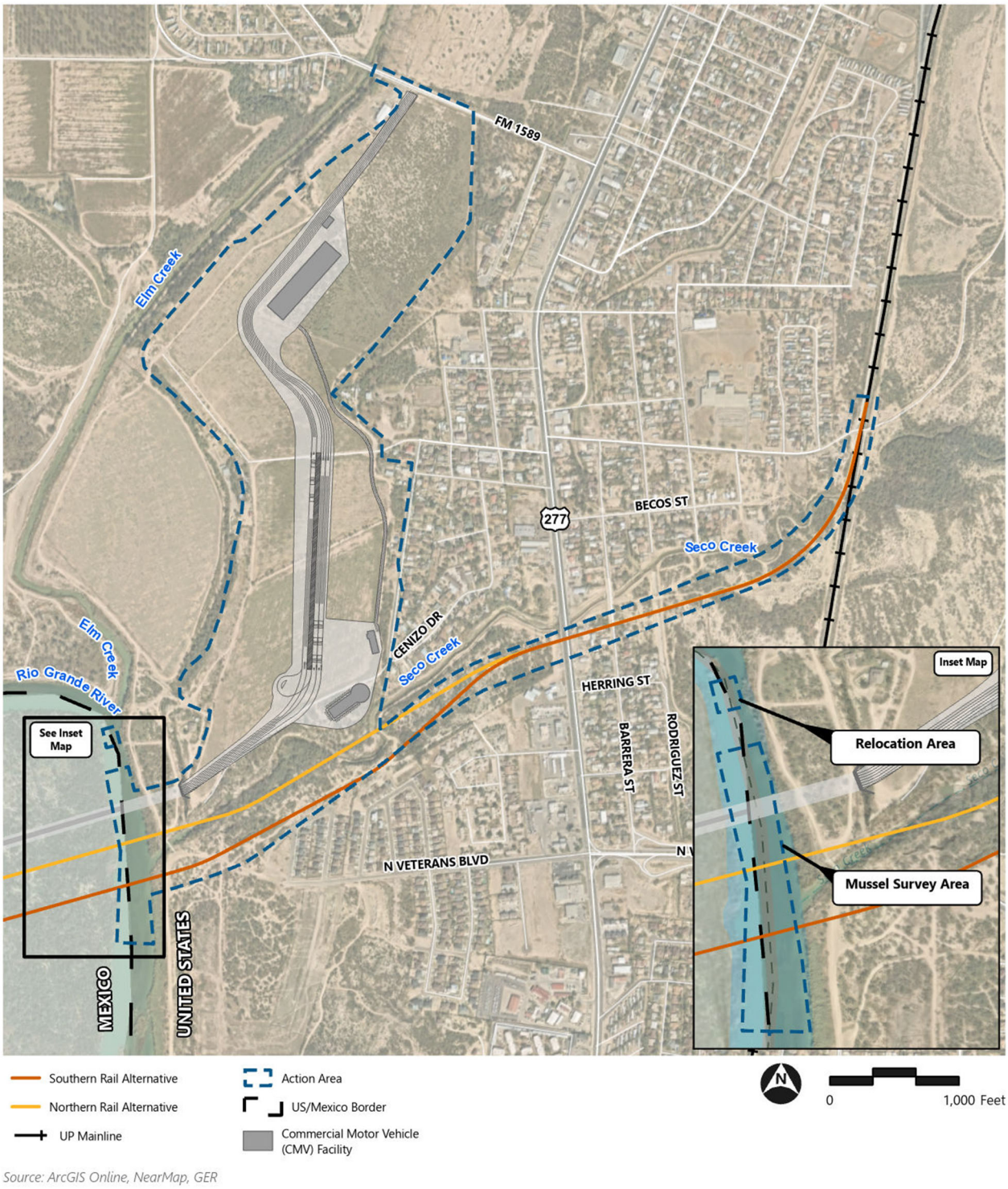
3.1.1 Mussel Species

Freshwater mussels have a complex life history, which is closely tied to fish. Males release sperm into the water column, which is taken in by the female through the incurrent. The fertilized eggs are held in an area of the gills called the marsupial chamber until they mature and are ready for release. These mature larvae are called glochidia and are obligate parasites that are released by the female to attach to the gills or skin of host fish.

Some mussel species have evolved elaborate methods to lure fish to the gravid females. One method involves females displaying and actively moving their mantle lures to attract the host fish. Another method involves developing glochidia into cases called conglutinates that may resemble insects on which a fish normally feeds. Glochidia die if they fail to find a host fish, attach to a fish that has developed immunity from prior infestations, or attach to the wrong location on a host fish.

Over a period of weeks to months, the glochidia develop, or metamorphose, into juvenile mussels while attached to its host. When this process is complete, the juveniles detach from their host, drift to the bottom, and begin their lives as free-living mussels. Mussel distribution, therefore, is largely tied to the distribution of their host fish species.

Figure 8. Proposed Action Area



Source: ArcGIS Online, NearMap, GER

Texas Hornshell

The Texas hornshell is a medium to large (up to 116 millimeters [mm] in length) freshwater mussel with an elongate, laterally compressed shell (Howells *et al.*, 1996; Carman, 2007). The periostracum is usually dark brown to green, and juveniles often have fairly distinct green rays.

Texas hornshells mostly occur in runs of medium to large rivers in atypical habitat for most mussel species, *i.e.,* in crevices, rock shelves (often limestone), undercut riverbanks, and under large boulders adjacent to runs (Carman, 2007; Randklev *et al.*, 2023). This species also has been collected in smaller waterways, *e.g.,* Devils River (Texas), in gravel beds at the tops of riffles and runs (USFWS, 2018a). The smaller, particle-sized sediment (*e.g.,* clay, silt, or sand) that gathers in these tight places of crevices, rock shelves, *etc.* serve as anchoring substrate. Crevices also function as flow refuges and protection from the large flood events that occur regularly in the rivers that this species occupies. This species is not known to occur in lakes, ponds, or reservoirs (USFWS, 2018a).

The Texas hornshell is tachytictic, generally spawning from March through August (Smith *et al*., 2003). The known primary host fishes for this species are river carpsucker (*Carpiodes carpio*), gray redhorse (*Moxostoma congestum*), and red shiner (*Cyprinella lutrensis*) (Levine *et al*., 2012). The lifespan of the Texas hornshell is uncertain. Two individuals marked in the Black River in New Mexico in 1997 were recaptured 15 years later (Inoue *et al.*, 2014). Species in the subfamily *Ambleminae*, which includes the Texas hornshell, commonly live more than 20 years (Carman, 2007).

