

**Table 2: Federal and State Species of Concern
Known or with the Potential to be Present in the Mimbres Basin**

Species	Status*	Habitat	Possible Occurrence in the Project Area	Reason for yes/no occurrence in Project Area
Amphibians				
Chiricahua leopard frog	FT	Permanent aquatic habitats between 2,800 and 7,300 ft. amsl	No	No habitat
Great Plains narrowmouth toad	SE	Grassland and desert grassland, tobosa grass, requires wet habitat in summer	Yes	Small amounts of suitable upland habitat may be present
New Mexico ridge-nose rattlesnake	FW	Montane woodlands and Madrean evergreen woodlands	No	No habitat
Fish				
Loach minnow	FT	Streams with riffle habitat	No	No habitat
Spikedace	FT	Streams with riffle habitat	No	No habitat
Beautiful shiner	FT	Rivers and streams	No	No habitat
Birds				
Bald eagle	BGEPA	Large trees or cliffs within one mile of foraging habitat.	No	No habitat

Species	Status*	Habitat	Possible Occurrence in the Project Area	Reason for yes/no occurrence in Project Area
Golden eagle	BGEPA	Grassland habitats	Yes	Foraging habitat present, no nesting habitat
Northern aplomado falcon	NEXP, SE	Grassy plains interspersed with mesquite, cactus, and yucca	Yes	Foraging habitat present limited nesting habitat
Common black-hawk	ST	Riparian woodlands	No	No habitat
Peregrine falcon	ST	Forages in desert, shrubland, chaparral, and woodlands; nests in rocky cliffs.	Yes, resident and summer migrants	Foraging habitat present, no nesting habitat
Southwestern willow flycatcher	FE, SE	Riparian woodlands, tamarisk stands	No	No habitat
Broad-billed hummingbird	ST	Varied habitat, including riparian woodlands and Chihuahuan desert scrub	No	Suitable nesting habitat not present
Costa's hummingbird	ST	Desertscrub, chaparral, deciduous forests	No	Suitable nesting habitat not present
Lucifer hummingbird	ST	Arid deserts with preferred nectaring plants	No	Suitable nesting habitat not present

Species	Status*	Habitat	Possible Occurrence in the Project Area	Reason for yes/no occurrence in Project Area
Violet-crowned hummingbird	ST	Riparian woodlands, forests, scrub-oak adjacent to xeric habitats	No	No habitat; there are no riparian woodlands
White-eared hummingbird	ST	Montane habitats, woodlands, forests	No	No habitat
Yellow-eyed junco	ST	High-elevation mixed coniferous and Ponderosa pine forests	No	No habitat
Thick-billed kingbird	SE	Riparian canyons, deciduous forests, thornscrub, woodlands.	No	Known to forage in desert scrub adjacent to habitat; however, no nesting habitat
Buff-collared nightjar	SE	In New Mexico, generally in canyons and washes with mesquite and other small trees	No	Preferred habitat absent, will likely occur only as a transient
Whiskered screech-owl	ST	Dense oak and pine-oak woodlands in canyon bottoms	No	No habitat
Mexican spotted owl	FE	Montane forests	No	No habitat
Arizona grasshopper sparrow	SE	Typically well-developed grasslands lacking woody vegetation	Unlikely	Marginal habitat, project area is invaded by shrubs or contains weeds.

Species	Status*	Habitat	Possible Occurrence in the Project Area	Reason for yes/no occurrence in Project Area
Mammals				
Spotted bat	ST	Roost in cliffs, found in higher elevation habitats during summer, lower elevations in winter	No	No habitat
Mexican long-nosed bat	FE	Desert scrub vegetation with century plants, creosotebush, and cacti. Roosts in mines, caves, and old buildings	No	No habitat
Lesser long-nosed bat	FE	Requires mines and caves for roost sites and saguaro cactus and paniculate agave for foraging	No	No habitat
Western yellow bat	ST	Wooded riparian habitats	No	No habitat
Southern pocket gopher	ST	Typically occur in 5,800 to 8,000 feet in rabbitbrush riparian, oak savanna, oak woodland, pinon-juniper, chapparal, and coniferous forest habitats	No	Site below elevational range; no habitat

Species	Status*	Habitat	Possible Occurrence in the Project Area	Reason for yes/no occurrence in Project Area
Jaguar	FE	Chihuahuan desert scrub and semi-desert grassland within 10 square miles of water	No	No hiding or escape cover
Gray wolf	NEXP	Variety of habitats with abundant prey populations	No	No hiding cover and prey base very limited
Arizona shrew	SE	Mesic wooded habitats	No	Site is not mesic, no trees
Molluscs				
Hacheta Grande Woodlandsnail	ST	Rock outcrops and talus slopes, typically montane	No	No habitat

