STATE CATEGORICAL EXCLUSION

South Orient Rail Road

From MP 869.4 to MP 881.92

Bridge Replacement/Repairs and Rail and Tie Replacements - CSJ: 7107-09-002

Pecos County

Texas Department of Transportation

October 2011

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South Orient Rail Road (SORR) – MP 869.4 to MP 881.92
Pecos County

I. Proposed Action

Proposed Action

The Texas Department of Transportation (TxDOT) proposes to repair/replace bridges, replace rail and ties and ballast materials, as well as, replace grade crossings on the South Orient Rail Road in Pecos County. The purpose of the proposed project is to provide improved safety features which meet current standards and allow the freight trains to move at increased speeds (ie. until 2001 trains moved at up to 30 mph and currently are restricted to 10 mph). Project location maps, USGS maps, aerial photos, project photos **(Appendix A)** and typical **(Appendix B)** are included.

Existing Facility

The South Orient is a railroad line located generally parallel to U.S. 67 in the region. The existing railroad main line is a single track facility. The railroad line travels through predominantly rural areas between Coleman (San Angelo Junction) and Presidio. The three existing bridges on this portion of the South Orient Rail Road (SORR) line are timber trestle bridges. These bridges are located at Mile Points (MP) 870.9, 875.7, and 877.6. There are other small culverts of various materials (timber, metal, and concrete) within the limits of proposed work. There are numerous at grade crossings (private and public roadways) within these limits. These crossings are merely signed. The existing right-of-way for the SORR is 100-ft wide. Previous projects over the past two years have rehabilitated the line by improving roadway crossings of the rail, replacing ties and rail in certain areas, and replacing a bridge (Colorado River Bridge – Ballinger). Further work has been let for construction recently including bridge repair/replacements and a siding on the eastern end of the rail line. (See existing typical sheets and project element table – **Appendix B**)

Proposed Facility

This proposed project consists of various repairs to two bridges, one bridge replacement, rail replacement, tie replacement, crossing replacement, and ballast addition within the project limits. The bridge repairs work at 870.9 and 875.7 includes: shims between piles and caps, stringer replacement, pile repair/replacement, stringer repair/replacement, curb replacement, deck tie replacement, abutment retaining wall addition/replacement, and bent bracing. The bridge requiring replacement (877.6) would be replaced with a concrete spanning structure of approximately 70' in length. Depth of impacts will be up to 40-ft for drill shafts and < ~6-ft for any excavation. Access to these bridges will be from the railroad ROW and/or via county and private roads. The remaining two bridges require various repairs, as mentioned above. All of the bridges within the limits were originally built between 1909 and 1981. Various designated areas are located within the ROW for storage of equipment and materials. The specific areas of repair/replacement would require

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temporary storage of equipment and materials during the repairs/replacements.

Funding

As of October 29, 2011, the total project cost is currently estimated at $14,183,055. Funding for the project is anticipated to be a combination of federal ($9,553,630 from a possible TIGER grant) and private funds from Texas Pacifico Transportation, the Operator ($4,629,425). The project CSJ is included in the STIP.

Need and Purpose

The project is needed since the existing condition of the infrastructure at these locations continues to deteriorate causing unsafe rail conditions within the limits of this project. The purpose of the project is to bring the infrastructure up to historic operating conditions.

Alternatives

- The no-build alternative would not result in any modifications to the existing railroad infrastructure. The existing facility would continue to be in its current condition and therefore not improve the existing infrastructure to accommodate freight rail traffic more efficiently and safely. The No Build alternative, though less costly, would not meet the project's need and purpose.

- The rehabilitation alternative was also considered. The rehabilitation alternative would improve the rail infrastructure within the limits of the project and allow for safer movement of freight across this section of rail line. By rehabilitating the railroad infrastructure within the limits of this project; the project would provide improved safety for the train traffic, improved freight movement efficiency, and thus would meet the project's purpose and need.

The "No Build" alternative was considered, but was determined to not meet the project's need. If this segment of the rail line is not repaired, it is expected to become inoperable within the next 5 to 10 years. The repair and replacement alternative would meet the project's need and purpose, and thus is the preferred alternative.

Existing and Proposed Right-of-Way

The existing right-of-way (ROW) is approximately 100-ft wide. No new ROW is required for this proposed project. Any utilities within the proposed project area would be relocated prior to the beginning of construction.

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Section 4(f) of the Department of Transportation Act

The proposed project would not require the use of publicly owned land from a Public Park, recreational area, wildlife, and waterfowl refuge lands or historic sites of national, state, or local significance. Section 4(f) evaluation is not required.

II. Description of Surrounding Area

The project site is located in the Trans Pecos Natural Region of Texas. The project is located in Pecos County. The project area itself is primarily rural and contains vegetation associated with small ephemeral creeks and rangeland. The land use adjacent to the rail line in Pecos county consists almost entirely of ranching, but passes through the town of Fort Stockton. Within Fort Stockton the land use adjacent to the tracks is associated with farming, ranching, and manufacturing. The dominant vegetation types surrounding the project areas are listed as Crops (44), Creosote - Tarbush Shrub (6), and Mesquite Juniper Brush (13b). Soils within the project areas vary and include soils: Lozier, Upton, Balmorhea, Reeves, Reakor, Hoban, Iraan, and Reagan-Hodgins. Many of the soils are clay loams.

III. Specific Areas of Environmental Concern

Socioeconomic Resources

Community Impacts

According to a windshield survey; the project area covers many areas including: a small rural community, ranching properties, and some urban residential and industrial. No relocations or displacements would occur, no existing neighborhoods would be divided, and disruptions to the normal daily activities in these areas are not expected to be extraordinary. The proposed project would typically not impact traffic on the railroad or vehicular roadway during construction more than briefly and thus would not cause intolerable changes in travel patterns.

Environmental Justice

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”, signed by President Clinton on February 11, 1994; requires each Federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations.”

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Disproportionately high and adverse human health or environmental effects are defined by FHWA as adverse effects that:

1. are predominately borne by a minority population and/or a low-income population or
2. would be suffered by the minority population and/or low-income population and are appreciably more severe or greater in magnitude than the adverse effects that would be suffered by the nonminority population and/or non-low-income population.

FHWA has identified three fundamental principles of environmental justice:

1. To avoid, minimize or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations;

2. To ensure full and fair participation by all potentially affected communities in the transportation decision-making process;

3. To prevent the denial of, reduction in or significant delay in the receipt of benefits by minority populations and low-income populations.

From a drive-by land use analysis performed by a district environmental specialist, it appears that the project area has areas of greater minority or low-income population. A low income population is defined as one with a median annual income for a family of four equal to or below the national poverty level of $22,350 (Department of Health and Human Services -2011). Although the project limits contain areas of low income and minority populations, the project would not pose disproportionately high and adverse human health or environmental effects or impact these populations in the receipt of benefits. As mentioned previously, the majority of the adjacent properties are of a rural nature (crops and rangeland) and the majority of the urbanized portion consists of industrial buildings with a small number of residences adjacent. While some of these residences may have LEP populations; this project will not disrupt this population adversely or impact the travelling public negatively. Noise and activity associated with the project would be transient in nature and not abnormal for rail facilities. The type of work proposed is maintenance in nature and thus is typical to the area.

Minority means a person who is:

- Black (having origins in any of the black racial groups of Africa);
- Hispanic (of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race)
- Asian American (having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or

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- American Indian and Alaskan Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

The proposed project is not anticipated to have disproportionately high or adverse impacts on minority or low-income populations and the requirements of EO 12898, on Environmental Justice, would be satisfied.

Limited English Proficiency

Executive Order (EO) 13166, *Improving Access to Services for Persons with Limited English Proficiency (LEP)* requires federal agencies to examine the services they provide and identify any need for services to those with LEP, and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. Windshield surveys and site visits conducted on multiple occasions over the last two years revealed no particular indications that LEP populations reside in proximity to the project.

Public involvement is not required as part of this proposed project. However, Texas and west Texas in particular have large Hispanic populations. This is an existing rail alignment which has been in place for many years in these areas, likely provided employment, or other opportunities and therefore is a realized fixture of these communities and thus would not impact these populations negatively. Therefore, if public involvement becomes necessary for this project; TxDOT would undertake to include LEP populations and comply with Title VI of the Civil Rights Act and Executive Order 13116. Any public involvement/outreach would be conducted in a manner so that all interested parties can provide both oral and written comments concerning the proposed project. Reasonable arrangements (such as special communication interpreters or accommodation needs) would be taken to ensure all persons have meaningful access to the programs, services, and information TxDOT provides. Therefore, the requirements of Executive Order 13166 appear to be satisfied.

<u>Cultural Resources</u>

Cultural resources are structures, buildings, archeological sites, districts (a collection of related structures, buildings, and/or archeological sites), cemeteries, and objects. Both federal and state laws require consideration of cultural resources during project planning. At the federal level, the National Environmental Policy Act (NEPA) of 1969 and the National Historic Preservation Act (NHPA) of 1966, among others, apply to transportation projects such as this one. In addition, state laws such as the Antiquities Code of Texas apply to these projects. Compliance with these laws often requires consultation with the Texas Historical Commission/Texas State Historic Preservation Officer and/or federally-recognized tribes to determine the project's effects on

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cultural resources. Review and coordination of this project followed approved procedures for compliance with federal and state laws.

Historic Resources

This project is currently being handled by professional historians within TxDOT and will be coordinated appropriately with the Texas State Historic Preservation Officer/Texas Historic Commission.

Archeological Resources

Based on the archeological study, no further work is warranted. The background study found that the project area had been extensively disturbed, precluding the possibility of it containing any intact archeological deposits. Consultation with federally recognized Native American tribes with a demonstrated historic interest in the area was initiated on September 16, 2011. No objections or expressions of concern were received within the comment period. TxDOT and the THC/TSHPO consulted on the project impacts. The THC/TSHPO concurred that the project will not affect archeological resources that would be afforded further consideration under cultural resource laws on September 9, 2011 completing consultation and processing of this project (See Appendix C).

In the event that unanticipated archeological deposits are encountered during construction, work in the immediate vicinity will cease, and TxDOT archeological staff will be contacted to initiate post-review discovery procedures.

<u>Water Resources</u>

The proposed work at the bridge crossings contain potential waters of the U.S and are thus regulated by the United States Army Corp of Engineers (USACE) under Section 404 of the Clean Water Act (CWA).

Waters of the United States (Section 404 of the CWA) and Wetlands

The placement of temporary or permanent dredge or fill material into [potentially] jurisdictional Waters of the United States would be authorized under NWP 14 without a Pre-Construction Notification (PCN) for the replacement bridge and NWP 3 without a Pre-Construction Notification (PCN) for the bridge repairs. The purpose of the proposed activity is to repair/replace linear transportation facilities at mile points 870.9, and 875.7 877.6. An analysis of USGS topographic maps, FEMA maps, and field reconnaissance reveal potentially jurisdictional Waters of the U.S. that would be impacted by the proposed project. No wetlands would be impacted by the project.

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The Ordinary High Water Marks (OHWM) varies depending on the location. The project would require permanent placement of materials at the replacement location within the OHWM and temporary access of equipment within the OHWM during construction would be required at all of the locations. Sediment and erosion controls would be in place to prevent sediment fill into these potentially jurisdictional waters.

Table 1. Impacts to Waters of the United States

Waterbody	Existing Structure	Proposed Work or Structures	**Permanent Impacts** Waters (acres)	Wetlands	**Temporary Impacts** Waters acres	Wetlands	NWP #	PCN
870.9 unnamed	B.D.P.T. 98-ft length	NA	0.00	0.00	0.046	0.00	3	N
875.7 unnamed	B.D.P.T. 42-ft length	NA	0.00	0.00	0.046	0.00	3	N
877.6 Comanche Creek	B.D.P.T. 70-ft length	70-ft concrete spanning structure	0.01	0.00	0.05	0.00	14	N
Acronym Descriptions	BD= ballast deck, PT= pile timber							

The maintenance activities at the two locations mentioned in Table 1 would result in approximately 0.092 acres of temporary impacts within waters of the U.S. This impact is due to changes in materials to repair the bridges and make them safe for train traffic. The purpose of the project is not to add capacity or relocate a bridge. Therefore the activity would be authorized under paragraph (a) OF NWP 3.

The purpose of the proposed activity is to construct the linear transportation facility at MP 877.6 (Comanche Creek). The bridge replacement activities at this location would result in 0.01 acres of temporary impacts and 0.05 acres of permanent impacts within waters of the U.S. Appropriate measures would be taken to maintain normal downstream flows and minimize flooding. Temporary fills would consist of materials and be placed in a manner that would not be eroded by expected high flows. Temporary fills would be removed in their entirety and the affected area returned to pre-construction elevations, and re-vegetated as appropriate. Stream channel modification, including bank stabilization, would be limited to the minimum necessary to construct or protect the structure and the immediate vicinity of the project.

The activities would comply with all general and regional conditions applicable to NWP 14 and NWP 3. A preconstruction Notification (PCN) for NWP 14 or NWP 3 at the various locations in Table 1 would not be required because the impacts within the Water of the U.S. are less than 1/10 acre or are allowable maintenance activities. There are no historic properties listed or eligible for listing on the National Register of Historic Places.