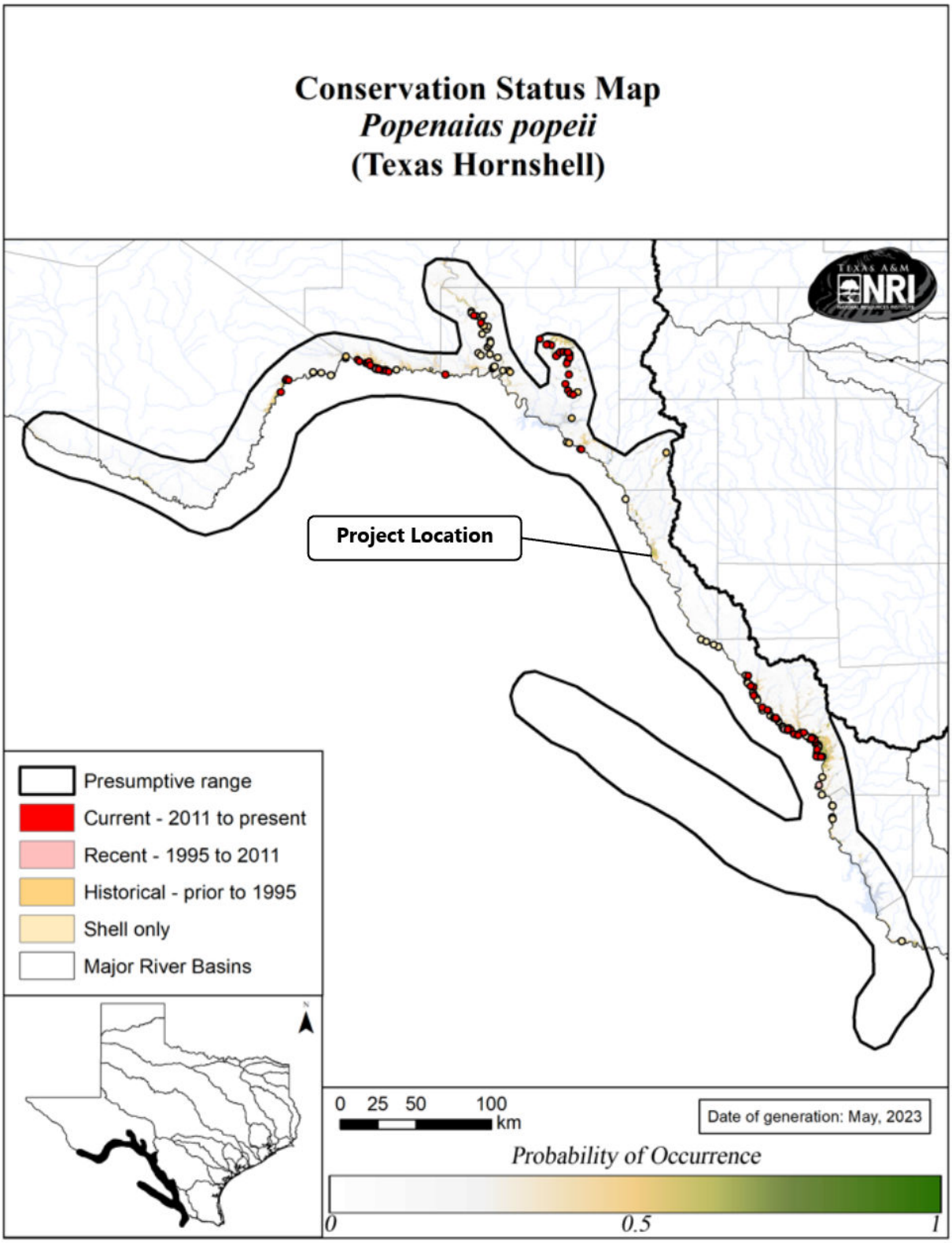
The Texas hornshell historically ranged throughout the Rio Grande River drainage in the United States (New Mexico and Texas) and Mexico. When this species was listed, five known populations of Texas hornshell remained in the United States: Black River (Eddy County, New Mexico), Pecos River (Val Verde County, Texas), Devils River (Val Verde County, Texas), Lower Canyons of the Rio Grande River (Brewster and Terrell Counties, Texas), and Lower Rio Grande River near Laredo (Webb County, Texas) (USFWS, 2018a and b). After listing in 2018, an additional population was discovered in Rio San Diego in Mexico, bringing the total populations to six (Hein, 2022; USFWS, 2023c) (see **Figure 9**).

Mexican Fawnsfoot

The Mexican fawnsfoot is a small (up to 44 mm in length) freshwater mussel with an elliptical, laterally inflated shell (Howells *et al*., 1996; Randklev *et al.,* 2023). The periostracum is yellow-green with faint chevron-like markings or rays.

This species usually occurs in large rivers, but it may also be found in medium-sized streams. It occurs primarily in riffles, as well as near-shore depositional habitats, *e.g.,* banks and backwaters. This species typically occurs in mixed sand and gravel substrate, as well as some soft unconsolidated sediments; however, substrate consisting of extensive fine sediment in crevices and on the stream bottom are considered less suitable. The Mexican fawnsfoot is considered intolerant of reservoirs (Randklev *et al.*, 2023; USFWS, 2023c).

Figure 9. Texas Hornshell Distribution (Randklev et al., 2023)



Mexican fawnsfoot are bradytictic, reproductively active/brooding from spring to the following summer, *i.e.,* over winter (Randklev *et al*., 2023). The primary host fishes for this species are unknown. Based on other *Truncilla* species, however, hosts likely include the freshwater drum (*Aplodinotus grunniens*), although no empirical laboratory studies have been performed (Sietman *et al*., 2018). Longevity is not known. Congener species in the genus *Truncilla* from the southeastern United States have been reported to have maximum lifespans of 18 years (Haag and Rypel, 2011). The Mexican fawnsfoot is likely to have a similar maximum lifespan.

The Mexican fawnsfoot historically occurred in the lower Rio Grande River drainage in Texas and Mexico, extending for approximately 340 river miles from near the confluence of the Pecos River with the Rio Grande River (Val Verde County, Texas) to just downstream of Falcon Dam (Starr County, Texas). Additionally, the lower section of Rio Salado in the Mexican State of Nuevo León was believed to be historically occupied by the Mexican fawnsfoot (USFWS, 2023b). Currently, the only remaining Mexican fawnsfoot population occurs in the Rio Grande River along approximately 184 river miles from Eagle Pass, Texas, downstream to San Ygnacio, Starr County, Texas (USFWS, 2023c) (see **Figure 10**).

3.1.2 Monarch Butterfly

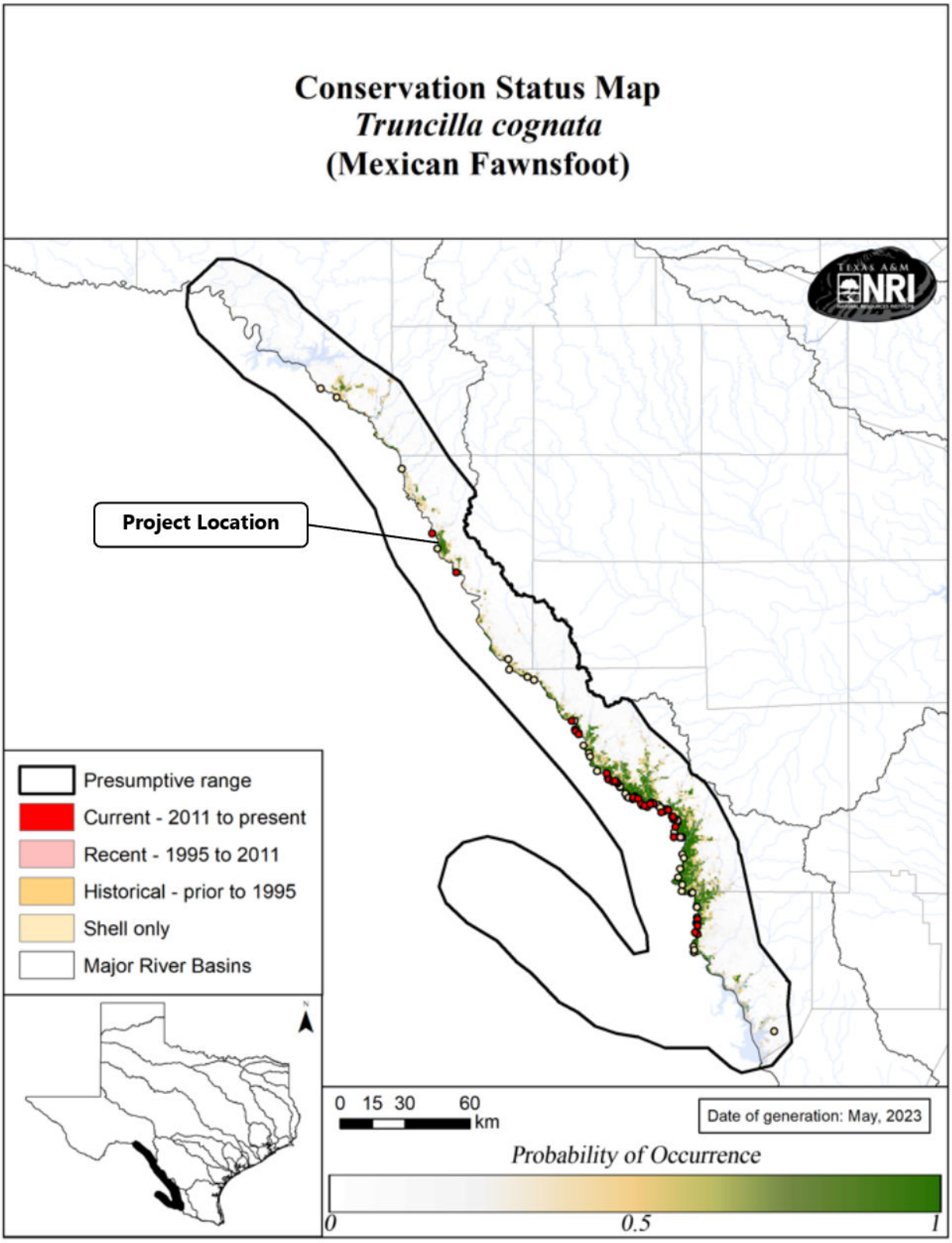
The monarch butterfly is a large butterfly with a wingspan of approximately 4 to 5 inches. It is sexually dimorphic with males having a dorsal side of bright orange with wide black borders and thin black veins (including a small black androconial scent patch centered on each hindwing), whereas females have a dorsal side colored in orange-brown with wide black borders and blurred black veins (Georgia Department of Natural Resources [GDNR], 2022). This bright coloring is used to indicate that the species is toxic to predators.