*FE = federally endangered; FT = federally threatened; NEXP = federally endangered/non-essential experimental; SE = state endangered; ST = state threatened; BGEPA – Bald and Golden Eagle Protection Act
Source: USFWS Website <http://www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm>

2.3 FEDERALLY LISTED SPECIES

There are 56 federally listed species of animals in New Mexico with 12 of these being present in the Mimbres Basin (Dona Ana, Hidalgo, and Luna counties). Of these 12 species, five are endangered, five are threatened, and two are experimental, non-essential populations. Based on an analysis of habitat features in project area, AMEC Geomatrix determined that there is the potential for one of these species, the aplomado falcon, to utilize habitat in the project area.

2.3.1 Northern Aplomado Falcon

The northern aplomado falcon, a federally endangered species (experimental non-essential population), has been re-introduced into New Mexico and may utilize habitat on or near the Property; however field studies in June and September did not detect its presence. One active aplomado falcon nest is known in New Mexico.

AMEC Geomatrix biologists searched the “action area” for suitable northern aplomado falcon habitat. The “action area,” as related to impacts associated with the Endangered Species Act, comprises the Property and adjacent land within visual and aural range of proposed project activities. The action area was estimated to include a one-mile radius from the Property. Suitable habitat includes semi-desert grassland habitat interspersed with large yuccas and/or trees containing raptor and/or corvid nests (aplomado falcons do not build their own nests). Typically, yuccas and trees suitable as nesting substrates are over six-feet tall and have a platform formed by branches or flowering stalks. Potential nesting habitat was assessed by driving roads and conducting pedestrian surveys on the Property with binoculars and a spotting scope.

Potentially suitable nests for the northern aplomado falcon were identified within the Property (**Photograph 5, Appendix A**), north of the paved highway, on Bureau of Land Management (BLM), and state-administered land immediately adjacent to the Property (**Figure 2**). These nests were constructed by raptors and ravens. A small patch of suitable habitat, consisting of large yuccas, also occurs approximately 0.8 miles southwest of the Property boundary on private land.

Removal of yuccas and associated nests may be avoidable due to their location on the periphery of the Property (although noise and visual disturbance would not be avoidable). Three nests (two are on one yucca) occur immediately north of the highway in the northwestern-most portion of the Property between the old railroad grade and Highway 9 (**Figure 1**). The other nest is located in the northeastern-most portion of the east half of the Property, adjacent to the eastern Property fence line.

2.3.2 Migratory Birds

Avian diversity was low within the Property boundaries, presumably due to lack of canopy structure. This finding is supported by the relatively greater number of species observed on BLM and state lands which were discovered to contain more heterogeneous habitat than that present at the Property. Most species encountered during point-count surveys were passerines, either nesting on the ground or in the sparsely scattered yucca, or were raptors engaged in soaring/foraging activities. **Table 3** summarizes the results from the June point-count surveys.

The majority of the birds detected were the ground-nesting western meadowlark and the mourning dove, which usually nests in shrubs and trees. Nests were not observed for these species, although several mourning dove pairs were seen and were occasionally flushed during sampling point transitions. Western kingbirds were abundant, and two active nests were identified on the Property; one located in a yucca and one on a power pole.

Burrowing owls were also observed on the Property and on state land immediately south of the Property during the June surveys but were not observed during the September surveys. Potential burrowing owl habitat is present throughout the Property as evidenced by the abundance of burrow systems.

The horned lark was observed on and adjacent to the Property. The long-billed curlews noted on the Property are likely transients in the area, as they were observed flying overhead; suitable habitat for this species does not appear to be present in the vicinity. Swainson's hawks were regularly observed during the surveys and while activities were conducted at the property. One active nest was observed in a yucca adjacent to the Property.

Ground-disturbing construction activities and clearing of yuccas potentially associated with development of the proposed IABR and conducted from March through August would likely result in a "take" of birds nesting on the Property, as defined by the Migratory Bird Treaty Act (MBTA), as a result of egg destruction and bird deaths. Avoidance measures required typically include conducting ground-clearing activities prior to the breeding season. In addition, avian monitoring is often required by the regulatory agencies during construction activities.