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The activities at the locations mentioned in Table 1 have been identified as single and complete projects as defined in the Nationwide Permits because each crossing is over separate water or over a single water at separate and distant locations along the railway.

Section 401 Compliance of the CWA

The 401 Certification requirements for NWP 3 would be met by implementing approved BMP's including: erosion controls and sediment controls BMPs from TCEQ's 401 Water Quality Certification Conditions for Nationwide Permits.

Executive Order 11990, Wetlands

Executive Order 11990 on wetlands does not apply because no wetlands will be impacted.

General Bridge Act of 1946 & Rivers and Harbors Act of 1899, Section 10

Section 9 and Section 10 of the Rivers and Harbors Act do not apply since this project does not involve work in or over a navigable water of the U.S. Therefore, neither a U.S. Coast Guard Section 9 Permit nor a Section 10 Permit would be required.

Section 303(d) of the Clean Water Act

Runoff from this project would not discharge directly into Section 303 (d) listed threatened or impaired waters, or into streams within 5 miles upstream of Section 303 (d) listed threatened or impaired waters. The 2008 303(d) list was utilized in this assessment.

Section 402 Compliance of the CWA, Construction General Permit

This project would include one or more acres of earth disturbance, but less than five acres. TxDOT would comply with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP). A Storm Water Pollution Prevention Plan (SW3P) would be prepared and implemented, and a construction site notice would be posted on the construction site. A Notice of Intent (NOI) would not be required.

Section 402 Compliance of the CWA, MS4

This project is not located within the boundaries of a regulated Municipal Separate Storm Sewer System.

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Floodplain

Pecos County does not participate in the National Flood Insurance Program (NFIP), but Fort Stockton does participate. The hydraulic design practices of this project would be in accordance with current TxDOT and FHWA design policies and standards. The proposed project would not increase the base flow elevation to a level that would violate applicable floodplain regulations or ordinances. Any activities within the mapped floodplain would be informally coordinated with the local floodplain administrator.

Hazardous Material or Waste Sites

The proposed project includes the demolition of one bridge and the renovation of two bridges. The bridge replacement location requires drill shafts with minimum 31-ft depth. The other bridges will have either minimal or no excavation (<3-ft depth) or are in areas that are rural and without close proximity (1 mile) to hazardous material generators. The bridges may contain asbestos containing materials (ACM) and shall be inspected to verify the presence or absence of ACM. Prior to bridge demolition, a 10-day Notification shall be submitted to the Department of State Health and Human Services (DSHS).

Based on the limited subsurface work and the lack of newly acquired right-of-way, the potential to encounter contamination during the proposed improvements seems low. Although no contamination is expected to be encountered, it is not uncommon to come across previously unknown issues. If contamination is discovered during the actual construction, all Federal and State rules will be followed. If further investigation is required and hazardous materials are discovered, they would be handled, removed, and disposed of incompliance with applicable local, state, and federal regulations.

Biological Resources

Migratory Bird Treaty Act

The project area was investigated for any structures/areas containing migratory birds or indications of nesting migratory birds. No nests were observed and vegetation removal would be minimized. Migratory birds may arrive in the project area to breed during construction of the proposed project. Measures would be taken to avoid the take of migratory birds, their occupied nests, eggs, or young, in accordance with the Migratory Bird Treaty Act, through phasing of work or preventative measures.

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Magnuson-Stevens Fishery Conservation and Management Act (Essential Fish Habitat)

No tidally influenced waters are included in the proposed project, nor does the project area contain essential fish habitats.

Fish and Wildlife Coordination Act (FWCA)

This project is authorized under a 404 Nationwide Permit; therefore, the United States Fish & Wildlife Service (USFWS) considers FWCA coordination to have been completed as part of the NWPs review last authorized and reissued in 2007.

Farmland Protection Policy Act (FPPA)

There would be no new ROW required for the proposed project; therefore, the project is exempt from coordination with Natural Resource Conservation Service (NRCS).

Executive Order 13112 on Invasive Species/Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping, landscaping would be limited to seeding and replanting the ROW with native species of plants where possible. Soil disturbance would be minimized to reduce the establishment of invasive species in the ROW.

Vegetation

The proposed project is located in the Trans Pecos Natural Region of Texas and the mapped Vegetation Types of Texas[1] vary from Crops (44), Creosote - Tarbush Shrub (6), and Mesquite Juniper Brush (13b) designations, which are consistent with some of the vegetation inside of the ROW. The vegetation in the ROW is maintained for approximately 15-ft to 20-ft each side of the tracks and consists of native grasses and forbs. The vegetation adjacent to this 15-ft to 20-ft buffer varies depending on the area. The primary species in these areas between the buffer and ROW fence include mesquite, lotebush, other small shrub species, and various forbs and grasses. The surrounding area consists of rangeland and a small portion of the project includes adjacent urban areas (Fort Stockton) with industry and residential. The woody canopy in the surrounding areas varies from 0% to 10%.

There are three distinct areas of cover within the areal impact of the proposed project. The **first** area is the area directly adjacent to the rail road tracks [maintained track buffer area (buffer of 15-ft to 20-ft)] consisting of various native and introduced grasses and forbs 99% cover (some Mesquite saplings 1% cover. The **second** area is the channel/drainage area (area within Ordinary High Water Mark, if present) which consists of bare ground 15%, small mesquites

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15%, and various native grasses and forbs 70%. This second area would be considered an unusual vegetation type/special habitat feature (riparian/historically spring fed). The small creek drainages potentially impacted during construction, including Comanche Creek, historically provided habitat for a number of the species included in Tables 4-6. These streams appear to be ephemeral in nature now and therefore do not carry enough water for durations long enough to support any of the rare aquatic/riparian species included in Tables 4-6. The **third** area is the previously established material storage locations adjacent to the tracks within the project limits. The material storage areas consist of approximately 95% well maintained grasses and forbs with 5% bare ground. Vegetation would typically be impacted only by equipment driving over it. Removal of vegetation via pushing and removing the root system would not be required except when bridge sub-structural members are replaced and/or the entire bridge is replaced. The areas of the physical removal of vegetation would be limited to the area under the bridges and within 30-ft of the sides of bridges. TxDOT Brownwood District Environmental staff conducted a field survey of the proposed areas to assess the potential impacts of the proposed project on the vegetation and wildlife. The areal extent of vegetation to be impacted would be approximately 4.3 acres **(See Table 2)**.

Impacted Vegetation

The project area consists of three distinct areas of vegetation removal of which are not defined in the Vegetation Types of Texas.

[1]Source: *The Vegetation Types of Texas* by Craig McMahan, Roy G. Frye, and Kirby L. Brown, PWD Bulletin 7000-120, September 1984.

The project's anticipated impacts to vegetation are addressed in **Table 2.**

Table 2. Impacts to Vegetation

Vegetation	***Amount Impacted (acres)***	**DBH Range (in)**	**Height Range (ft)**
1)Maintained Track Buffer Area	0.4	NA	NA
2)Channel/Drainage Area	0.5	NA	NA
3) Material Storage Locations	**3.4**	NA	NA
Total Vegetation Impacted	**4.3**	<sapling	2 ft – 6 ft
Total Disturbed Area	**4.3**		

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Table 3. Material Storage Location

Material Storage Location	MP	Lat	Long	Sq Ft	Acreage	Cross Street
1	880.88	30.90324	-102.86805	148,395	3.4	I-10
Total					**3.4**	

Compensatory Mitigation

Compensatory mitigation for impacts to wildlife habitat for the proposed project was considered during project planning in accordance with Provision (4) (A) (ii) of the TxDOT – Texas Parks and Wildlife Department (TPWD) MOU and the Memorandum of Agreement (MOA). The MOA designates the following habitat categories for which TxDOT would consider compensatory mitigation:

- Habitat for Federal candidate species (impacted by the project) if mitigation would assist in the prevention of the listing of the species.
- Rare vegetation series (S1, S2, or S3) that also locally provided habitat for a state-listed species.
- All vegetation communities listed as S1 or S2
- Bottomland hardwoods, native prairies, and riparian sites.
- Any other habitat feature considered locally important that the TxDOT district chooses to consider.

The existing vegetation within the project area includes one of the above criteria for consideration of non-regulatory mitigation. Impacts to riparian vegetation would be minimized by limiting the clearing of vegetation to only that necessary for construction and seeding the disturbed area and allowing natural succession to occur. Because of the minimal impacts associated with the proposed action, TxDOT does not propose compensatory mitigation for this activity.

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Protected Species

Federal and State Threatened and Endangered

The Texas Parks and Wildlife Department (TPWD) maintains annotated lists of rare species for all counties within Texas. The list includes known threatened or endangered species, as well as species of concern as identified by the United States Fish and Wildlife Service (USFWS) and the TPWD. The TPWD also maintains a database (Natural Diversity Database –NDD) of known species occurrences within the state. The NDD identified threatened or endangered species that have historically occurred in Pecos County. The Pecos County Annotated list was used in conjunction with the TPWD (NDD) during this project's evaluation of species and habitat. Habitat requirements for each of these species are described below and/or in **Appendix C – TPWD Annotated County Lists of Rare Species for Pecos County** (revisions 5/25/2011). These species listed status and the project's anticipated impacts are addressed in **Tables 4-6.** The TXNDD Mimic (date modified 3/10/2011) was accessed on 10/12/2011 and used in conjunction with Geographical Information System (GIS) to identify Elements of Occurrence and managed areas within a 1.5 miles radius of the project location. There were seven Elements of Occurrence including: EO-ID 238 and 4912 grayleaf rock-daisy, EO-ID 3951 Corell's green pitaya, EO-ID 2735 and 5908 longstalk heimia, EO-ID 5730 Pecos River Muskrat, and EO-ID 366 Pecos sunflower and no managed areas identified within 1.5 miles of the project locations. The NDD is a potential presence database only, and cannot be interpreted as presence/absence data.

The U.S. Fish and Wildlife Service (USFWS) maintain lists of endangered, threatened, and candidate species listed by state and county (**Appendix C)**. The USFWS list identified nine protected species that have potential for being located within Pecos County (**Table 4**). The following table (**Table 4**) lists these nine species which have endangered/threatened (seven) status or candidate (two) status within the United States, their protected status, and whether habitat is located within the proposed project area. This project would not affect any federally listed species, its habitat, or designated critical habitat, nor would it adversely impact any state listed species.

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Table 4. Federal (USFWS) Listed Threatened and Endangered Species for Pecos County

Species	Federal Status	State Status	Habitat	Impacts	Pertinent Information
Gonzales spring snail (*Tryonia circumstriata*)	**Candidate**	**-**	endemic; aquatic snail only known from a spring system and associated outflows in Pecos County; mud substrates on the margins of small springs and seeps, and marshes in flowing water associated with sedges and cattails; presumed to be fine particle feeders of detritus and periphyton within substrate	No Effect	The creeks within the project areas are generally ephemeral in nature and thus would not support this species. No springs are located within project area of effects.
Diamond Y spring snail (*Pseudotryonia adamantine*)	**Candidate**	**-**	endemic; aquatic snail only known from a spring system and associated outflows in Pecos County; mud substrates on the margins of small springs and seeps, and marshes in flowing water associated with sedges and cattails; presumed to be fine particle feeders of detritus and periphyton within substrate	No Effect	The creeks within the project areas are generally ephemeral in nature and thus would not support this species. No springs are located within project area of effects.
Black-capped Vireo (*Vireo atricapillus*)	**Endangered**	**Endangered**	oak-juniper woodlands with distinctive patchy, two-layer aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover	No Effect	No suitable habitat is present.
Leon Springs pupfish (*Cyprinodon bovinus*)	**Endangered**	**Endangered**	endemic to Leon Creek watershed in the Pecos River system; margins of spring-fed marsh pools, mostly away from vegetation	No Effect	The creeks within the project areas are generally ephemeral in nature and thus would not support this species. No springs are located within project area of effects.
Northern Aplomado Falcon (*Falco femoralis septentrionalis*)	**Endangered**	**Endangered**	open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species	No Effect	Potential habitat exists within the limits of the project area, However, the scale of the impact would be small, and not alter existing habitat. The vegetation removed for project elements would not affect this species.
Pecos/Puzzle sunflower (*Helianthus paradoxus*)	**Threatened**	**Threatened**	restricted to saline, calcareous, heavy-textured soils around cienegas; usually most abundant on perennially wet soils of subirrigated terraces just above the wettest sites; flowering August-November	No Effect	There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature.