Monarch butterflies, like other butterflies and moths, undergo complete metamorphosis via a four-stage lifecycle, *i.e.,* egg, larva (caterpillar), pupa (chrysalis), and adult. The egg and caterpillar stages occur only on specific species of milkweed, whereas adults survive by feeding (nectaring) on a variety of flowering plants. Larvae feed on milkweeds in the genera *Asclepias*, *Cynanchum*, and *Matelea*. There are over 30 species of milkweeds that are native to Texas (Native Plant Society of Texas [NPSOT], 2024). Two of the most important for the monarch butterfly are antelope horns (*Asclepias asperula*) and green milkweed (*Asclepias viridis*), because they are common milkweeds that grow in disturbed areas (*e.g.,* pastures and along roadsides) throughout the central flyway of Texas, the path that most monarch butterflies take on their migration through Texas.

Generally, monarch butterfly habitat consists of natural or disturbed sunny, open spaces, including fields, meadows, urban and suburban parks and gardens, managed corridors, roadsides, and agricultural areas (and dunes particularly for fall migrants along the coast). Known nectar sources for adults are blooms in the *Asteraceae*, *Apocynaceae*, *Lamiaceae*, and *Rubiaceae* families (GDNR, 2022).

While some resident populations that breed year-round and do not migrate have been documented in southern Florida and other parts of the Gulf Coast, most North American monarch butterflies travel each fall from their summer breeding grounds to overwintering locations. East of the Rocky Mountains, these migrations extend from as far north as southern Canada to central Mexico, passing through Texas, including the Eagle Pass area. Migrations west of the Rocky Mountains go to the California coast. There is some evidence that interchanging is occurring between the eastern and western populations, particularly during migration movements.

Figure 10. Mexican Fawnsfoot Distribution (Randklev et al., 2023)



Unlike summer generations that live as adults for two to six weeks, adults in the migratory generation can live up to nine months. Most monarch butterflies that emerge after about mid-August in the eastern United States fall into this migratory generation category; therefore, they do not breed and begin to migrate towards Mexico. They must find nectar sources along the way to build up their fat stores for the winter. These individuals roost at night in trees and during inclement weather in clusters. These monarch butterflies usually arrive in the Trans-Mexican Volcanic Belt in early November, where they aggregate in oyamel fir (*Abies religiosa*) trees on south/southwest-facing mountain slopes that provide a micro-climate allowing them to conserve enough energy to survive winter. In March, this generation begins reproduction again and travels north into Texas and other southern states, where they lay eggs and feed as they migrate and breed. The first-generation offspring from this overwintering population continue the journey from the southern United States to the eastern breeding grounds, where they migrate north through the central latitudes in late April through May. Second and third generations populate the breeding grounds throughout the summer. Thus, it usually is the fourth generation that repeats this annual migration cycle migrating through the central and southern United States and northern Mexico to the wintering sites in central Mexico. In Texas, the monarch butterfly's spring and fall migrations pass through the species' central flyway over/near the action area (Monarch Watch, 2024) (see **Figure 11**).

The monarch butterfly is native to North and South America but has spread throughout 90 countries, islands, and island groups across the globe (USFWS, 2020). Since the 1800s, monarch butterflies have spread to Hawaii and throughout the South Pacific, including Australia and New Zealand, as well as to Portugal and southern Spain along the Iberian Peninsula.

The two North American populations (*i.e.*, the migratory populations located east and west of the Rocky Mountains) have been monitored at their respective overwintering sites in Mexico and California since the mid-1990s. This monitoring has shown a long-term decline in population abundance at overwintering sites in both populations, which has led USFWS to propose listing this species as threatened under the ESA (USFWS, 2024b). These declines are likely due to a variety of reasons, including growth of agricultural land (from conversion of grasslands), urban development, increased use of herbicides, logging/thinning at overwintering sites in Mexico, and effects of climate change (USFWS, 2020).

3.2 Critical Habitat

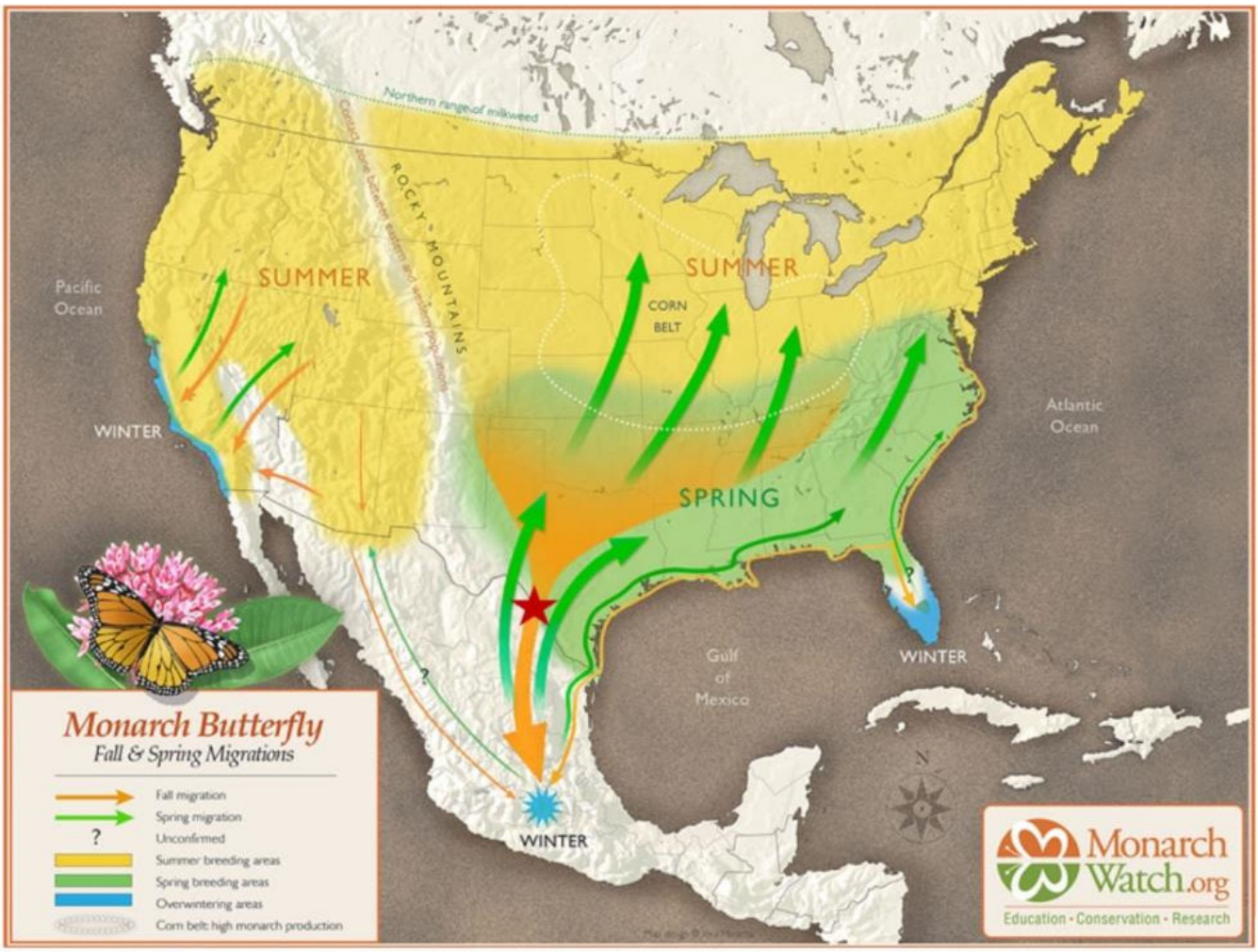
USFWS defines critical habitat as the "specific areas within the geographic area, occupied by the species at the time it was listed, that contain the physical or biological features that are essential to the conservation of endangered and threatened species and that may need special management or protection," (USFWS, 2024).