Table 3: Avian Point Count Survey Results

Common Name	Auditory	Visual	Total
Western meadowlark (<i>Sturnella neglecta</i>)	34	9	43
Mourning dove (<i>Zenaida macroura</i>)	4	17	21
Western kingbird (<i>Tyrannus verticalis</i>)	4	12	16
Gambel's quail* (<i>Callipepla gambelii</i>)	5		5
Swainson's hawk (<i>Buteo swainsoni</i>)		3	3
Long-billed curlew (<i>Numenius americanus</i>)		2	2
White-winged dove (<i>Zenaida asiatica</i>)		2	2
Loggerhead shrike (<i>Lanius ludovicianus</i>)		2	2
Unknown		2	2
Horned lark (<i>Eremophila alpestris</i>)		1	1
Cactus wren* (<i>Campylorhynchus brunneicapillus</i>)	1		1
Ash-throated flycatcher (<i>Myiarchus cinerascens</i>)	1		1
Burrowing owl (<i>Athene cunicularia</i>)		1	1

The presence of burrowing owls may require additional mitigation measures be employed by Sapphire if the site is to be developed as an IABR, as these owls are also protected under the MBTA. Burrowing owls could occur throughout the property during the breeding and non-breeding seasons and could be

killed during construction activities. The New Mexico Department of Game and Fish (NMDGF), in coordination with the New Mexico Burrowing Owl Working Group, California Burrowing Owl Consortium, and the California Department of Fish and Game, developed “Guidelines and Recommendations for Burrowing Owl Surveys and Mitigation” (July 2007). These guidelines were established to provide direction for conducting burrowing owl surveys and designing mitigation during the preparation of environmental assessment reports and environmental impact statements. When burrowing owls are confirmed on a project site, these guidelines outline three general approaches to mitigation:

- Design and implement project activities to spatially avoid negative impacts and disturbance to burrowing owls and their habitat;
- Design and implement project activities to seasonally avoid negative impacts and disturbances to burrowing owls (although confirmation of unoccupied burrows will still be required); and/or,
- Relocate burrowing owls that will be negatively impacted to protected areas.

To allow greater flexibility with the project schedule, implementing the third option may be in Sapphire’s best interest. This would involve either trapping and relocating, or utilizing one-way doors in burrow entrances to exclude burrowing owls. One-way doors must be inserted 48-hours prior to construction so that burrows remain unoccupied. This method (trapping or utilizing one-way doors) must be initiated prior to March 1 in the year of construction to avoid an MBTA take (nesting activities begin after March 1). Construction must be phased so that ground-clearing would occur immediately after trapping or excluding to ensure burrow destruction and disallow re-occupation by owls. A video probe should be used to determine if burrow is providing burrowing owl nesting habitat. If there is a lag between initial ground clearing/burrow destruction and other construction activities, surveys may need to be conducted to ensure that further burrows have not been constructed and subsequently occupied by owls.

Two natural or artificial burrows should be constructed to compensate for each active burrow rendered unsuitable, and a minimum of 6.5 acres of foraging habitat should be maintained in an undisturbed habitat condition for each pair or unpaired resident bird. Permits must be obtained by USFWS and NMDGF to handle burrowing owls.

2.3.3 Bald and Golden Eagle Protection Act

Golden eagles are protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA). Under these statutes, it is illegal to implement activities that would result in “take” of bald eagles or golden eagles. The BGEPA defines “take” as “pursue, shoot, shoot at, poison, wound, kill capture, trap, collect, molest or disturb”. Disturb means to agitate or bother eagles to a

degree that causes or is likely to cause, based on the best scientific data available, injury to an eagle; decrease in productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or, nest abandonment by substantially interfering with normal breeding, feeding or sheltering behavior.

Golden eagles occur throughout western North America and hunt by soaring over open prairie, sagebrush-grassland and woodland habitats. Golden eagles eat primarily jackrabbits, ground squirrels, and carrion and occasionally prey on deer and antelope fawns, other small mammals, and waterfowl. Golden eagles generally nest on cliffs, in large trees, or occasionally on artificial structures such as power poles. Golden eagles have not been observed on the Property, but have been regularly observed along Highway 9 east of the Property. They may periodically utilize the Property for foraging.