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Species	Federal Status	State Status	Habitat	Impacts	Pertinent Information
Pecos assiminea snail (*Assiminea pecos*)	**Endangered**	**Endangered**	a member of the marine snail family, but represents the most inland snail of the genus; semiaquatic, usually found on moist ground or beneath emergent plants within a few centimeters of flowing water; only known remaining Texas population at near Fort Stockton, Pecos County; historical to the Pecos River Valley of New Mexico and Texas	No Effect	There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature. Off-track disturbance is limited to the three bridge locations which are generally ephemeral in nature.
Pecos gambusia (*Gambusia nobilis*)	**Endangered**	**Endangered**	Pecos River and tributaries; shallow margins of clear, vegetated spring waters high in calcium carbonate, as well as in sinkhole habitats	No Effect	There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature. No springs are located within project area of effects.
Mexican Spotted Owl (*Strix occidentalis lucida*)	**Threatened**	**-**	inhabit mature forests with 40% canopy enclosure, mixed aged stands, standing dead timber; also found in canyons dominated by vertical walled rocky cliffs; generally found in areas with a water source (perennial streams, springs, ephemeral water, pools, etc.).	No Effect	No suitable habitat is present.

Source: USFWS List for Pecos County accessed 9/15/2011 (**see Appendix C**)

The TPWD maintains lists for each county of species that they consider endangered, threatened or candidate within the state. **Table 5** lists these species minus those from Table 4, their protected status according to the TPWD, and whether habitat is located within the proposed project limits.

Table 5. (TPWD) State Listed Threatened and Endangered Species for Pecos County

Species	State Status	Habitat	Impacts	Pertinent Information
Peregrine Falcon (*Falco peregrinus*)	**Threatened**	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (*F. p. anatum*) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, thus the species level shows this dual listing status; because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat	No Impact	Potential migrant. This species is not listed as [T or E] by USFWS.

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American Peregrine Falcon (*Falco peregrinus anatum*)	**Threatened**	year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	No Impact	No suitable habitat is present.
Reddish Egret (*Egretta rufescens*)	**Threatened**	resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear	No Impact	No suitable habitat is present.
Zone-tailed Hawk (*Buteo albonotatus*)	**Threatened**	arid open country, including open deciduous or pine-oak woodland, mesa or mountain country, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions	No Impact	No suitable habitat is present.
Interior Least Tern (*Sterna antillarum athalassos*)	**Endangered**	subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also known to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	No Impact	No suitable habitat is present.
Comanche Springs pupfish **(***Cyprinodon elegans*)	**Endangered**	originally in Comanche Springs, San Solomon, and Phanton Cave, presently restricted to San Solomon and Phantom Cave and associated springs, and downstream irrigation canals; found in constantly discharging springs and in swift-flowing water of canals and earthen ditches, vulnerable to hybridization with C. variegatus	No Impact	No suitable habitat is present. There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature.
Pecos pupfish (*Cyprinodon pecosensis*)	**Threatened**	originally Pecos River basin, presently restricted to upper basin only; shallow margins of clear, vegetated spring waters high in calcium carbonate, as well as in sinkhole habitats	No Impact	No suitable habitat is present. There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature.

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Proserpine shiner (*Cyprinella proserpina*)	**Threatened**	Rio Grande and Pecos River basins; rocky runs and pools of creeks and small rivers	No Impact	No suitable habitat is present. There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature.
Black bear (*Ursus americanus*)	**Threatened**	bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened	No Impact	No suitable habitat is present.
Gray Wolf (*Canis lupus*) (extirpated)	**Endangered**	formerly known throughout western two-thirds of state in forests, brushlands, or grasslands	No Impact	No suitable habitat is present.
False Spike Mussel *(Quincuncina mitchelli*)	**Threatened**	substrates of cobble and mud, with water lilies present; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins	No Impact	No suitable habitat is present.
Texas hornshell *(Popenaias popeii*)	**Threatened**	both ends of narrow shallow runs over bedrock, in areas where small-grained materials collect in crevices, along river banks, and at the base of boulders; not known from impoundments; Rio Grande Basin and several rivers in Mexico	No Impact	No suitable habitat is present.
Texas horned lizard (*Phrynosoma cornutum*)	**Threatened**	open, arid or semi-arid regions with sparse vegetation, including grass, cactus, scattered brush, or scrubby trees; soil may vary in texture from sandy to rocky	May Impact	Harvester ants, the main food source for the Texas horned lizard were identified in/near areas of proposed construction. The contractor and other construction personnel would be informed of the potential for this species within the project areas and given instructions on how to deal with this species if encountered.
Trans-Pecos black-headed snake (*Tantilla cucullata*)	**Threatened**	small size with a uniform body color and a small, dark head; secretive; fossorial; mostly nocturnal; mesquite -creosote and pinyon-juniper-oak; eggs laid June-August; eat insects, spiders, and other invertebrates	May Impact	The areas of impact contain an abundance of mesquite. The contractor and other construction personnel would be informed of the potential for this species within the project areas and given instructions on how to deal with this species if encountered.

Source: TPWD Annotated County List of Rare Species for Pecos County (revision 5/25/2011)

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State Species of Concern

Habitat within and adjacent to the existing ROW could be suitable for several state species of concern, and so there is a potential that the project may impact a species of concern. **Table 6** lists these species, their protected status, and whether habitat is located within the proposed project area. However, given the limited nature of the proposed activity, efforts proposed to minimize and avoid removal of potential habitat, and the use of best management practices that would prevent water quality degradation, this potential for impact has been minimized.

Table 6. State (TPWD) Species of Concern for Pecos County

Species	Habitat	Pertinent Information
Arctic Peregrine Falcon (*Falco peregrinus tundrius*)	migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Potential migrant.
Baird's Sparrow (*Ammodramus bairdii*)	shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspetth counties	No suitable habitat is present within project impact areas.
Western Burrowing Owl (*Athene cunicularia hypugaea*)	open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows	Potential habitat exists within the limits of the project area, However, the scale of the impact would be small, and not appreciably alter existing habitat.
Ferruginous Hawk (*Buteo regalis*)	open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas	The area of impact may contain suitable habitat, but no trees suitable for nesting would be impacted.
Montezuma Quail (*Cyrtonyx montezumae*)	open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates	No suitable habitat is present

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Species	Habitat	Pertinent Information
Mountain Plover (*Charadrius montanus*)	breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous	No suitable habitat is present
Prairie Falcon (*Falco mexicanus*)	open, mountainous areas, plains and prairie; nests on cliffs	No suitable habitat is present. No cliffs are present within project impact area.
Sprague's Pipit (*Anthus spragueii*)	only in Texas during migration and winter; mid-September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges	No suitable habitat is present
Western Yellow-billed cuckoo (*Coccyzus americanus occidentalis*	status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept	No suitable habitat is present. There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature. Dense understory is not available in project specific locations.
Pecos amphipod **(***Gammarus pecos*)	endemic aquatic amphipod; omnivorous; amphipods are active mostly at night and spend daylight hours hiding under vegetation and other cover; vulnerable to reduction of spring flow resulting from declining levels of groundwater	No suitable habitat is present. There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature.
A tiger beetle (*Cicindela hornii*)	grassland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains. the life cycle probably takes two years so larvae would always be present in burrows in the soil	Potential habitat exists within the limits of the project area, However, the scale of the impact would be small, and not appreciably alter existing habitat.

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Species	Habitat	Pertinent Information
Bleached skimmer (*Libellula composite*)	dragonfly; alkaline spring-fed streams and marshes, adults can oviposit directly into hot water in hot springs, larvae live in cooler spring runs, adults forage in brushlands; invertivore, diurnal, larvae overwinter, flight season mid June to late August	No suitable habitat is present
Poling's hairstreak (*Fixsenia polingi*)	oak woodland with Quercus grisea as substantial component, probably also uses Q. emoryi; larvae feed on new growth of Q. grisea, adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept	No suitable habitat is present in project areas.
Rawson's metalmark **(***Calephelis rawsoni*)	moist areas in shaded limestone outcrops in central Texas, desert scrub or oak woodland in foothills, or along rivers elsehwere; larval hosts are Eupatorium havanense, E. greggii.	No suitable habitat is present
Big free-tailed bat (*Nyctinomops macrotis*)	habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore	Potential habitat exists on bridges, but none were identified on site visits.
Black-footed ferret (*Mustela nigripes*)	extirpated; inhabited prairie dog towns in the general area	No suitable habitat is present in project areas.
Pecos River muskrat (*Ondatra zibethicus ripensis*)	creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round	No suitable habitat is present. There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature.
Pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*)	roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore	No suitable habitat is present within proposed project impact area.
Pocketed free-tailed bat (*Nyctinomops femorosaccus*)	semiarid desert grasslands; roosts in caves cliff crevices under building roof tiles; feed on insects; females bear one pup per season Jul - Aug	Potential habitat exists on bridges, but none were identified on site visits.

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Species	Habitat	Pertinent Information
Black-tailed praire dog (*Cynomys ludovicianus*)	dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups	No suitable habitat is present within proposed project impact area.
Yuma myotis bat (*Myotis yumanensis*)	desert regions; most commonly found in lowland habitats near open water, where forages; roosts in caves, abandoned mine tunnels, and buildings; season of partus is May to early July; usually only one young born to each female	Potential roosting habitat exists on bridges, but none were identified on site visits and no open water is nearby.
Cave Myotis Bat (*Myotis velifer*)	roosts colonial in caves, rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow nests.	Potential habitat is present under the bridges and culverts within the project limits, but no sign of bats were identified.
Stockton Plateau threeband (*Humboldtiana texana*)	rocky hill country with short grasses and some dwarf oaks on the hills; elevation about 1200-1500 m (3900-5000 ft)	No suitable habitat is present. Off rail impact areas are at elevations lower than 3900 ft.
Alkali spurge (*Chamaesyce astyla*)	in Pecos County, locally frequent in nearly bare areas within alkali sacaton (Sporobolus airoides) grasslands on alkaline and/or saline silt loam on alluvial flats along a spring-fed desert stream; in Mexico, on windblown gypsum deposits and gypsum flats, Coahuila locally abundant; flowering and fruiting at least March-June and August-September, probably throughout the growing season depending on rainfall	Potential habitat exists within various project locations. However, the scale of the impact would be small, and not appreciably alter existing habitat. Sediment and erosion controls would be placed prior to construction to reduce sediment runoff. If individuals are present, they could be adversely impacted by construction activity.
Bushy wild-buckwheat (*Eriogonum suffruticosum*)	Texas endemic; sparsely vegetated rocky limestone slopes, low hills, and clay flats; also on gypseous soils; flowering March-April, in full fruit by May	No suitable habitat is present in areas of impact.
Correll's green pitaya (*Echinocereus viridiflorus var correllii*)	Texas endemic; among grasses on rock crevices on low hills in desert or semi-desert grassland on novaculite or limestone; flowering March-May	No suitable habitat is present in areas of impact.
Desert night-blooming cereus (*Peniocereus greggii var greggii*)	Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations,1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes; flowering synchronized over a few nights in early May to late June when almost all mature plants bloom, flowers last only one day and open just after dark, may flower as early as April	No suitable habitat is present. Off rail impact areas are at elevations lower than 3900 ft.

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Species	Habitat	Pertinent Information
Dwarf broomspurge (*Chamaesyce jejuna*)	according to specimen collections, found on grama-grass prairie on caliche uplands, also dry caliche slopes, and limestone hills; flowering late March through July	Potential habitat exists within various project locations. However, the scale of the impact would be small, and not appreciably alter existing habitat. Sediment and erosion controls would be placed prior to construction to reduce sediment runoff. If individuals are present, they could be adversely impacted by construction activity.
Grayleaf rock-daisy *Perityle cinerea*)	Texas endemic; crevices in dry limestone caprock of mesas; flowering spring-fall	No suitable habitat is present in proposed project area.
Hester's cory cactus (*Escobaria hesteri*)	Texas endemic; grasslands on novaculite hills or limestone hills and alluvial fans, also in pine-oak-juniper woodlands on igneous substrates; flowering April-early June (-November), also during growing season possibly in response to significant rainfall; fruiting June-August (-January)	No suitable habitat is present in areas of impact.
Irion County wild-buckwheat (*Eriogonum nealleyi*)	Texas endemic; grasslands and shallow stony soils over limestone and indurated caliche, often collected from ungrazed but sparsely vegetated roadsides, particularly where limestone or caliche is exposed on hilltops; flowering June-September	Potential habitat exists within various project locations. However, the scale of the impact would be small, and not appreciably alter existing habitat. If individuals are present, they could be adversely impacted by construction activity.
Leoncita false foxglove (*Agalinis calycina*)	grasslands on perennially moist heavy, alkaline/saline, calcareous silty clays and loams in and around cienegas (desert springs) and seeps; flowering September-October	No springs or seeps are present in project area
Longstalk heimia (*Nesaea longipes*)	moist or subirrigated alkaline or gypsiferous clayey soils along unshaded margins of cienegas and other wetlands; occurs sparingly on an alkaline, somewhat saline silt loam on terraces of spring-fed streams in grassland; also occurs common in moderately alkaline clay along perennial stream and in subirrigated wetlands atop poorly-defined spring system; also occurs in low, wetland area along highway right-of-way; flowering May-September	No suitable habitat is present. There is a lack of wet sites within the project area. The streams in the area are generally ephemeral in nature.