Section 3 of the ESA defines critical habitat, in part, as specific areas within the geographical area occupied by the species supporting those physical and biological features (PBFs) that are essential for the conservation of the species and that may require special management considerations or protection. These features, known as primary constituent elements (PCEs), include:

- Space for individual and overall population growth, and for normal behavior.
- Cover or shelter.
- Food, water, air, light, minerals, or other nutritional or physiological requirements.

- Sites for breeding and rearing offspring, germination, or seed dispersal.
- Habitats that are protected from disturbances or are representative of the historical geographical and ecological distributions of the species.

Figure 11. Monarch Butterfly Migration Routes



★ Project Location

USFWS lists the following PBFs as essential to the conservation of the Texas hornshell. A riverine system with habitat to support all life stages of the Texas hornshell, which includes:

- Flowing water at rates high enough to support clean-swept substrate but not so high as to dislodge individuals;
- Crevices beneath boulders, shelves, and within undercut banks with seams of fine sediment;
- River carpsucker, red shiner, and gray redhorse present; and
- Water quality parameters within the following ranges:
    - Salinity below 0.9 parts per thousand (ppt);
    - Ammonia below 0.7 milligrams/liter (mg/L);
    - Low levels of contaminants; and
    - Dissolved oxygen levels within substrate greater than 1.3 mg/L.

For Mexican fawnsfoot, USFWS lists the following PBFs as essential to this species' conservation. A riverine system with habitat to support all life stages of this species, which includes:

- Flowing water at rates high enough to support clean-swept substrate but not so high as to dislodge individuals;
- Stable areas of small-grained sediment, such as clay, silt, or sand;
- Flow refugia such as riffle and run habitats, adjacent depositional areas, and banks;
- The presence of freshwater drum or other host fish; and
- Water quality parameters within the following ranges:
    - Salinity below 1.0 ppt;
    - Ammonia below 0.7 mg/L;
    - Low levels of contaminants; and
    - Dissolved oxygen levels within substrate greater than 1.3 mg/L.

Federal agencies are required to consult with USFWS on actions they carry out, fund, or authorize to ensure that their actions will not destroy or adversely modify critical habitat. To destroy or adversely modify critical habitat, a project must appreciably diminish the value of critical habitat for both the survival and recovery of a listed species.

As previously mentioned, no critical habitat has been designated for any of the species of concern for this BA although USFWS has proposed critical habitat for the Texas hornshell, Mexican fawnsfoot, and monarch butterfly. The part of the action area in the Rio Grande River is located within the proposed critical habitat for both mussel species (see **Figure 2** above). For the Texas hornshell, the action area overlaps with proposed critical habitat Subunit 5a: Eagle Pass Reach (USFWS, 2021). For the Mexican fawnsfoot, it overlaps with proposed critical habitat Unit MXFF-1 (USFWS, 2023c). As previously mentioned, proposed critical habitat for the monarch butterfly is entirely in California.

4 Existing/Baseline Environment

4.1 Existing Watershed and Land Use

The proposed line and the associated CMV Facility would be located within the Rio Grande Floodplain and Terraces Sub-ecoregion (31d) of the Southern Texas Plains Ecoregion (Griffith et al., 2004). The Southern Texas Plains Ecoregion was once covered mostly with grassland and savanna vegetation, but it is now predominantly thorny brush vegetation (e.g., honey mesquite [*Prosopis glandulosa*]) after years of continued grazing and fire suppression. Oil and natural gas production activities are widespread in this area.

Topography in this sub-ecoregion ranges from flat to hilly with elevations ranging from approximately 115 to 790 feet above mean sea level. Mean annual precipitation ranges from 19 to 23 inches. Land use and vegetative cover through much of the Rio Grande Floodplain and Terraces Sub-ecoregion consists of shrub and grass rangeland and irrigated cropland growing cotton, grain sorghum, and vegetables. Some (Rio Grande) floodplain forests are present, which contain species like sugar hackberry (*Celtis laevigata*), cedar elm (*Ulmus crassifolia*), and Mexican ash (*Fraxinus berlandieriana*). Brushy species in drier upland areas at the margins of these forests often include honey mesquite, huisache (*Acacia smallii*), blackbrush (*Acacia rigidula*), and lotebush (*Ziziphus obtusifolia*). Grasses commonly found in these areas include multiflowered false Rhodes grass (*Trichloris pluriflora*), sacaton (*Sporobolus wrightii*), cottontop (*Digitaria spp*.), and Plains bristlegrass (*Setaria macrostachya*). In wetter areas near the river, black willow (*Salix nigra*), black mimosa (*Mimosa pigra*), and common reed (*Phragmites australis*) are often present, as well the introduced giant reed (*Arundo donax*) and hydrophytic plants such as cattails (*Typha spp.*), bulrushes (*Scirpus spp*.), and sedges (*Carex spp*.). Much of the more alluvial areas in this sub-ecoregion have been converted to irrigated cropland, mostly consisting of cotton, grain sorghum, and cool-season vegetables (Griffith et al., 2004).

4.2 Hydrology

IBWC maintains a river gage in the vicinity of where the proposed line and associated CMV Facility would be located. As of 2024, Gage #08458000 (Rio Grande River at Piedras Negras, Coahuila, and Eagle Pass, Texas) had an operational period of record of 2012. For this time period, the average and median flows at this gage were 1,821 and 1,180 cubic feet per second (cfs), respectively. The minimum flow recorded for this same time period was 0 cfs, while the maximum flow was 48,480 cfs (IBWC, 2024). Flows in this section of the Rio Grande River are regulated by releases from Amistad Reservoir based on hydropower generation and downstream irrigation needs (Texas Water Development Board [TWDB], 2021). Water management in the Rio Grande River is governed by treaty (IBWC, 2021).

The Rio Grande Basin has a low average annual watershed yield due to arid or semiarid climate conditions throughout much of the basin (TWDB, 2024). The climate in the action area is semiarid with an average annual rainfall amount in Eagle Pass of approximately 20.41 inches (U.S. Climate Data, 2024).

4.3 Water Quality

The latest report (from 2022) by the U.S. Environmental Protection Agency (EPA) for water quality in the action area (*i.e.,* Rio Grande Below Amistad Reservoir [State Waterbody ID: TX-2304_08]) from

How's My Waterway? listed the water quality for most uses (*e.g.,* drinking water, aquatic life, *etc.*) as "good" (USEPA, 2024). In the current *Draft 2024 Texas Integrated Report - Index of Water Quality Impairments,* the stream segment in the action area (#2304_07) is listed as impaired due to bacteria (Texas Commission on Environmental Quality [TCEQ], 2024).