2.4 NEW MEXICO STATE-LISTED WILDLIFE

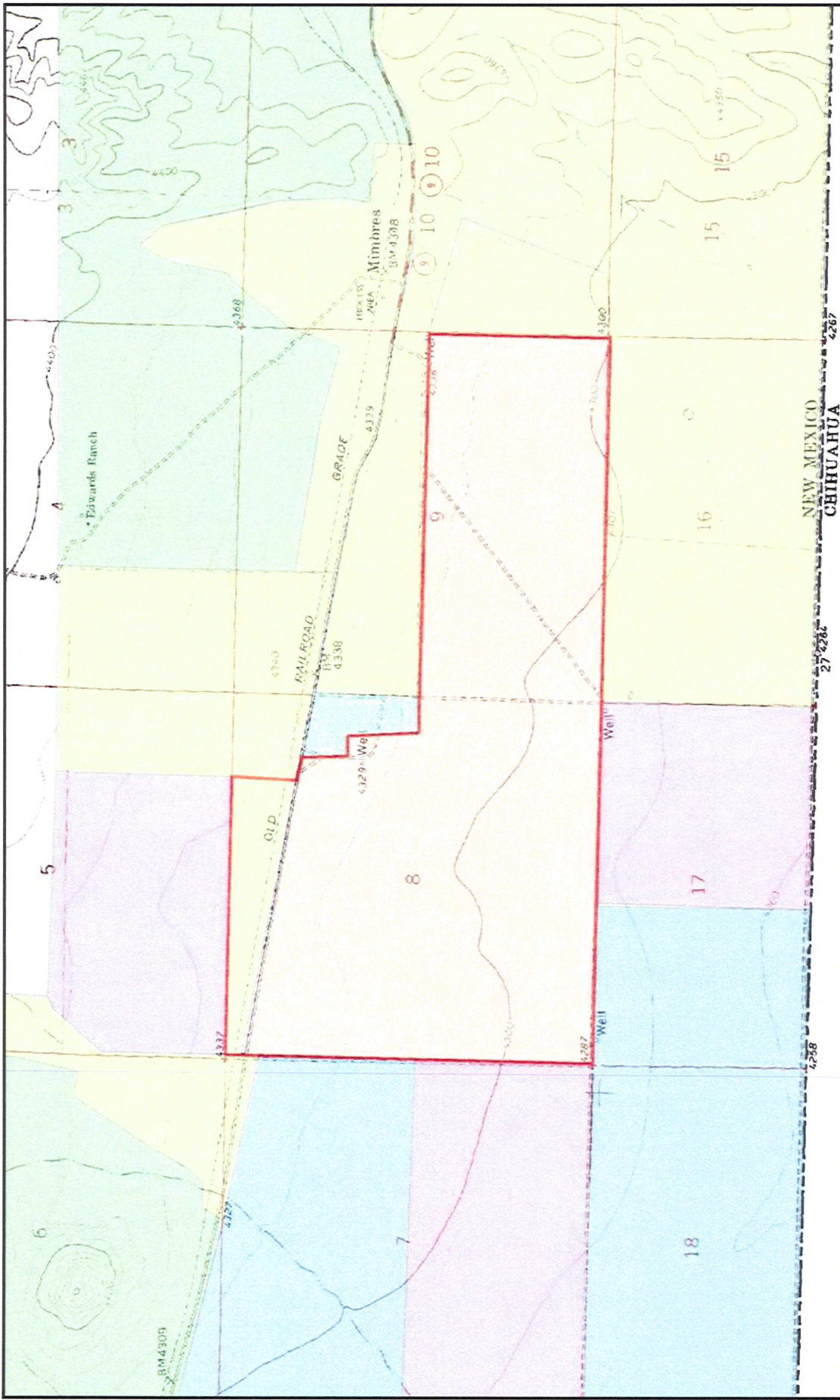
The primary species of potential concern relative to New Mexico State-Listed wildlife in and near the Property is the Great Plains narrowmouth toad (*Gastrophryne olivacea*). Habitat for this species was assessed along 100-meter survey transects during with the wetland and plant surveys. General habitat was characterized and mapped, as shown on **Figure 3**.

Habitat for the Great Plains narrowmouth toad is limited within the Property. Suitable habitat includes grassland and desert grassland habitats, principally those containing tobosa grass and aquatic habitat in summer for reproduction. Aquatic habitat for reproduction may consist of swales and/or roadside ditches. Tobosa grass was sparse on the Property, although other grasses that occur on site may provide the same type of refuge, such as blue panic grass. Tobosa grass and other suitable grasses occur north of Highway 9 within the Property boundaries. Rodent burrows which may also be used as refuges by this toad are extensive throughout the Property. Aquatic habitat was not observed during the site suveys, but several swales and roadside ditches may be suitable for breeding. It is unlikely that this species would occur in the project area due to the limited amount of suitable habitat.

2.5 VEGETATION SURVEY RESULTS

Ecological conditions within the Property have been altered by past land uses that have removed the original cover of native vegetation from the site. Nearly all of the Property was used to produce irrigated crops until 1971, when farming was discontinued and the site was allowed to colonize with invasive plants typical of disturbed soils. Much of the Property has dense stands dominated by invasive species with low densities of native plants.