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South Orient Rail Road (SORR) – MP 869.4 to MP 881.92
Pecos County

Species	Habitat	Pertinent Information
Tharp's blue-star (*Amsonia tharpii*)	open areas in midgrass grasslands or shrublands in shallow clay soils over limestone; Bedrock at Pecos County site is mapped as Cretaeous limestone and marl of Washita Group; soils very shallow, well-drained calcareous moderately alkaline, light brownish-gray stony loam of Lozier-Rock outcrop, developed over fractured caliche-coated limestone; New Mexico site differs; flowering April-early May	Potential habitat exists within various project locations. However, the scale of the impact would be small, and not appreciably alter existing habitat. If individuals are present, they could be adversely impacted by construction activity.
Two-bristle rock-daisy (*Perityle bisetosa var bisetosa*)	Texas endemic; crevices in limestone exposures on bluffs and other rock outcrops; flowering late summerfall	No suitable habitat is present in proposed project area. The project requires limited excavation and off track work is only associated with 3 bridges.
White column cactus (*Escobaria albicolumnaria)*	creosote bush or lechuguilla canyon shrublands primarily on nearly level terrain to rolling hills on thin, gravelly soils or limestone bedrock of the Santa Elena, Glen Rose, Boquillas, and Telephone Canyon formations; at lower elevations 550-1370 m (1800-5000 ft) in the Chihuahuan Desert; flowering early March-May	Potential habitat exists within various project locations. However, the scale of the impact would be small, and not appreciably alter existing habitat. If individuals are present, they could be adversely impacted by construction activity.
Wright's trumpets (*Acleisanthes wrightii*)	open semi-desert grasslands and shrublands on shallow stony soils over limestone on low hills and flats; flowering spring-fall, probably also in response to rains	Potential habitat exists within various project locations. However, the scale of the impact would be small, and not appreciably alter existing habitat. If individuals are present, they could be adversely impacted by construction activity.
Wright's water-willow (*Justicia wrightii*)	shortgrass grasslands and/or shrublands; dry gravelly clay soils over limestone on flats and low hills at elevations of 900-1500 m (2950-4900 ft); flowering April-August, or perhaps after periods of sufficient rainfall	No suitable habitat is present in proposed project area. The project requires limited excavation and off track work is only associated with 3 bridges. Elevations within the bridge work areas are below the 2950 ft minimum elevation for this species.

Source: TPWD Annotated County List of Rare Species for Pecos County (revision 5/25/2011)

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TPWD Coordination

Because this project does meet conditions (channel excavation, in range and suitable habitat for state listed species and might affect mature woody vegetation) of the TxDOT and TPWD MOU (1999) to trigger coordination with TPWD; coordination with TPWD is required.

Wild and Scenic Rivers

There are no designated Wild or Scenic Rivers within the project area.

Impact on Air Quality

This project is not located within the boundaries of an MPO. The proposed action is consistent with the 2011-2014 Statewide Transportation Improvement Program. This project is located in Pecos County which is in an area in attainment of all National Ambient Air Quality Standards (NAAQS); therefore, the transportation and general conformity rules do not apply.

The purpose of this project is to improve the safety and efficiency of the transportation system. The proposed project would not add capacity to the existing facility. This project will not directly result in any meaningful changes in the number of trains or rail use that would cause an increase in emissions impacts relative to the no-build alternative. TxDOT has therefore determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants because current and future air emissions should continue to follow existing trends not being affected by this project. Further air quality analysis is not necessary, due to the nature of this project.

The primary construction related emissions are particulate matter (fugitive dust) from site preparation and construction and non-road mobile source air toxics (MSAT) from construction equipment and vehicles. The primary MSAT emission related to construction is diesel particulate matter from diesel powered construction equipment and vehicles. These emissions are temporary in nature (only occurring during actual construction) and it is not reasonably possible to estimate impacts from these emissions due to limitations of the existing models. However, the potential impacts of particulate matter emissions will be minimized by using fugitive dust control measures such as covering or treating disturbed areas with dust suppression techniques, sprinkling, covering loaded trucks, and other dust abatement controls, as appropriate. The MSAT emissions will be minimized by measures to encourage use of EPA required cleaner diesel fuels, limits on idling, and other emission limitation techniques, as appropriate. However, considering the temporary and transient nature of construction related emissions as well as the mitigation actions to be utilized, it is not anticipated that emissions from construction of this project will have any significant impact on air quality in the area.

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Traffic Noise

The proposed project is considered maintenance and would not add capacity or change the historic train speeds or use of the facility; therefore further analysis is deemed unnecessary.

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. No extended disruption of normal activities is expected. Provisions will be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

Traffic Patterns and Construction Detours

The South Orient Rail Road crosses multiple roadways within the limits of the proposed project. All roadways would remain open to traffic and/or detours would be delineated and provided by means of other on-system/city roads.

IV Environmental Permits, Issues and Commitments

Permits associated with this project include:

- Nationwide Permit 14 for Linear Transportation Projects and Nationwide Permit 3(a) for Maintenance without a Preconstruction Notification (PCN) - impacts to waters of the United States will be less than 1/10 an acre at each single and complete crossing, only minor deviations from existing conditions and all associated general conditions would be satisfied.

Commitments:

- Construction personnel shall notified of the potential for Texas Horned Lizards and Trans Pecos black-headed snakes within the project areas and given procedures to follow if encountered.

VI Exhibits/Figures/Coordination

All exhibits, figures, and coordination can be found in the attached Appendices A-C.

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VIII CE Determination

The engineering, social, economic, and environmental studies conducted thus far indicate that no significant environmental effects would occur; therefore, the proposed project qualifies as a categorical exclusion. In addition, the proposed action has no significant impacts as described in 23CFR771.117 (a) and (b).

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Appendix A Figures

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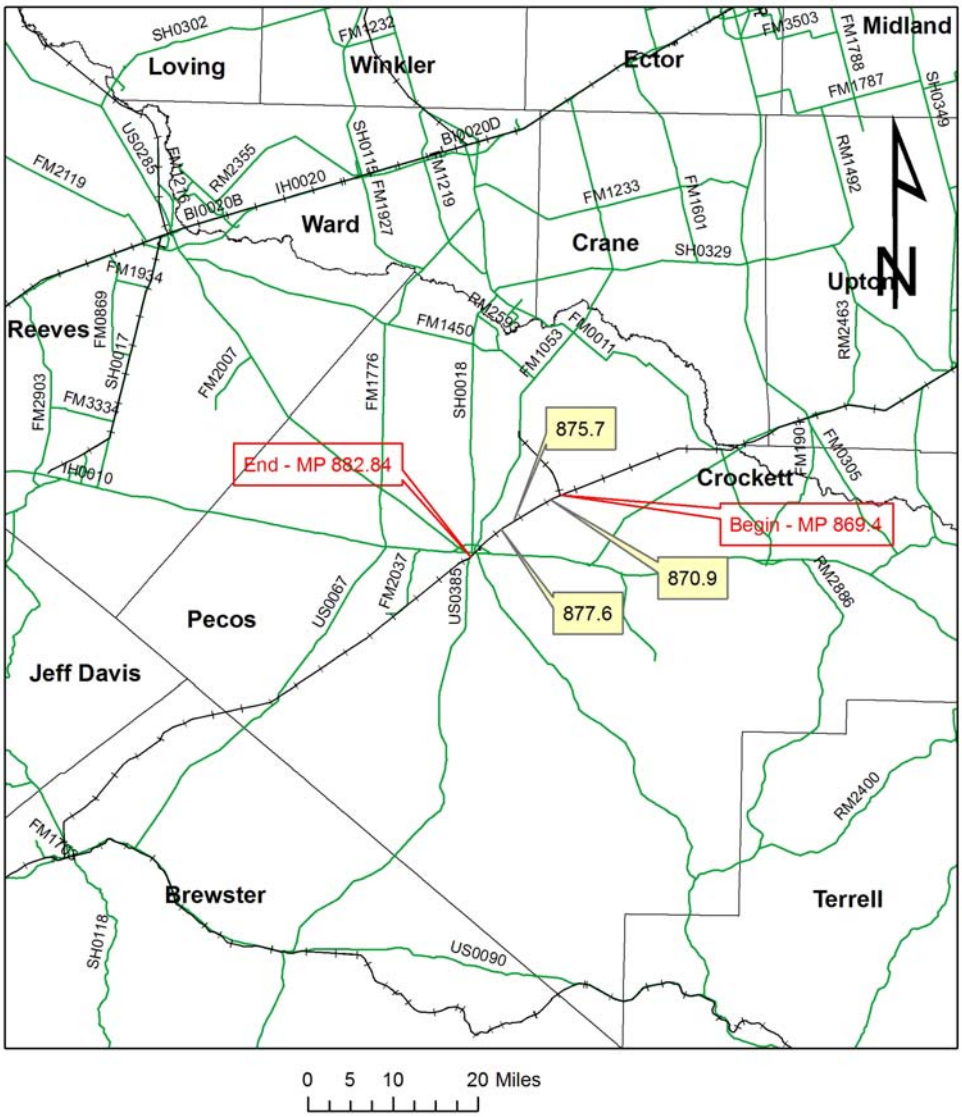
South Orient Rail Road (SORR) – MP 869.4 to MP 881.92
Pecos County

Figure 1. Location Map



Legend

On-system Roads

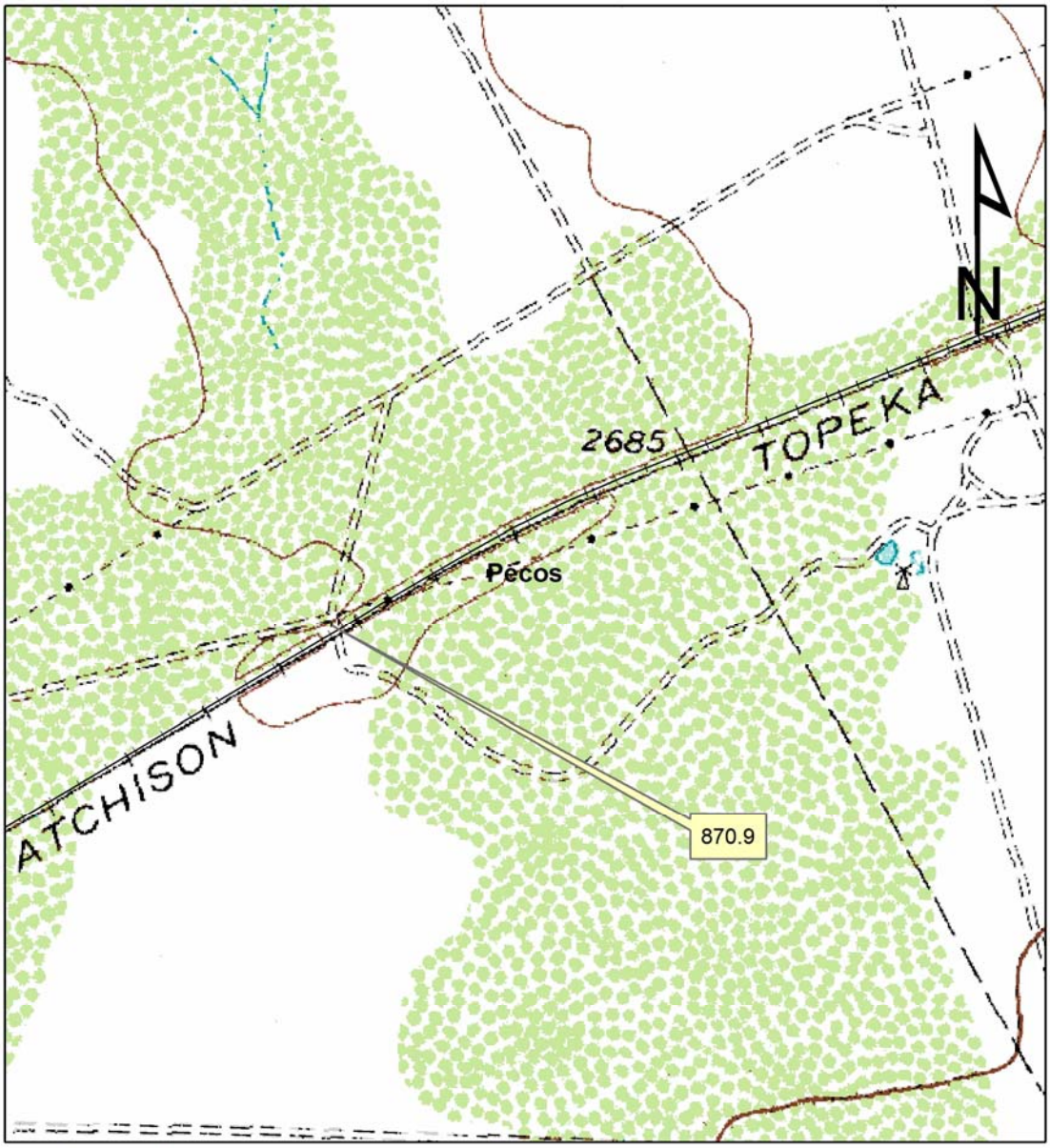
RAILROAD LINES

South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Created by Andrew Chisholm using
TXDOT GIS Data on August 29, 2011