4.4 Surveys

OEA performed various field surveys to confirm baseline conditions in the action area. OEA evaluated the area for habitat suitability for federally protected species, as well as provided oversight for a delineation of waters of the United States, including wetlands, conducted by GER on May 21 and 22, 2024, over approximately 221 acres. Additionally, OEA performed a mussel survey in the Rio Grande River as per the 2024 USFWS and Texas Parks and Wildlife Department (TPWD) survey protocols (USFWS & TPWD, 2024) between September 9 and September 12, 2024 (BIO-WEST, 2024). Dry conditions and warm to hot temperatures were present during these surveys.

During the mussel survey, aquatic habitat within the action area was characterized as pool and run, with water depths ranging from approximately two to eight feet. Dominant substrate was typically silt (46% of segments), clay (13%), or sand (7%) near bank areas, often transitioning to gravel (31%) or rarely cobble (3%) near midchannel" (BIO-WEST, 2024). A layer of fine silt covered almost all substrate types, and much of the area was covered in deep sediment (from several inches to greater than one foot).

Land use within and around the action area consisted of agricultural lands and floodplain terrace brushlands comprised mostly of honey mesquite and other thorny species, and smaller localized forests of sugar hackberry and Mexican ash. The Rio Grande River and Seco Creek had narrow forested riparian areas and overgrowths of invasive giant reed. Overall, the terrestrial habitat was substantially degraded by agricultural activities, illegal dumping, and various actions associated with recent border security efforts, which include fencing and patrols using all-terrain vehicles (ATVs), trucks, and airboats on the Rio Grande River. Additionally, adjacent to the action area are residential and commercial developments.

Representative photo documentation of aquatic habitat and existing land uses (agricultural lands and scrub-shrub vegetative communities) and other salient features in the action area can be found in *Attachment C*.

4.5 Species

4.5.1 Texas Hornshell

As previously discussed, the Texas hornshell historically ranged throughout the Rio Grande River drainage, but it is not currently known in the action area (USFWS, 2023a). The September 2024 mussel survey found no Texas hornshell, either live or relic shell material. As per protocol, transect and qualitative timed searches were conducted within the survey area, including a bank survey (U.S. side only). Overall, mussel densities were low within the survey area, and a total of 11 live mussels representing three species were collected and returned during the survey. During transect surveys, eight adult mussels were collected. These included seven Mexican fawnsfoot and one paper pondshell (*Utterbackia imbecillis*). Relic shells of yellow sandshell (*Lampsilis teres*) were also collected. Since two Mexican fawnsfoot specimens were collected during the transect searches, qualitative timed

searches were conducted, which found two additional Mexican fawnsfoot adults and one adult Tampico pearly mussel (*Cyrtonaias tampicoensis*) (BIO-WEST, 2024). As previously discussed, aquatic habitat in the action area is degraded due to sedimentation, and although a few large rocks were noted, these were mostly deeply embedded in silt. The mussel survey report noted that the area had a "lack of appropriate habitat conditions" for the Texas hornshell (BIO-WEST, 2024).

4.5.2 Mexican Fawnsfoot

As previously discussed, Mexican fawnsfoot historically ranged throughout the Rio Grande River drainage, and it has been collected in the vicinity of the action area since 2011. The September 2024 survey found nine Mexican fawnsfoot in silt and gravel substrates. This species was the most abundant species in the survey, and it was sporadically distributed throughout the survey area, including on both sides of the border, with at least one individual within the footprint of one of the New Rail and Road Bridges. While much of the aquatic habitat in the survey area was degraded by sedimentation, there is suitable habitat for this species, as indicated by its presence at the site.

4.5.3 Monarch Butterfly

As previously noted, monarch butterfly migration routes (spring and fall) pass over and near the action area through the species' central flyway (Monarch Watch, 2024). OEA observed monarch butterflies feeding on nectar-producing plants during a May 2024 site visit. OEA observed no milkweed in the action area.

5 Potential Project Impacts

5.1 Direct and Indirect Impacts

5.1.1 Construction Impacts

Texas Hornshell and Mexican Fawnsfoot

OEA anticipates that most construction impacts to the Texas hornshell and Mexican fawnsfoot would be temporary and minor. Land clearance and related construction activities (on both sides of the Rio Grande River) may cause some short-term increases in turbidity and sedimentation. Even with the proper installation and maintenance of proper Best Management Practices (BMPs), heavy rainfall events (greater than the design criteria) or accident damage to erosion control devices during construction could cause unplanned erosion and sedimentation events. The temporary rock embankment (or jetty) that GER would install on the Mexican side of the river to build the bridges can physically cover or crush any mussels on that side of the river, as well as result in increased sedimentation and temporarily altered flows in the river. These changes could indirectly impact mussels on the U.S. side of the river. Sedimentation could adversely impact suitable habitat for the Texas hornshell and Mexican fawnsfoot by filling in the interstitial spaces between the cobble/gravel substrate and riffles, and reducing spawning habitat (Jones *et al.*, 1974). The greatest potential impact from increased sedimentation would occur during these mussels' spawning periods (March through August) and shortly thereafter. Sediment in waterways can have detrimental effects on aquatic biota, including smothering fish eggs and benthic

macroinvertebrates, clogging fish gills, reducing feeding and growth, and reducing photosynthetic activity (Kerr, 1995; Kundell and Rasmussen, 1995; Waters, 1995).

Other potential construction-related water quality impacts could include contamination from construction equipment, such as leaked or spilled hydraulic fluid, or spilled gasoline or diesel from equipment refueling activities. These accidental events could occur despite proper planning and oversight. These water quality impacts to the two mussel species also would affect the mussels' host fish species.

In addition to temporary water quality impacts to Texas hornshell and Mexican fawnsfoot from construction activities, a small amount of in-stream habitat would be altered permanently by the construction of a bridge pier on the Mexican side of the Rio Grande River. This pier, although relatively limited in size, could alter hydrology and channel morphology on the U.S. side of the river, resulting in potential impacts to habitat for the Mexican fawnsfoot. Such impacts could include bank erosion, disruption of natural sediment transport (scour and aggregation), thermal changes (changes in water volumes and flow rates can influence water temperatures), disruption of nutrient cycling (alter natural nutrient cycling processes due to changes in sediment and water flow), and potential debris accumulation.

Monarch Butterfly

Potential construction-related impacts to the monarch butterfly primarily would be the loss of nectar-producing plants for adults migrating through the area. Adult monarch butterflies feed on a variety of nectar-producing plants, including sunflower, coneflower, ironweed, and salvia (USFWS, 2020). OEA observed monarch butterflies feeding on common sunflowers (*Helianthus annuus*) during a site visit in May 2024.

Monarch butterfly breeding habitat includes specific species of milkweed that are required by the egg and caterpillar stages of this species. As previously noted, the action area lacks milkweed species essential for monarch butterfly breeding. Therefore, this critical life stage likely would not be impacted by the proposed line and the associated CMV Facility. The project could be beneficial to the species if construction revegetation efforts include planting appropriate milkweed species.

In addition to the potential impacts of vegetation loss from construction, construction traffic could potentially lead to more vehicle strikes during the migration season, as well as to increased air pollution (including dust) that could adversely impact the monarch butterfly. Under the proposed 4(d) Rule[1] for this species, however, certain maintenance activities (including use of some pesticides) and vehicle strikes would not considered "take" by USFWS (USFWS, 2024b).

[1] The proposed rule for listing the monarch butterfly as threatened under the ESA includes protective regulations under section 4(d) of the ESA (a 4(d) rule). A 4(d) rule is a tool in the ESA for protecting threatened species by providing protective regulations deemed "necessary and advisable to provide for the conservation of" threatened species.

5.1.2 Operational Impacts

Texas Hornshell and Mexican Fawnsfoot

OEA anticipates that impacts to the Texas hornshell and Mexican fawnsfoot from the operation of the proposed line and the associated CMV Facility would be minimal. Some pollutants (*e.g.,* oil and antifreeze) may be generated from CMV traffic on the New Road Bridge, and these pollutants could potentially enter the Rio Grande River via stormwater runoff. In the event of a release of hazardous materials, the impacts of the release would depend on many factors, including the type of material or materials released; the number of rail cars involved; the volume of material released; the location of the incident in relation to inhabited or sensitive environmental areas; and the timing and effectiveness of local government and railroad emergency response plans.

Based on a review of past hazardous material releases along the Eagle Pass subdivision of the UP mainline, and considering the low operating speeds anticipated for the proposed line, OEA expects that in the event of a release of hazardous materials resulting from rail incidents, the amount released would be small (FRA, 2024). Any impact would be minimal because the Federal Railroad Administration's (FRA) regulations require immediate emergency response and cleanup operations. In general, OEA expects that if a release of hazardous materials were to occur, it would involve a relatively short duration of exposure and would be contained quickly.

Monarch Butterfly

OEA anticipates that impacts to the monarch butterfly from operation of the proposed line and the associated CMV Facility would be minor and primarily limited to strikes by trains and vehicles. As previously noted, vehicle strikes would not be considered "take" by the USFWS under the proposed 4(d) Rule for this species (USFWS, 2024b).

An indirect impact of train and vehicle operations could be the loss of feeding habitat due to routine maintenance of vegetation along the road- and railway rights-of-way through mechanical cutting and/or use of herbicides.

Cumulative Impacts

OEA considered cumulative effects in this BA, as defined under Section 7 of the ESA and in 50 C.F.R. § 402.02, which are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation. Future federal actions requiring separate consultation (unrelated to the proposed line and the associated CMV Facility) are not considered in the cumulative effects section of this BA. OEA did not identify any projects with impacts that could overlap with those of the proposed line and associated CMV Facility. All potentially developable area around the proposed line and the associated CMV Facility is already developed.

6 Conservation, Minimization, and Mitigative Measures

Texas Pollutant Discharge Elimination System (TPDES) permitting requirements, managed by the Texas Commission on Environmental Quality (TCEQ), would apply to the construction of the proposed line and the associated CMV Facility. GER and PVH would be required to have a TCEQ-approved

Stormwater Pollution Protection Plan (SWPPP) or Erosion and Sediment Control Plan (ESCP) in place prior to initiating construction activities in and adjacent to water bodies.

OEA additionally proposes the following measures in this BA to avoid, minimize, and mitigate any impacts caused by the construction or operation of the proposed line and the associated CMV Facility.

6.1 Measures to be Implemented Prior to Construction Activities

- GER and PVH shall consult with IBWC to confirm the location of the United States/Mexico border prior to initiating pre-construction activities and ensure that all activities described as occurring on the Mexican side of the border in this BA remain in Mexico in case adjustments are made to the border location before or during construction.
- During the same field season, GER and PVH shall complete a multiple-pass depletion salvage mussel survey consistent with the current Texas Freshwater Mussel Survey Protocol (USFWS and TPWD, 2024). GER shall move mussels found during the salvage survey to the relocation area. GER and PVH shall tag all federal candidate, federally proposed, or listed species individually prior to relocation. GER and PVH shall evaluate the relocation site prior to the initiation of surveys to ensure sufficient habitat exists for the re-establishment of mussels. GER and PVH shall conduct salvage and relocation activities according to the conditions of an Aquatic Resources Relocation Plan approved by the TPWD and USFWS.
- If in-water work activities are not initiated within 12 months of the mussel salvage operation, GER and PVH shall complete a qualitative survey prior to commencing in-water activities (within the mussel salvage zone) to ensure that the action area is free of USFWS-proposed or listed mussels that may have recolonized the area or otherwise have been deposited during high-flow events since the initial salvage mussel survey.
- GER and PVH shall design appropriate water quality BMPs to minimize construction-phase erosion and sedimentation impacts and include these in any required permitting documents, the SWPPP, and ESCP, in accordance with the TCEQ TPDES Construction General Permit (CGP) requirements.
- GER and PVH employees and contractors shall be informed of all required conservation measures for the project with clear instructions and explanations for compliance, including a pre-construction meeting with these personnel to provide specific instructions on the implementation of these conservation measures. GER and PVH shall also provide pre-construction awareness training to project construction staff, which includes information on protected species and habitat that may occur in and around the construction area and the requirements to avoid effects to these species and their habitats.
- GER and PVH shall require all contractors to implement the project-specific SWPPP prior to soil disturbance and comply with the TCEQ CGP for the duration of construction.
- GER and PVH shall implement (when feasible) design considerations to minimize impacts within the wetted channel, decrease sedimentation, and decrease roadway runoff directly into the Rio Grande River.

- GER and PVH shall require any contractors to have all project-specific locations (PSLs), such as staging areas, equipment storage areas, temporary access roads, and borrow pits, to be approved by GER and PVH before moving into the selected site to avoid impacts to protected species.
    - All PSLs with the potential to generate sediment or pollutants (e.g., stockpiles of erodible materials, chemical storage areas, vehicle parking/refueling areas, and any other potential hazardous materials) shall be restricted to upland areas away from the Rio Grande River at least 100 feet from the Ordinary High Watermark (OHWM).
    - All PSLs associated with the action area are also subject to the CGP and SWPPP and would be protected with BMPs.
    - No PSLs will be allowed in Waters of the United States (WOTUS).
- GER and PVH shall design stormwater drainage systems for the bridges across the Rio Grande River in a manner that prevents direct drainage of stormwater off the bridges into the Rio Grande River or Seco Creek.

6.2 Measures to be Implemented During Project Construction Activities

- GER and PVH shall complete instream work during low-flow conditions where practicable.
- GER and PVH shall require contractors to adhere to project plans and standard specifications applicable to the project.
- GER and PVH shall require contractors to implement the project specific SWPPP prior to soil disturbance and comply with the TCEQ CGP for the duration of construction.
- GER and PVH will require construction contractors to perform daily leak checks of the construction equipment.
- As practicable, GER and PVH will require construction contractors to clean equipment to prevent the spread of invasive species.
- GER's and PVH's contractors shall comply with the USACE nationwide permit program (NWP) and Section 10 Permit General Conditions, as applicable, including best management practices required by the permits.
- GER's and PVH's contractors shall limit the clearing of vegetation and topsoil to only the areas needed to accomplish the project; clearing activities will be selected to have the least amount of vegetation and soil disturbance practical.
- Woody vegetation clearing shall be done by GER and PVH via hand cutting; roots shall remain in place to maintain soil stabilization where feasible.
- When practicable, GER and PVH shall attempt to prevent debris resulting from structure removal or construction activities from entering the Rio Grande River. Any debris that fall into the river must be removed and placed in upland areas away from the Rio Grande River that are not easily inundated by flooding and at least 100 feet from the OHWM by the end of each day.
- If temporary work pad areas are used, all temporary fill placed within the OHWM by GER and PVH shall be non-erodible during a two-year or higher flood event per permit requirements (i.e., temporary fill material must not travel downstream if the Rio Grande River experiences

floodwaters typical of a two-year flood event). Permanent discharge of work pad fill material into the Rio Grande River is prohibited.

- GER and PVH shall limit ground-disturbing activities from heavy machinery in areas with steep slopes (areas with slopes greater than 3:1) where practicable.
- GER and PVH shall perform additional freshwater mussel relocation surveys in response to significant flood events that could result in mussels being displaced from upstream habitat and settling within the action area. A significant flood event would be defined as a flow event exceeding a magnitude equal to or greater than 13,533 cubic feet per second (equivalent to the 9-foot stage identified as a flood action category at National Oceanic and Atmospheric Administration (NOAA) river gage EPPT2 located on the Rio Grande River at Eagle Pass).[2]
- GER and PVH shall require contractors to perform dust-reducing water-spraying during construction activities
- Vegetation removal/land clearance will be restricted during peak periods of monarch butterfly migration through Texas, i.e., March through April and late September through early November (TPWD, 2025).