South Orient Rail Road (SORR) – MP 869.4 to MP 881.92
Pecos County

Figure 2a. USGS Topographic Map
Bridge 870.9



30102 H6; East Mesa

0 0.05 0.1 0.2 Miles

Legend

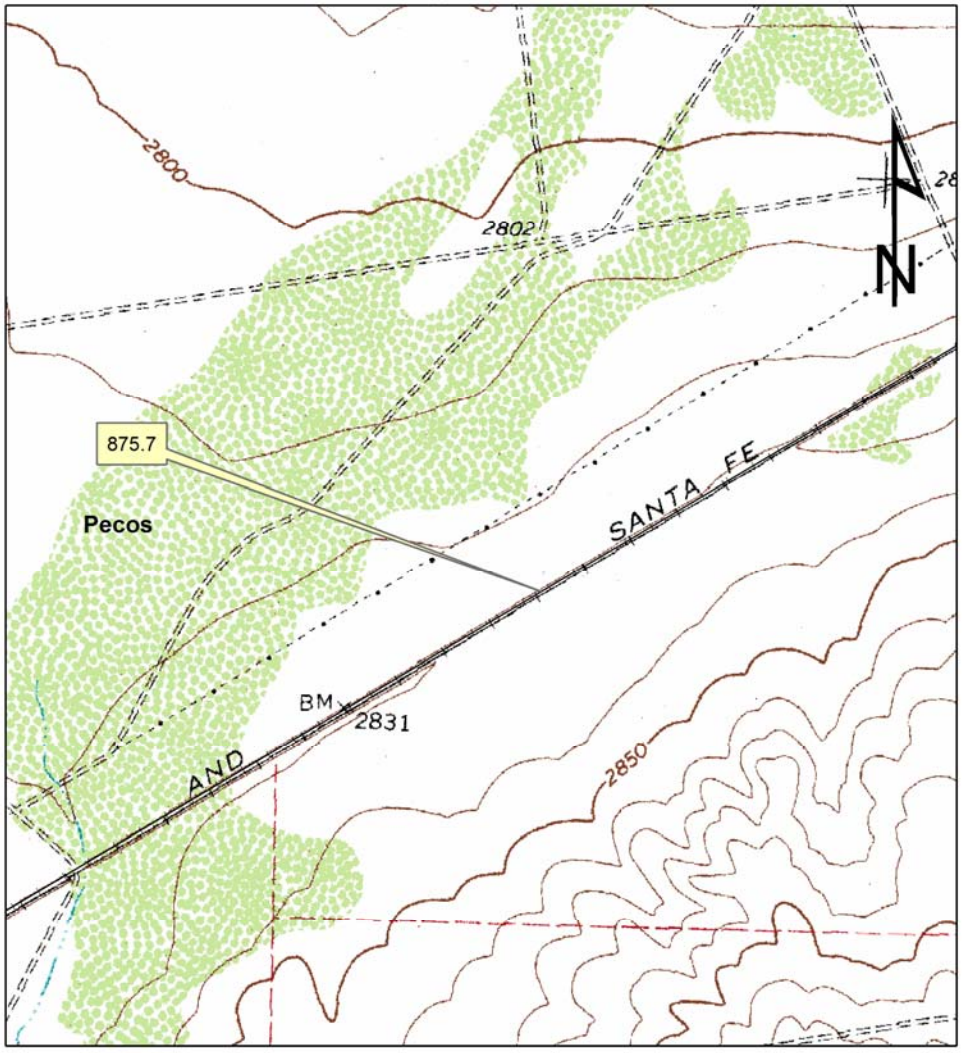
RAILROAD LINES

On-system Roads

South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Created by Andrew Chisholm using
TXDOT GIS Data on August 29, 2011

Figure 2b. USGS Topographic Map
Bridge 875.7



30102 H7; Ft. Stockton East

0 0.05 0.1 0.2 Miles

Legend

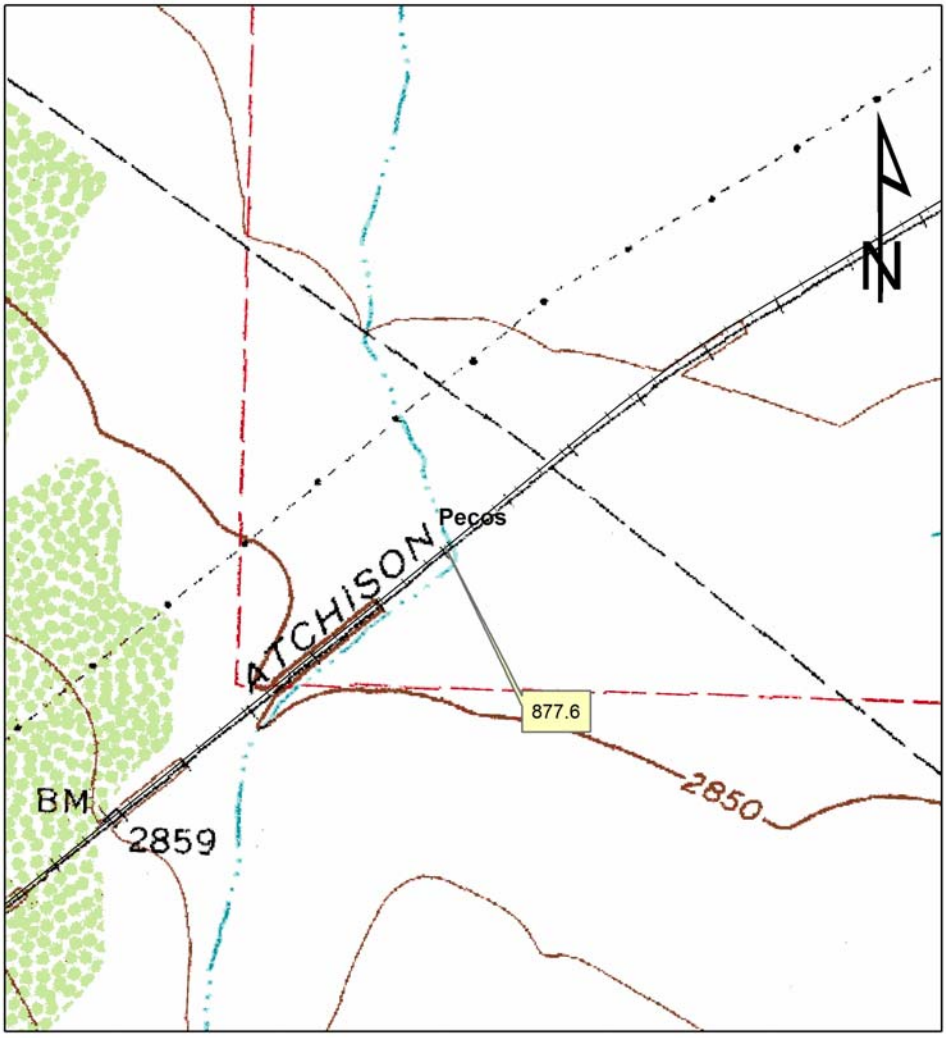
RAILROAD LINES

On-system Roads

South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Created by Andrew Chisholm using
TXDOT GIS Data on August 29, 2011

Figure 2c. USGS Topographic Map
Bridge 877.6



30102 H7; Ft. Stockton East

0 0.05 0.1 0.2 Miles

Legend

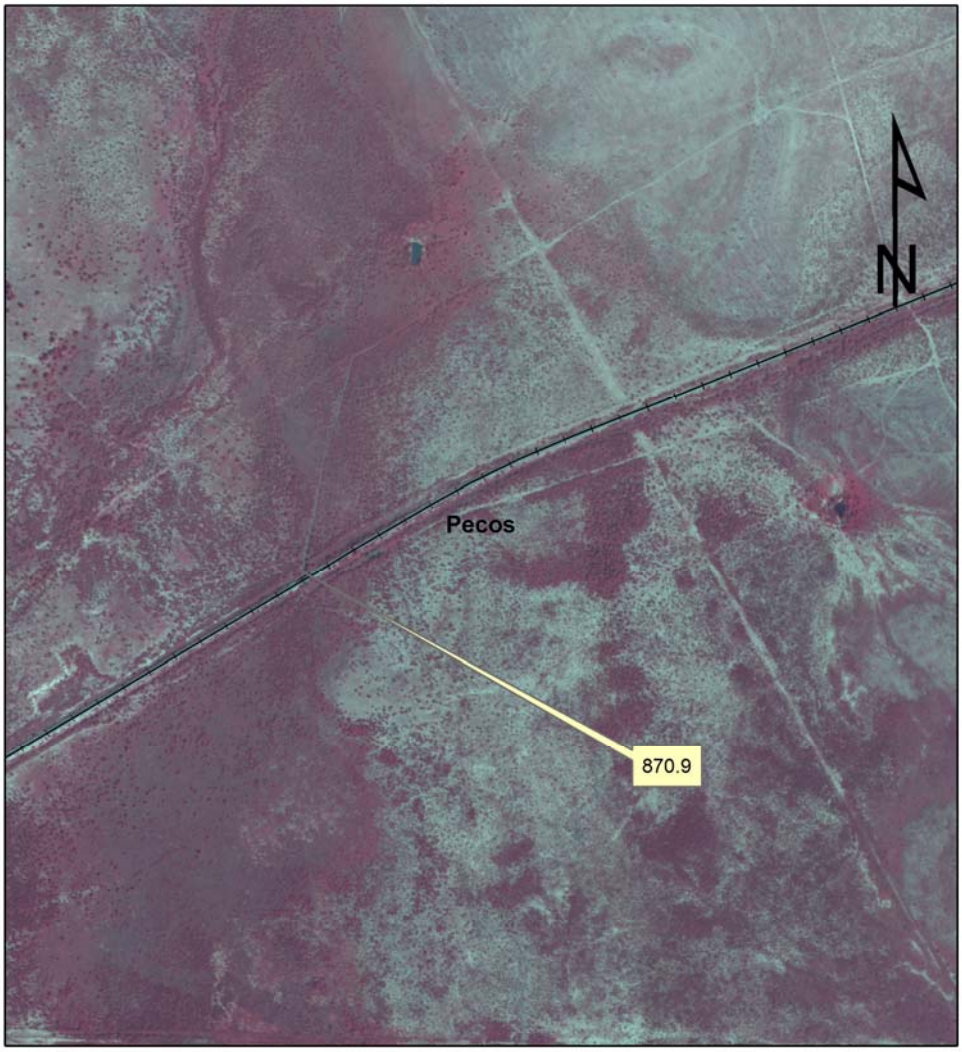
RAILROAD LINES

On-system Roads

South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Created by Andrew Chisholm using
TXDOT GIS Data on August 29, 2011

Figure 3a. Aerial Image
Bridge 870.9



0 0.05 0.1 0.2 Miles

Legend

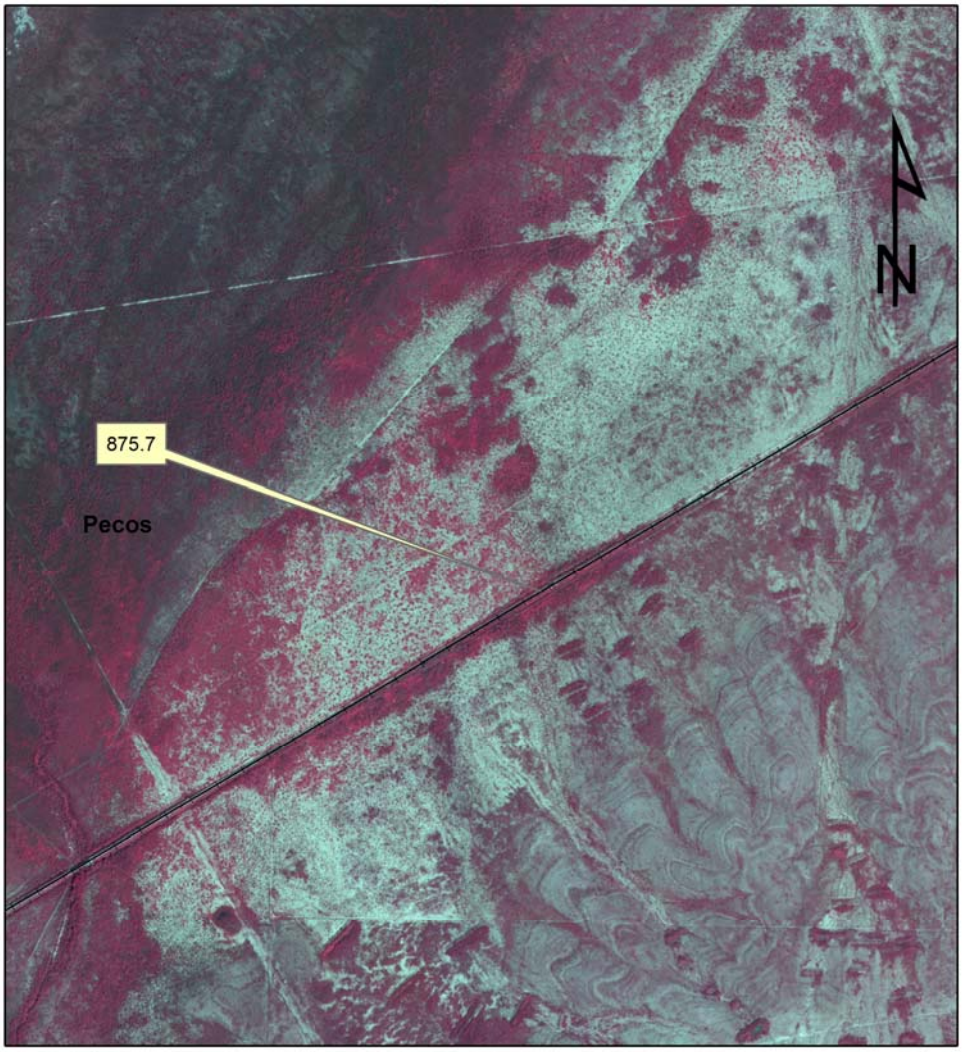
RAILROAD LINES

On-system Roads

South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Created by Andrew Chisholm using
TXDOT GIS Data on August 29, 2011