6.3 Measures to be Implemented Following Construction Activities

- GER and PVH shall re-grade instream or bank habitats that have been destabilized during construction to their pre-construction contours or better.
- GER and PVH shall comply with USACE NWP and/or Section 10 Permit General Conditions as applicable to this project.
- GER and PVH shall revegetate disturbed areas according to TCEQ CGP and project-specific SWPPP, in compliance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping using the prescribed seed mix. Revegetation efforts shall provide appropriate and sustainable cover to prevent erosion and siltation.
- GER and PVH shall conduct post-construction revegetation using seed drilling, hydroseeding, or hydro mulch. If erosion blankets are used to help secure seed, GER and PVH shall use blankets of natural fiber netting that are wildlife friendly; blankets with nylon netting shall not be used.
- GER and PVH shall remove all temporary erosion and sedimentation BMPs once final stabilization is reached and at the completion of the project in accordance with the TCEQ CGP and project-specific SWPPP.
- GER and PVH shall plant rights-of-way with native grasses, milkweeds, and nectar plants that are native to the area for protection and enhancement of monarch butterfly populations.
- GER and PVH shall mandate using a mowing deck height of 12 inches, where practicable, for right-of-way maintenance to protect native vegetation communities and combat the establishment of invasive plant species.

[2] https://water.noaa.gov/gauges/EPPT2

- GER and PVH shall prohibit the use of insecticides and herbicides during peak periods of monarch butterfly migration through Texas (March through April and late September through early November)
- GER and PVH shall avoid the use of insecticides and herbicides whenever possible to avoid harming monarch butterflies and milkweeds and shall employ a targeted approach to pesticide applications when their use is warranted.

7 Determination of Effects

For listed species and designated critical habitat effect determinations, there are three possible findings (USFWS and National Marine Fisheries Service [NMFS], 1998):

- "No effect" means there would be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources would be exposed to action and its environmental consequences. Concurrence from the USFWS is not required.
- "May affect, but not likely to adversely affect" means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.
- "May affect, likely to adversely affect" means that listed resources are likely to be exposed to the action or its environmental consequences and will respond in a negative manner to the exposure. The ESA requires the federal action agency request initiation of formal consultation with the Service when this determination is made. A written request for formal consultation should accompany the biological assessment/biological evaluation.

For species proposed for listing and for proposed critical habitat, the possible findings for effect determinations are different. For species, the findings are ***likely*** or ***not likely to jeopardize*** the proposed species. To jeopardize a species means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. [50 C.F.R. § 402.02]." For proposed critical habitat, the findings are will or will not ***adversely modify***. The destruction or adverse modification of critical habitat means "a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical. [50 C.F.R. § 402.02]."[3]

[3] Should a proposed species or critical habitat become listed during the environmental review process for the proposed line and the associated CMV Facility, OEA, in consultation with USFWS, would reevaluate the finding for the relevant species or critical habitat.

7.1 Species

7.1.1 Texas Hornshell

If all proposed construction plans and mitigative measures are implemented, the project ***may affect, but is not likely to adversely affect*** the Texas hornshell. As previously discussed, an intensive mussel survey was performed in September of 2024 using the current USFWS and TPWD protocol, including the special requirements (i.e., additional bedrock, boulder, and bank searches) designed specifically for the Texas hornshell. No live specimens or relic shell material of this species were collected during the survey. The most current occurrence (since 2011) of this species is in the Rio Grande River upstream, near the town of Jiménez, which is more than 25 miles (direct route) from the action area. Other "recent" locations are well over 50 miles upstream or downstream (Randklev et al., 2023). Additionally, habitat for the Texas hornshell was severely degraded in the survey area. In the few areas where potentially suitable habitat for this species was likely to be present (i.e., outside the bend of U.S. side of the river with rock ledges), there was almost no moving water present; the area was more characteristic of pool/lentic habitat and a deep layer of silt/clay covered all substrate. Photographs in *Attachment C* illustrate the thick, easily-disturbed sedimentation encountered along the U.S. bank of the Rio Grande River. Overall, conditions in the survey area do not appear suitable for the Texas hornshell.

7.1.2 Mexican Fawnsfoot

If all proposed construction plans and mitigative measures are implemented, the project would ***not be likely to jeopardize*** the Mexican fawnsfoot. While some adverse impacts are likely to occur from the construction and operation of the proposed line and the associated CMV Facility, these impacts would not appreciably reduce the likelihood of both the survival and recovery of this species.

7.1.3 Monarch Butterfly

If all proposed construction plans and mitigative measures are implemented, the proposed line and the associated CMV Facility would ***not be likely to jeopardize*** the monarch butterfly. While some adverse impacts are likely to occur as a result of the construction and operation of the proposed line and the associated CMV Facility, these impacts would not appreciably reduce the likelihood of both the survival and recovery of this species.

7.2 Critical Habitat

The proposed line and the associated CMV Facility would have ***no effect*** on any designated critical habitat, because no designated critical habitat currently exists in the action area for any of the species of concern addressed in this BA. The proposed line and the associated CMV Facility would have ***no effect*** on proposed critical habitat for Monarch Butterfly, because the project is not located within this species' proposed critical habitat. The proposed line and the associated CMV Facility would ***not adversely modify*** the proposed critical habitat for the Texas hornshell and Mexican fawnsfoot because they would not result in a direct or indirect alteration that appreciably diminishes the value of the critical habitat for both the survival and recovery of these proposed species.

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9 List of Preparers and Contacts

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Karen Stevens, Environmental Protection Specialist

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Christian Crow, Biologist (M.S., Fisheries Science, B.S., Zoology; 37 years of experience as aquatic ecologist.)

Attachment A – IPaC List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal & Central Plains Esfo
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
Phone: (281) 286-8282 Fax: (281) 488-5882

In Reply Refer To: 10/23/2024 13:57:19 UTC
Project Code: 2024-0098113
Project Name: Green Eagle Railroad

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Corpus Christi, Fort Worth, and Alamo, Texas, have combined administratively to form the Texas Coastal Ecological Services Field Office. All project related correspondence should be sent to the field office address listed below responsible for the county in which your project occurs:

Project Leader; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058
Angelina, *Austin*, *Brazoria*, *Brazos*, *Chambers, Colorado, Fayette, Fort Bend, Freestone, Galveston, Grimes, Hardin, Harris, Houston, Jasper, Jefferson, Leon, Liberty, Limestone, Madison, Matagorda, Montgomery, Newton, Orange, Polk, Robertson, Sabine, San Augustine, San Jacinto, Trinity, Tyler, Walker, Waller, and Wharton.*

Assistant Field Supervisor, U.S. Fish and Wildlife Service; 4444 Corona Drive, Ste 215; Corpus Christi, Texas 78411
Aransas, Atascosa, Bee, Brooks, Calhoun, De Witt, Dimmit, Duval, Frio, Goliad, Gonzales, Hidalgo, Jackson, Jim Hogg, Jim Wells, Karnes, Kenedy, Kleberg, La Salle, Lavaca, Live Oak, Maverick, McMullen, Nueces, Refugio, San Patricio, Victoria, and Wilson.

U.S. Fish and Wildlife Service; Santa Ana National Wildlife Refuge; Attn: Texas Ecological Services Sub-Office; 3325 Green Jay Road, Alamo, Texas 78516
Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata.

For questions or coordination for projects occurring in counties not listed above, please contact arles@fws.gov.

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your

proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/media/endangered-species-consultation-handbook.

Non-Federal entities may consult under Sections 9 and 10 of the Act. Section 9 and Federal regulations prohibit the take of endangered and threatened species, respectively, without special exemption. “Take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. “Harm” is further defined (50 CFR § 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. “Harass” is defined (50 CFR § 17.3) as intentional or negligent actions that create the likelihood of

injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Should the proposed project have the potential to take listed species, the Service recommends that the applicant develop a Habitat Conservation Plan and obtain a section 10(a)(1)(B) permit. The Habitat Conservation Planning Handbook is available at: https://www.fws.gov/library/collections/habitat-conservation-planning-handbook.

Migratory Birds:
In addition to responsibilities to protect threatened and endangered species under the Act, there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts visit: https://www.fws.gov/program/migratory-birds.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable National Environmental Policy Act (NEPA) documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal & Central Plains Esfo
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
(281) 286-8282

PROJECT SUMMARY

Project Code: 2024-0098113
Project Name: Green Eagle Railroad
Project Type: Railroad - New Construction
Project Description: Develop an economically viable solution to meet the need for border infrastructure improvements at Eagle Pass that increases safety and facilitates binational trade between the United States and Mexico

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@28.7461008,-100.50339890767955,14z

Counties: Maverick County, Texas

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind related projects within migratory route. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Related Projects Within Migratory Route Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

CLAMS

NAME	STATUS
Mexican Fawnsfoot *Truncilla cognata* There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7870	Proposed Endangered
Salina Mucket *Potamilus metnecktayi* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8753	Proposed Endangered
Texas Hornshell *Popenaias popeii* There is **proposed** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/919	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

There are 2 critical habitats wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Mexican Fawnsfoot *Truncilla cognata* https://ecos.fws.gov/ecp/species/7870#crithab	Proposed

NAME	STATUS
Texas Hornshell *Popenaias popeii* https://ecos.fws.gov/ecp/species/919#crithab	Proposed

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO BALD AND GOLDEN EAGLES WITHIN THE VICINITY OF YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
Brownsville Curve-billed Thrasher *Toxostoma curvirostre oberholseri* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11981	Breeds Feb 15 to Aug 15
Chihuahuan Raven *Corvus cryptoleucus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/11945	Breeds Apr 1 to Aug 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Meadowlark *Sturnella magna* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9455	Breeds Apr 25 to Aug 31
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-billed Curlew *Numenius americanus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere
Orchard Oriole *Icterus spurius* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9457	Breeds Jun 10 to Aug 15
Painted Bunting *Passerina ciris* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9511	Breeds Apr 25 to Aug 15

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper

Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- R5UBH
- R4SBC

IPAC USER CONTACT INFORMATION

Agency: VHB
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LEAD AGENCY CONTACT INFORMATION

Lead Agency: Surface Transportation Board

Attachment B – Construction Equipment

Construction Equipment for the Southern and Northern Rail Alternatives	
Earthworks	
Excavation	
International 4200 Dump Truck (8 cubic yard [yd^3] capacity)	Caterpillar 140H Motor Grader
Front Loader on Tires	Ingersoll-Rand Compactor
Embankment, Complementary Works	
Front Loader LG938 (2024)	Hyundai Compacter (165 horsepower [hp])
Kenworth Dump Truck T680 (18 yd^3 capacity)	4x2 Water Tanker Truck T5G (2024) (12-ton capacity, 240 hp) with 2,600-gallon capacity
Grader GR35	
Southern and Northern Rail Alternatives	
All-Terrain Link Belt Lifting Crane (50-ton capacity)	Plasser Theurer Track Leveling Equipment
Bradt Track Maintenance Truck	Front Loader LG938 (2024)
Plasser Theurer Ballast Regulator	
New Rail Bridge and Complementary Works	
Kenworth Flatbed Truck (46-ft length)	Sullair 360 Air Compressor
Grader GR35	Piledriver Machine
Hyundai Compacter (600 hp)	All-Terrain Link Belt Lifting Crane (50-ton capacity)

Construction Equipment for the Commercial Motor Vehicle (CMV) Facility	
Earthworks	
Front Loader LG938 (2024)	Hyundai Compacting Roller (165 hp)
Excavator Capacity (5 yd^3 capacity)	Tamping Rammer
Bulldozer Capacity (10 yd^3 capacity)	Backhoe
Front Loader on Tires	Double Drum Compactor
4x2 Water Tanker Truck T5G (12-ton capacity, 240 hp) with 5,000-gallon capacity	Ingersoll-Rand Compactor
Dump Truck Brand International 4300 (8 yd^3 capacity)	Kenworth T680 Dump Truck (18 yd^3 capacity)
Caterpillar 140H Motor Grader (165 hp)	
Pavement	
Bitumen Distributor	Backhoe
Asphalt Plant	Double Drum Compactor
Crushing Mill Plant	Ingersoll-Rand Compactor
Stone Screens	Kenworth T680 Dump Truck (18 yd^3 capacity)
Asphalt Paver	
Buildings	
Concrete Plant	Excavator
Light Plant	Truck with Crane (16-ton capacity)
New Road Bridge	
Concrete Plant	Truck with Crane (16-ton capacity)
Trailer Dolly (50-ton capacity)	Tireless Cranes (80-ton capacity)
Stake Truck (8-ton capacity)	Link Belt All Terrain Crane (50-ton capacity)
Light Plant	Tireless Cranes (20-ton capacity)
Concrete Vibrator (8 hp)	Bentonite Pump
Hydraulic Drill	Prestressing Equipment
Perimeter Fence	
Backhoe	
Complementary Works	
Backhoe	

Attachment C - Photographs

Representative view of scrub-shrub habitat in project area

Representative view of scrub-shrub habitat in project area

Representative view of scrub-shrub habitat in project area

View of scrub-shrub habitat along Seco Creek in project area

Representative view of agricultural lands in project area

Representative view of agricultural lands in project area

Representative view of agricultural lands in project area

View along edge of agricultural lands and scrub-shrub habitat in project area

Downstream view of the Rio Grande and Seco Creek confluence

Upper section of Seco Creek in project area (Note nectar producing flowers for Monarch Butterfly foraging.)

View of illegal dump in the project area

View of deterrent fencing along Rio Grande in project area

View of the Rio Grande during mussel survey looking upstream (Mexican side on left and U.S. side on right; Note vegetation difference.)

View of the Rio Grande during mussel survey looking downstream (Note sheer bank in background typical of the U.S. side of the river.)

Close-up view of sheer, eroding banks on U.S. side of river (Note strata of exposed claypan.)

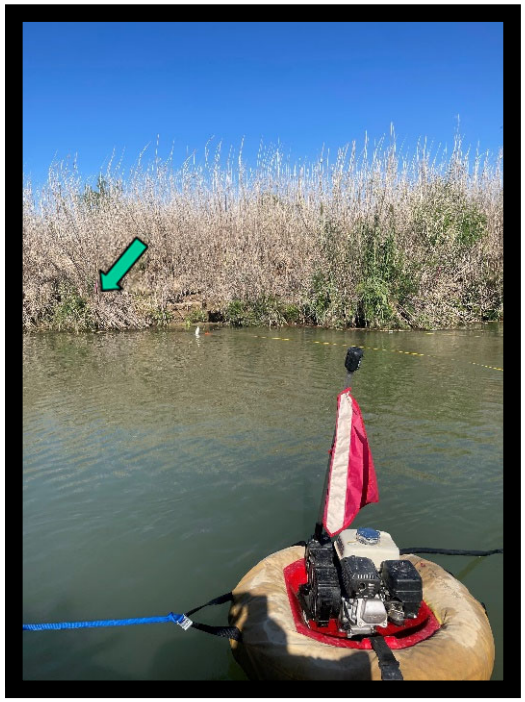
View of easily disturbed soft clay/sediment on U.S. side of river (Note turbidity plume.)

View of the Rio Grande during mussel survey looking upstream (Note shallower, lower gradient river channel on Mexican [left] side with emergent vegetation and willlows.)

Close-up view of shallower Mexican side of Rio Grande in study area

View of confluence of Seco Creek and Rio Grande

View from mouth of Seco Creek at Mexican side of Rio Grande (Note emergent aquatic vegetation in shallow water.)



View of the Rio Grande during mussel survey looking at U.S. side (Note small area of sheer bank and dominant Giant Reed [*Arundo donax]* covering bank.)

Close-up view of U.S. side of Rio Grande during the mussel survey (Note highly turbid water from easily disturbed soft sediment/clay along this bank.)

Close-up view of U.S. side of Rio Grande in study area showing dominant Giant Reed over hanging river from bank