Figure 3b. Aerial Image
Bridge 875.7



0 0.05 0.1 0.2 Miles

Legend

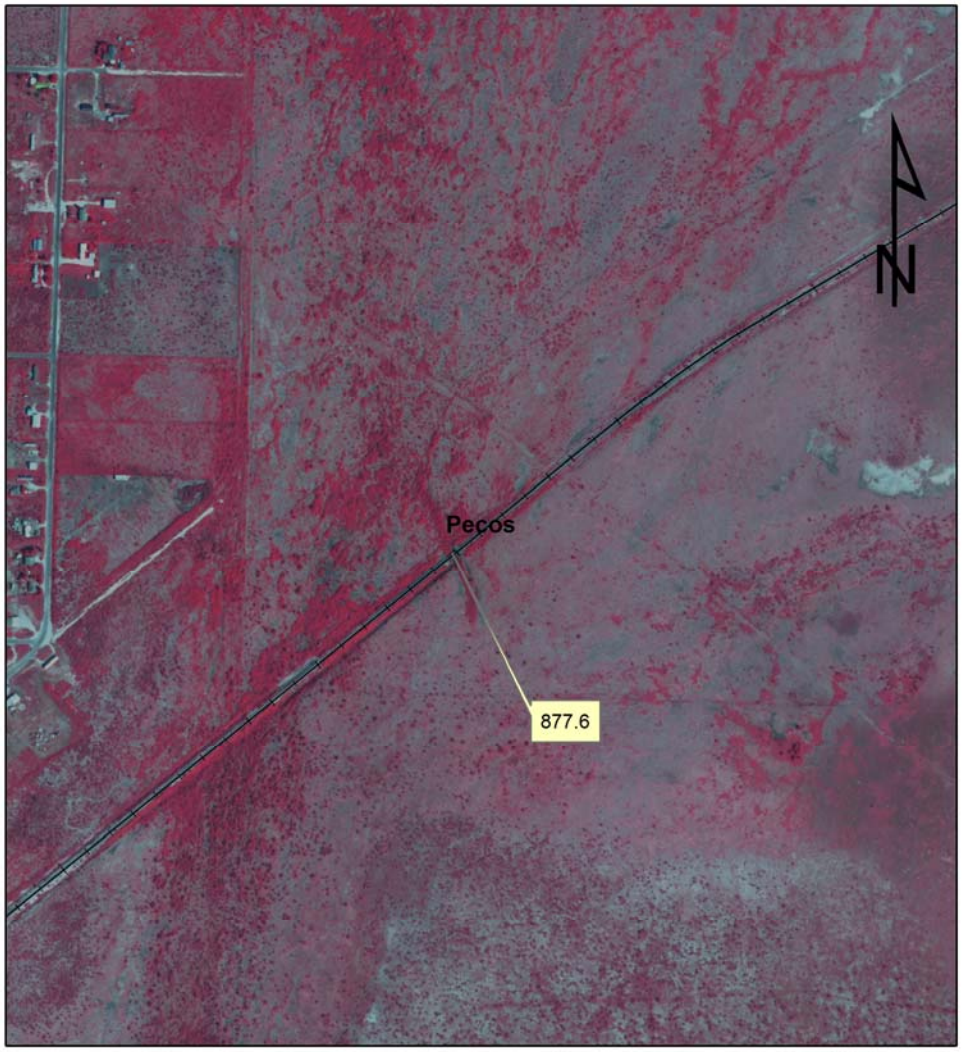
RAILROAD LINES

On-system Roads

South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Created by Andrew Chisholm using
TXDOT GIS Data on August 29, 2011

Figure 3c. Aerial Image
Bridge 877.6



0 0.05 0.1 0.2 Miles

Legend

RAILROAD LINES

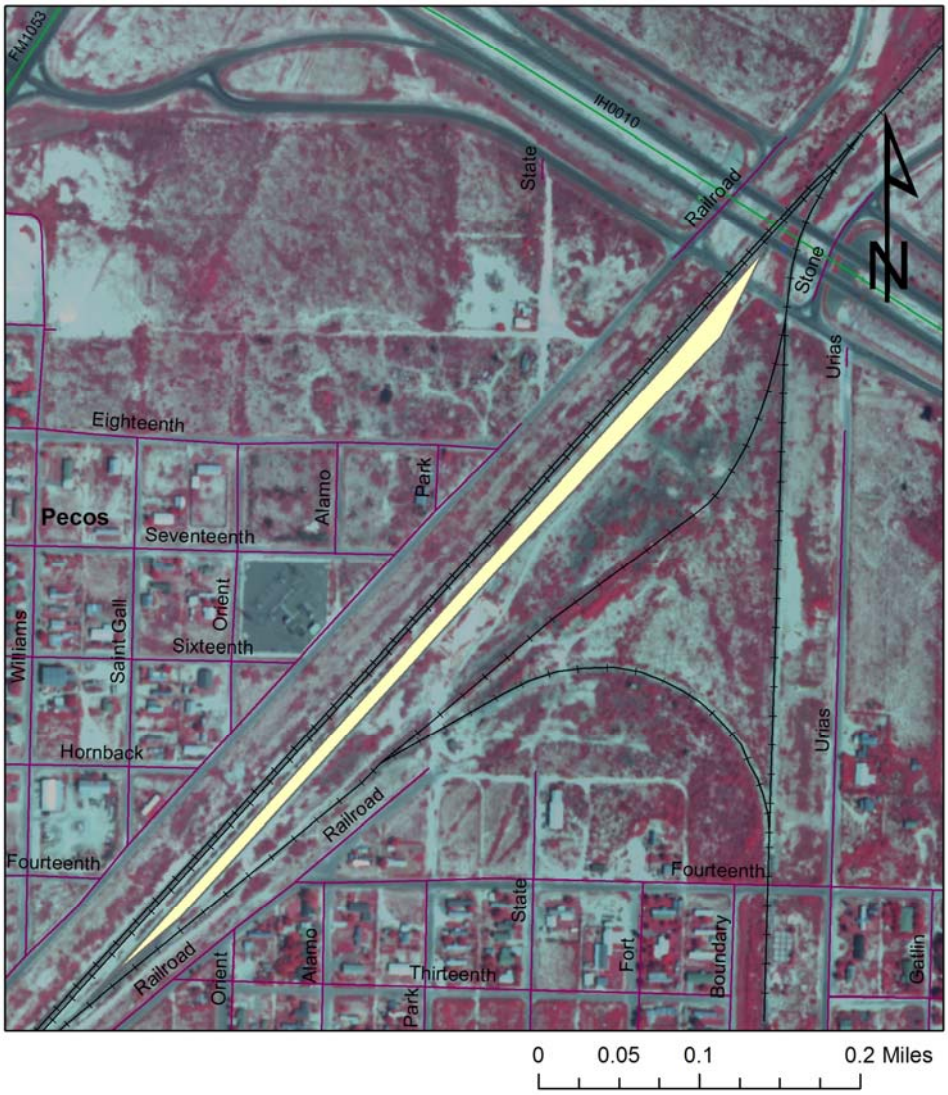
On-system Roads

South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Created by Andrew Chisholm using
TXDOT GIS Data on August 29, 2011

South Orient Rail Road (SORR) – MP 869.4 to MP 881.92
Pecos County

Material Storage Area Map



South Orient
CSJ 7107-09-002
MP 869.4 (Sulphur Junction) to
MP 882.84 (west side of Fort Stockton)
Pecos County

Legend

RAILROAD LINES

On-system Roads

Created by Andrew Chisholm using TXDOT GIS Data
on October 20, 2011

Table 7. Location of Construction Elements

Location	Latitude	Longitude	Description of Work
Project Begins MP 869.4	30.99379	-102.71336	Begin rail & tie replacement through end of project limits
MP 870.30	30.99031	-102.72282	Reconstruct 18' grade crossing DOT #18925R
MP 870.9	30.98657	-102.73252	Bridge - shim bent 2 piles 3 & 4; brace bents 3, 4, 5, 6, &7
MP 874.6	30.95781	-102.78528	Reconstruct 18' grade crossing DOT #18926X
MP 875.7	30.9502	-102.80000	Bridge – Shim bents 2 & 3, piles 3 & 4; brace bents 2 & 3; replace stringer 4 span 2; stringer 5 span 3
MP 877.6	30.93493	-102.82718	Bridge 70' – replace, fire damaged
MP 879.4	30.91777	-102.85011	Reconstruct 32' grade crossing DOT #18928L – Stone Road
Project Ends MP 881.92	30.89207	-102.88024	End rail & tie replacements

DRAFT

Pictures

870.9

875.7

DRAFT

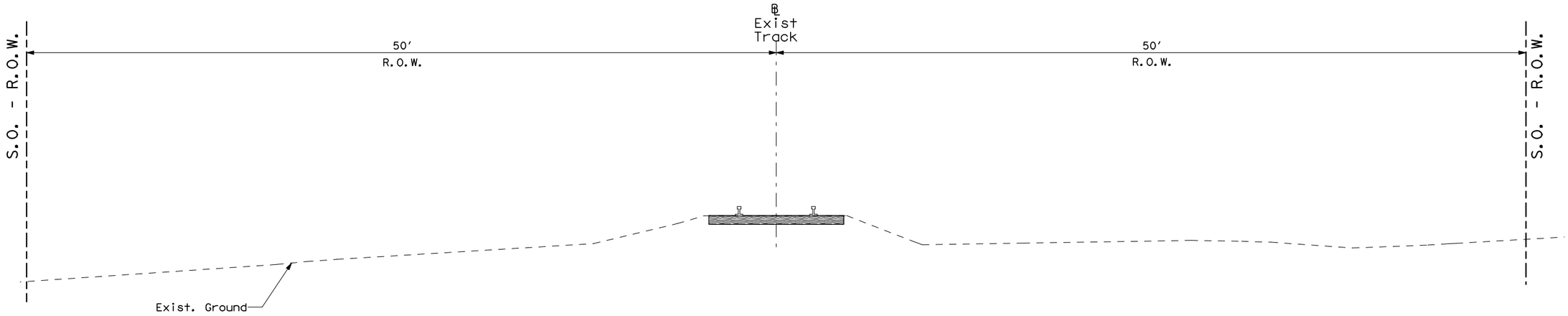
South Orient Rail Road (SORR) – MP 869.4 to MP 881.92
Pecos County

877.6

DRAFT

Appendix A Typical

DRAFT



S.O.R.R. TYPICAL SECTION

RL SO
TYPICAL
SECTIONS
N.T.S.

Texas Department of Transportation
SHEET 1 OF 1

CONT	SECT	JOB	HIGHWAY
C	S	J	HWY
DIST		COUNTY	SHEET NO.
DST		CTY	AB

DATE: $DATE$
FILE: $FILE$

DN: CK: DW: CK:

Appendix B Agency Coordination

DRAFT

Texas Department of Transportation
DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

August 31, 2011

Section 106/Antiquities Code of Texas Consultation (Archeology)
RE: Background Study for The South Orient Rail Road (SORR) Railroad Bridge and Switch Replacement and Repairs, Various Locations in Pecos County, Texas. Odessa District, CSJ: 7107-09-002

Ms. Pat Mercado-Allinger
Division of Archeology,
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Mercado-Allinger:

The above referenced proposed project will utilize state funds and may utilize federal funds. The Texas Department of Transportation (TxDOT), and if federal funding is utilized, the Federal Railroad Administration (FRA), would repair and replace bridges, signals and switches on the South Orient Rail Road (SORR) in Pecos County. The purpose of the proposed project is to provide improved safety features which meet current standards and allow freight trains to move at increased speeds. The project would be funded with State and Federal moneys.

Oversight of the project is currently the responsibility of TxDOT and may include the FRA. This letter initiates consultation in compliance with the Antiquities Code of Texas under the 2004 Memorandum of Understanding (43 TAC 2.24) between TxDOT and the Texas Historical Commission (THC) as well as initiating consultation in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended, and 36 CFR 800. Attached is the completed Background Study report which includes the results of the associated field investigations. TxDOT will notify federally-recognized tribes with a historic interest in the area about the proposed project.

A TxDOT archeologist evaluated the potential for the proposed undertaking to affect archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks (13 TAC 26.12) in the area of potential effects (APE). Section 106 review and consultation proceeded in accordance with the

Memorandum of Understanding (MOU) between the Texas Historical Commission and TxDOT. The following documentation presents TxDOTs findings and explains the basis for those findings.

The project consists of bridge repair/replacement, tie replacement, grade crossing upgrade, and rail replacement. along an approximately 13.44 mile segment of the South Orient Rail Road (SORR) from mile marker 869.4 (Sulphur Junction) to mile marker 882.84 (west side of Ft. Stockton). The existing bridges on this portion of the SORR line consist of timber trestle bridges. There is one bridge requiring replacement located at mile point 877.6. Two other bridges (875.7 and 870.9) require minor repairs to include: shimming gaps between piles and bent caps, installation of timber pile bracing, and replacement of stringers. The existing right-of-way for the SORR is 100-ft wide. The bridge at 877.6 would likely be replaced with a pre-stressed concrete bridge spanning structure. These bridges on the South Orient were originally built between 1909 and 1981. Based on the typical timber construction, all of the bridges have had some level of maintenance: repairs and replaced parts.

This proposed project consists of the bridge repairs mentioned above, one bridge replacement, grade crossing reconstruction at five locations, and rail and tie replacement throughout the project limits. The work associated with tie and rail repairs would be done entirely from the rail and was previously cleared in March 2009. At grade crossing reconstruction under our agreements with the FHWA are considered BCE type work. Established storage areas would be used for the storage of tie, rail, and bridge materials. These repairs/replacements are required in order to meet the speed of 25 mph from the existing 10 mph limit now available on this portion of the track. All work would take place within existing ROW. The right-of-way for the project is owned by the state. All construction would take place within the existing right-of-way which is 100-ft. As such the APE consists of the 13.44 mile segment (162.9 acres). The only vertical impacts are associated with the bridge replacement (Bridge 877.6) will be less than 6 feet except for 40-ft drill shafts for the bridge pilings.

A review of the Texas Archeological Sites Atlas revealed no previous archeological projects or previously recorded archeological sites within 1 mile of the APE. Based on the project description, TxDOT finds that the proposed project APE is not a setting with reasonable potential to contain archeological historic properties (36 CFR 800.16.(1)) or archeological sites eligible for designation as a State Archeological Landmark (13 TAC 26.8) and does not warrant survey or additional archeological research

Bridge 870.9

In terms of the physical setting, the Bureau of Economic Geology Geologic Atlas of Texas places the project area on Quaternary (Pleistocene) terrace gravels. The USDA Soil Survey Geographic Database maps the project area as Irran silty clay loam occasionally flooded. Sites in this geomorphic setting can range from surficial to shallowly buried. Prior rail construction impacts to the ROW have compromised the integrity of the original soils and sediments. As such, the integrity of any archeological sites which might occur within the APE will be poor and lack sufficient integrity of location, association, and materials to be able to address important questions of prehistory or history.

Bridge 875.7

In terms of the physical setting, the Bureau of Economic Geology Geologic Atlas of Texas places the project area on Quaternary alluvial deposits. The USDA Soil Survey Geographic Database maps the project area as Upton Association consisting of well-drained loamy soils. Sites in this geomorphic setting are typically surficial but can be shallowly buried. Prior rail construction impacts to the ROW have compromised the integrity of the original soils and sediments. As such, the integrity of any archeological sites which might occur within the APE will be poor and lack sufficient integrity of location, association, and materials to be able to address important questions of prehistory or history.

Bridge 877.6

In terms of the physical setting, the Bureau of Economic Geology Geologic Atlas of Texas places the project area on Quaternary (Pleistocene) terrace gravels. The USDA Soil Survey Geographic Database maps the project area as Balmorhea soils consisting of fine silty loams. Sites in this geomorphic setting can range from surficial to shallowly buried. Prior rail construction impacts to the ROW have compromised the integrity of the original soils and sediments. As such, the integrity of any archeological sites which might occur within the APE will be poor and lack sufficient integrity of location, association, and materials to be able to address important questions of prehistory or history.

TxDOT completed its review on August 31, 2011 and will notify federally-recognized tribes with a historic interest in the area about the proposed project. Pursuant to 43 TAC 2.24(f)(1)(C) of the MOU, TxDOT finds that the proposed undertaking would not affect archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks an no further investigations are warranted. In the event that

unanticipated archeological deposits are encountered during construction, work will cease in the immediate area and professional archeologists will be contacted to initiate post review discovery procedures under the provisions of 36 CFR 800.13 and the MOU between TxDOT and THC (43 TAC 2.24).

Thank you for your attention to this matter. If you have questions, please contact me at 512/416-2647.

Sincerely,

Christopher W. Ringstaff
Archeological Studies Branch
Environmental Affairs Division

for Mark Wolfe 9-8-11
Concurrence by: Date:

Attachments

cc w/attachments: Jack Lambert, ODA District Environmental Coordinator; Margaret Canty, ENV-PD TxDOT; Christopher Ringstaff, ENV-ARCH TxDOT

Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

September 16, 2011

Mr. Leslie Standing, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

RE: CSJ: 7107-09-002; South Orient Rail Road, Bridge Replacement and Repair and Signal Upgrades along a segment of the railroad in Pecos County, Odessa District

Dear Mr. Standing:

The above referenced transportation project is being considered for construction by the Texas Department of Transportation. As currently proposed, the federal funding for this project would be through the Federal Railroad Administration (FRA). The FRA would be completing any required consultation on the federally-funded portions of this project. Therefore, this letter initiates consultation in compliance with the Antiquities Code of Texas under the 2004 Memorandum of Understanding (MOU) (43 TAC 2.24) between the Texas Department of Transportation (TxDOT) and the Texas Historical Commission (THC). We are in the process of completing environmental studies for this project. The purpose of this letter is to solicit your comments regarding potential project impacts to archeological sites. The project is located in an area that may be of interest to your Tribe.

The proposed project would repair and replace bridges, signals and switches on the South Orient Rail Road (SORR) in Pecos County. The purpose of the proposed project is to provide improved safety features which meet current standards and allow freight trains to move at increased speeds. Maps that show the project area are enclosed, as well as a map of the state that indicates the location of Pecos County.

The proposed project would consist of bridge repair/replacement, tie replacement, grade crossing upgrade, and rail replacement. The project length would be approximately 13.44 miles along the South Orient Rail Road (SORR), from mile marker 869.4 (Sulphur Junction) to mile marker 882.84 (west side of Fort Stockton). The existing right of way (ROW) for the SORR is 100 feet wide. The existing bridges on this portion of the SORR line consist of timber trestle bridges. Bridge 877.6 would require

replacement and would most likely be a pre-stressed concrete bridge spanning structure. Bridges 875.7 and 870.9 would require minor repairs, including shimming gaps between piles and bent caps; installation of timber pile bracing; and replacement of stringers. These bridges on the SORR were originally built between 1909 and 1981. Based on the typical timber construction, all of the bridges have had some level of maintenance, including repairs and replaced parts.

This proposed project would consist of the bridge repairs, one bridge replacement, grade crossing reconstruction at five locations, and rail and tie replacement throughout the project limits (see enclosed list of construction elements). The work associated with tie and rail repairs would be done entirely from the rail and was previously cleared in March 2009. Designated storage areas are established to be used for the storage of tie, rail, and bridge materials. These repairs/replacements are required in order to meet the speed of 25 miles per hour (mph) from the current 10-mph limit available on this portion of the track. The ROW for the project is owned by the state.

The area of potential effects for the project would consist of the 13.44-mile-long segment (162.9 acres).All construction would take place within the existing ROW, which is 100 feet wide. The replacement of Bridge 877.6 would require vertical impacts to a maximum depth of 40 feet below ground surface for placement of bridge pilings. Otherwise, the depth of impact at this location would be a maximum of 6 feet below ground surface.

Bridge 870.9

The Geologic Atlas of Texas maps the project area on Quaternary (Pleistocene) terrace gravels (Bureau of Economic Geology, The University of Texas at Austin) (see enclosed map section). The USDA Soil Survey Geographic Database maps the project area as Irran silty clay loam occasionally flooded (USDA-SSURGO Data, Pecos County). Sites in this geomorphic setting can range from surficial to shallowly buried. Prior rail construction impacts to the ROW have compromised the integrity of the original soils and sediments. As such, the integrity of any archeological sites which might occur within the APE will be poor and lack sufficient integrity of location, association, and materials to be able to address important questions of prehistory or history.

Bridge 875.7

The Geologic Atlas of Texas maps the project area on Quaternary alluvial deposits (Bureau of Economic Geology, The University of Texas at Austin) (see enclosed map section). The USDA Soil Survey Geographic Database maps the project area as Upton Association consisting of well-drained loamy soils (USDA-SSURGO Data, Pecos County). Sites in this geomorphic setting are typically surficial but can be shallowly buried. Prior rail construction impacts to the ROW have compromised the integrity of the

original soils and sediments. As such, the integrity of any archeological sites which might occur within the APE will be poor and lack sufficient integrity of location, association, and materials to be able to address important questions of prehistory or history.

Bridge 877.6
The Geologic Atlas of Texas maps the project area on Quaternary (Pleistocene) terrace gravels (Bureau of Economic Geology, The University of Texas at Austin) (see enclosed map section). The USDA Soil Survey Geographic Database maps the project area as Balmorhea soils consisting of fine silty loams (USDA-SSURGO Data, Pecos County). Sites in this geomorphic setting can range from surficial to shallowly buried. Prior rail construction impacts to the ROW have compromised the integrity of the original soils and sediments. As such, the integrity of any archeological sites which might occur within the APE will be poor and lack sufficient integrity of location, association, and materials to be able to address important questions of prehistory or history.

A review of the Texas Archeological Sites Atlas (Atlas) shows no previously recorded archeological sites or previously conducted archeological projects within 1.0 mile of the APE (see enclosed Atlas map sections). Based on the project description, pursuant to 43 TAC 2.24(f)(1)(C) of the MOU with THC, TxDOT provides the following findings and recommendations for this proposed project:

- that the proposed project APE is not in a setting with reasonable potential to contain archeological historic properties (36 CFR 800.16(l)) or archeological sites eligible for designation as a State Archeological Landmark (13 TAC 26.8);
- that no archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks (13 TAC 26.8) would be affected by this project;
- that no further archeological investigation is warranted at this time.

In accordance with the MOU between TxDOT and THC, we are writing to request your comments on sites of cultural or religious significance to your Tribe that may be affected by the proposed undertaking. Any comments you may have on the TxDOT recommendation should also be provided. If you do not object with the recommendation of "no archeological sites affected," please sign below to indicate your concurrence. In the event that further investigations by our office disclose the presence of archeological deposits, we will contact your Tribe to continue consultation.

Thank you for your attention to this matter. If you have questions, please contact Christopher Ringstaff (TxDOT Archeologist) at 512/416-2647 (email: Chris.Ringstaff@txdot.gov) or Scott Pletka (Supervisor, Archeological Studies) at 512/416-2631 (email: Scott.Pletka@txdot.gov). When replying to this correspondence,

please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Sincerely,

Jason W. Barrett, Ph.D.
Archeological Studies Branch
Environmental Affairs Division

Concurrence by: _____ Date: _____

Attachments

cc w/attachments:
Jack Lambert, TxDOT Odessa District Environmental Coordinator;
Margaret Canty, ENV-PD TxDOT;
Christopher Ringstaff, ENV-ARCH TxDOT;
ENV-ARCH Project File

cc w/o attachments: ETS Scan

The attached letter was sent to the following tribes on September 16, 2011:

Mr. Leslie Standing, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Texas Department of Transportation

2495 U.S. HIGHWAY 183 NORTH • BROWNWOOD, TX 76802 • (325) 646-2591• FAX (325) 643-0306

October 10, 2011

Betty Cash
606 W 8th Street
Iraan, TX 79744

Dear Ms. Cash:

The Texas Department of Transportation (TxDOT) has authorized a project (CSJ 7107-09-002) that may result in the replacement of the bridge (structure #877.6) on the South Orient Rail Road in Pecos County. A project location map is attached.

The "construction date" as used by the railroads is the date the first bridge was constructed at the site. The railroad kept no maintenance records of when components of or entire structures of timber trestle bridges were replaced, but it is well known that they have limited life spans. Fires and rot are common. The "construction date" of the bridge at MP 877.6 is 1932. This date does not take into account subsequent changes and alterations due to the construction material (wood) which necessitates frequent replacement and repair.

The bridge proposed to be replaced has been determined not eligible under Criterion C at the state level. The 5-span 70' long, ballasted deck bridge on timber stringers and bents at 877.6 is in need of replacement due to fire damage which caused severe section loss on all of the structural members, which compromises its integrity of design and workmanship. Wood materials of different age and condition comprise the structure. While the "construction date" of the bridge is during the historic period, the bridge lacks integrity of design, materials, and workmanship and is not eligible under Criterion C.

While the bridge does not have known state significance, we do recognize that it may have other local/regional historical associations. If you feel that the bridge is significant at a local or regional level, then please provide us with written information concerning the history of the bridge and its role in your community's history. We request that you send us your response no later than November 5, 2011.

If you feel that the bridge does <u>not</u> have any local/regional significance, then please endorse this letter and return it to us by November 5, 2011. This endorsement will signify your concurrence that the bridge is not historically significant. If we do not receive a response within 30 days, we will assume that you concur with the findings of the State Historic Bridge Inventory.

Please feel free to call Andrew Chisholm at (325-643-0442) if you have any questions or need additional information.

Sincerely,

_____

Endorsement to the Texas Department of Transportation

_____ _____

County Historical Commission Chairperson Date

U.S. Fish & Wildlife Service

Endangered Species List

Back to Start

List of species by county for Texas:

Counties Selected: Pecos

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas

View County List

Pecos County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
black-capped Vireo	*Vireo atricapilla*	Birds	E				P
Diamond Y Spring snail	*Pseudotryonia (=Tryonia) adamantina*	Snails	C	No Image			P
Gonzales springsnail	*Tryonia circumstriata(=stocktonensis)*	Snails	C	No Image			P
Leon Springs pupfish	*Cyprinodon bovinus*	Fishes	E			Final	P
Mexican spotted owl	*Strix occidentalis lucida*	Birds	T				P
northern aplomado falcon	*Falco femoralis septentrionalis*	Birds	E				P
Pecos (=puzzle, =paradox) sunflower	*Helianthus paradoxus*	Flowering Plants	T			Final	P
Pecos assiminea snail	*Assiminea pecos*	Snails	E			Final	P
Pecos gambusia	*Gambusia nobilis*	Fishes	E				P

PECOS COUNTY

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Baird's Sparrow *Ammodramus bairdii*

shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties

Black-capped Vireo	*Vireo atricapilla*	LE	E

oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer

Ferruginous Hawk *Buteo regalis*

open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas

Interior Least Tern	*Sterna antillarum athalassos*	LE	E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Montezuma Quail *Cyrtonyx montezumae*

open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates

Mountain Plover *Charadrius montanus*

breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

PECOS COUNTY

BIRDS

		Federal Status	State Status
Northern Aplomado Falcon	*Falco femoralis septentrionalis*	LE	E

open country, especially savanna and open woodland, and sometimes in very barren areas; grassy plains and valleys with scattered mesquite, yucca, and cactus; nests in old stick nests of other bird species

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

Prairie Falcon	*Falco mexicanus*		

open, mountainous areas, plains and prairie; nests on cliffs

Reddish Egret	*Egretta rufescens*		T

resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear

Sprague's Pipit	*Anthus spragueii*	C	

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

Western Burrowing Owl	*Athene cunicularia hypugaea*		

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	C;NL	

status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept

Zone-tailed Hawk	*Buteo albonotatus*		T

arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions

CRUSTACEANS

		Federal Status	State Status
Pecos amphipod	*Gammarus pecos*		

PECOS COUNTY

CRUSTACEANS

		Federal Status	State Status

endemic aquatic amphipod; omnivorous; amphipods are active mostly at night and spend daylight hours hiding under vegetation and other cover; vulnerable to reduction of springflow resulting from declining levels of groundwater

FISHES

		Federal Status	State Status
Comanche Springs pupfish	*Cyprinodon elegans*	LE	E

originally in Comanche Springs, San Solomon, and Phanton Cave, presently restricted to San Solomon and Phantom Cave and associated springs, and downstream irrigation canals; found in constantly discharging springs and in swift-flowing water of canals and earthen ditches, vulnerable to hybridization with C. variegatus

Leon Springs pupfish	*Cyprinodon bovinus*	LE	E

endemic to Leon Creek watershed in the Pecos River system; margins of spring-fed marsh pools, mostly away from vegetation

Pecos gambusia	*Gambusia nobilis*	LE	E

Pecos River and tributaries; shallow margins of clear, vegetated spring waters high in calcium carbonate, as well as in sinkhole habitats

Pecos pupfish	*Cyprinodon pecosensis*		T

originally Pecos River basin, presently restricted to upper basin only; shallow margins of clear, vegetated spring waters high in calcium carbonate, as well as in sinkhole habitats

Proserpine shiner	*Cyprinella proserpina*		T

Rio Grande and Pecos River basins; rocky runs and pools of creeks and small rivers

INSECTS

		Federal Status	State Status
A tiger beetle	*Cicindela hornii*		

grassland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains. the life cycle probably takes two years so larvae would always be present in burrows in the soil

Bleached skimmer	*Libellula composita*		

dragonfly; alkaline spring-fed streams and marshes, adults can oviposit directly into hot water in hot springs, larvae live in cooler spring runs, adults forage in brushlands; invertivore, diurnal, larvae overwinter, flight season mid June to late August

Poling's hairstreak	*Fixsenia polingi*		

oak woodland with Quercus grisea as substantial component, probably also uses Q. emoryi; larvae feed on new growth of Q. grisea, adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept

Rawson's metalmark	*Calephelis rawsoni*		

PECOS COUNTY

INSECTS

		Federal Status	State Status

moist areas in shaded limestone outcrops in central Texas, desert scrub or oak woodland in foothills, or along rivers elsehwere; larval hosts are Eupatorium havanense, E. greggii.

MAMMALS

		Federal Status	State Status
Big free-tailed bat	*Nyctinomops macrotis*		

habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Black bear	*Ursus americanus*	T/SA;NL	T

bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened

Black-footed ferret	*Mustela nigripes*	LE	

extirpated; inhabited prairie dog towns in the general area

Black-tailed prairie dog	*Cynomys ludovicianus*		

dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Cave myotis bat	*Myotis velifer*		

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

Gray wolf	*Canis lupus*	LE	E

extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands

Pale Townsend's big-eared bat	*Corynorhinus townsendii pallescens*		

roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore

Pecos River muskrat	*Ondatra zibethicus ripensis*		

creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round

Pocketed free-tailed bat	*Nyctinomops femorosaccus*		

semiarid desert grasslands; roosts in caves cliff crevices under building roof tiles; feed on insects; females bear one pup per season Jul - Aug

Yuma myotis bat	*Myotis yumanensis*		

PECOS COUNTY

MAMMALS

		Federal Status	State Status

desert regions; most commonly found in lowland habitats near open water, where forages; roosts in caves, abandoned mine tunnels, and buildings; season of partus is May to early July; usually only one young born to each female

MOLLUSKS

		Federal Status	State Status
Diamond Y spring snail	*Pseudotryonia adamantina*	C	

endemic; aquatic snail only known from a spring system and associated outflows in Pecos County; mud substrates on the margins of small springs and seeps, and marshes in flowing water associated with sedges and cattails; presumed to be fine particle feeders of detritus and periphyton within substrate

False spike mussel	*Quadrula mitchelli*		T

possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins

Gonzales spring snail	*Tryonia circumstriata*	C	

endemic; aquatic snail only known from a spring system and associated outflows in Pecos County; mud substrates on the margins of small springs and seeps, and marshes in flowing water associated with sedges and cattails; presumed to be fine particle feeders of detritus and periphyton within substrate

Pecos assiminea snail	*Assiminea pecos*	E	E

a member of the marine snail family, but represents the most inland snail of the genus; semiaquatic, usually found on moist ground or beneath emergent plants within a few centimeters of flowing water; only known remaining Texas population at near Fort Stockton, Pecos County; historical to the Pecos River Valley of New Mexico and Texas

Stockton Plateau threeband	*Humboldtiana texana*		

rocky hill country with short grasses and some dwarf oaks on the hills; elevation about 1200-1500 m (3900-5000 ft)

Texas hornshell	*Popenaias popeii*	C	T

both ends of narrow shallow runs over bedrock, in areas where small-grained materials collect in crevices, along river banks, and at the base of boulders; not known from impoundments; Rio Grande Basin and several rivers in Mexico

REPTILES

		Federal Status	State Status
Texas horned lizard	*Phrynosoma cornutum*		T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

Trans-Pecos black-headed snake	*Tantilla cucullata*		T

PECOS COUNTY

REPTILES

Federal Status State Status

small size with a uniform body color and a small, dark head; secretive; fossorial; mostly nocturnal; mesquite -creosote and pinyon-juniper-oak; eggs laid June-August; eat insects, spiders, and other invertebrates

PLANTS

Federal Status State Status

Alkali spurge *Chamaesyce astyla*

in Pecos County, locally frequent in nearly bare areas within alkali sacaton (Sporobolus airoides) grasslands on alkaline and/or saline silt loam on alluvial flats along a spring-fed desert stream; in Mexico, on windblown gypsum deposits and gypsum flats, Coahuila locally abundant; flowering and fruiting at least March-June and August-September, probably throughout the growing season depending on rainfall

Bushy wild-buckwheat *Eriogonum suffruticosum*

Texas endemic; sparsely vegetated rocky limestone slopes, low hills, and clay flats; also on gypseous soils; flowering March-April, in full fruit by May

Correll's green pitaya *Echinocereus viridiflorus var correllii*

Texas endemic; among grasses on rock crevices on low hills in desert or semi-desert grassland on novaculite or limestone; flowering March-May

Desert night-blooming cereus *Peniocereus greggii var greggii*

Chihuahuan Desert shrublands or shrub invaded grasslands in alluvial or gravelly soils at lower elevations, 1200-1500 m (3900-4900 ft), on slopes, benches, arroyos, flats, and washes; flowering synchronized over a few nights in early May to late June when almost all mature plants bloom, flowers last only one day and open just after dark, may flower as early as April

Dwarf broomspurge *Chamaesyce jejuna*

according to specimen collections, found on grama-grass prairie on caliche uplands, also dry caliche slopes, and limestone hills; flowering late March through July

Grayleaf rock-daisy *Perityle cinerea*

Texas endemic; crevices in dry limestone caprock of mesas; flowering spring-fall

Hester's cory cactus *Escobaria hesteri*

Texas endemic; grasslands on novaculite hills or limestone hills and alluvial fans, also in pine-oak-juniper woodlands on igneous substrates; flowering April-early June (-November), also during growing season possibly in response to significant rainfall; fruiting June-August (-January)

Irion County wild-buckwheat *Eriogonum nealleyi*

Texas endemic; grasslands and shallow stony soils over limestone and indurated caliche, often collected from ungrazed but sparsely vegetated roadsides, particularly where limestone or caliche is exposed on hilltops; flowering June-September

Leoncita false foxglove *Agalinis calycina*

grasslands on perennially moist heavy, alkaline/saline, calcareous silty clays and loams in and around cienegas (desert springs) and seeps; flowering September-October

Longstalk heimia *Nesaea longipes*

PECOS COUNTY

PLANTS

		Federal Status	State Status
moist or subirrigated alkaline or gypsiferous clayey soils along unshaded margins of cienegas and other wetlands; occurs sparingly on an alkaline, somewhat saline silt loam on terraces of spring-fed streams in grassland; also occurs common in moderately alkaline clay along perennial stream and in subirrigated wetlands atop poorly-defined spring system; also occurs in low, wetland area along highway right-of-way; flowering May-September			
Pecos/Puzzle sunflower	*Helianthus paradoxus*	LT	T
restricted to saline, calcareous, heavy-textured soils around cienegas; usually most abundant on perennially wet soils of subirrigated terraces just above the wettest sites; flowering August-November			
Tharp's blue-star	*Amsonia tharpii*		
open areas in midgrass grasslands or shrublands in shallow clay soils over limestone; Bedrock at Pecos County site is mapped as Cretaeous limestone and marl of Washita Group; soils very shallow, well-drained calcareous moderately alkaline, light brownish-gray stony loam of Lozier-Rock outcrop, developed over fractured caliche-coated limestone; New Mexico site differs; flowering April-early May			
Two-bristle rock-daisy	*Perityle bisetosa var bisetosa*		
Texas endemic; crevices in limestone exposures on bluffs and other rock outcrops; flowering late summer-fall			
White column cactus	*Escobaria albicolumnaria*		
creosote bush or lechuguilla canyon shrublands primarily on nearly level terrain to rolling hills on thin, gravelly soils or limestone bedrock of the Santa Elena, Glen Rose, Boquillas, and Telephone Canyon formations; at lower elevations 550-1370 m (1800-5000 ft) in the Chihuahuan Desert; flowering early March-May			
Wright's trumpets	*Acleisanthes wrightii*		
open semi-desert grasslands and shrublands on shallow stony soils over limestone on low hills and flats; flowering spring-fall, probably also in response to rains			
Wright's water-willow	*Justicia wrightii*		
shortgrass grasslands and/or shrublands; dry gravelly clay soils over limestone on flats and low hills at elevations of 900-1500 m (2950-4900 ft); flowering April-August, or perhaps after periods of sufficient rainfall			

Appendix C Programming/Funding Information

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