The species composition and canopy structure of vegetation on the Property differs substantially from native plant communities on adjacent state and federally managed land. Native vegetation on adjacent land is typical of the Semidesert Grassland and Chihuahuan Desertscrub. Dominant native species



AMEC Geomatrix



Cooper Property

Habitat Types

- Agricultural
- Creosote Flats
- Disturbed Grassland
- Disturbed Grassland, sparse yuccas
- Residential
- Semidesert Grassland

Habitat Map
Sapphire Energy
Cooper Property
Luna County, New Mexico
FIGURE 3

include soaptree yucca, creosote bush (*Larrea tridentata*), honey mesquite (*Prosopis glandulosa*), tarbush (*Flourenzia cernua*), Mormon tea (*Ephedra trifurca*), tobosa (*Hilaria mutica*), vine mesquite (*Panicum obtusum*), and a diversity of other forbs grasses, and cacti. The canopy structure of the native plant communities, with an upper tier of shrubs and a lower tier of herbaceous species supports much higher levels of biodiversity than the Property, which is dominated by herbaceous invasive species interspersed with patches of bare ground.

2.6 NEW MEXICO STATE-LISTED PLANTS

The majority of the vegetation on the Property consists of grasses with occasional yucca and cacti. **Table 4** summarizes the dominant grass species encountered during the June and September 2009 site visit. At the time of the site surveys in June, there had been limited rainfall and much of the vegetation was dry. During the surveys in September, the monsoon rains had begun and vegetation, especially warm-season grasses, were initiating new growth.

Table 4: Dominant Grasses in Project Area

Scientific Name	Common Name	Growth Form/ Habitat
<i>Aristida adscensionis</i>	Six weeks three awn	Annual, occurs on sites where native grasses have been depleted.
<i>Aristida divaricata</i>	Poverty three-awn	Perennial bunch grass.
<i>Chloris virgata</i>	Feather finger grass	Annual, invasive species which occurs on disturbed soils.
<i>Eragrostis lehmannii</i>	Lehman's lovegrass	Introduced, perennial bunch grass.
<i>Hilaria mutica</i>	Tobosa	Perennial bunch grass, fine-textured soils, often occurs in swales.
<i>Panicum antidotale</i>	Blue panic grass	Introduced, perennial bunch grass, often associated with irrigation.
<i>Panicum obtusum</i>	Vine mesquite	Perennial, often found in swales with fine-textured soils.
<i>Tridens pulchellus</i>	Fluff grass	Perennial bunch grass, indicator of low potential productivity of soils.

Dominant forbs present at the site included cocklebur (*Xanthium strumarium*), unicorn plant (*Proboscidea louisianica*), Russian thistle (*Salsola iberica*), silver-leaf nightshade (*Solanum eleagnifolium*), and Powell amaranth (*Amaranthus powellii*). Sub-dominant forbs included scarlet gaura (*Gaura coccinea*), velvety gaura (*Gaura parviflora*), milkweed (*Asclepias brachstephana* and *engelmannii*), bladderpod (*Lesquerella gordonii*), bindweed (*Convolvulus incanus*), desert marigold (*Baileya multiradiata*), *Verbena goodingii*, hogpotato (*Hoffmanseggia densiflora*), lobed ground-cherry (*Physalis lobata*), cholla (*Opuntia imbricata*), scarlet globemallow (*Sphaeralcea coccinea*), narrowleaf globemallow (*Sphaeralcea angustifolia*), soaptree yucca (*Yucca elata*), broom snakeweed (*Gutierrezia sarothrae*), yellow star thistle (*Centuarea solstitialis*), kochia

(*Kochia scoparia*), thistle (*Cirsium* sp.), puncture vine (*Tribulus terrestris*) and prickly-pear (*Opuntia polycantha*). No rare or special status species were identified on the Property during the June and September surveys.

2.7 WETLAND AND OTHER WATERS OF THE U.S.

2.7.1 Overview of Wetland Regulations

The COE is responsible for regulation of wetlands as specified under the Clean Water Act and has defined wetlands in the 1987 Wetland Delineation Manual based on features of soils, vegetation, and hydrology. The 1987 Wetland Delineation Manual describes the process that is used to determine whether a site meets the requirements to be defined as a wetland in accordance with federal regulation as follows:

“Wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes bogs and similar areas.”

Wetlands generally have the following characteristics:

- Water on or near the surface, all or part of the year.
- Distinctive poorly drained soils that develop certain physical characteristics due to the presence of water (referred to as hydric soils).
- A predominance of vegetation composed of species (referred to as hydrophytes) adapted to life in wet soils.

Wetlands can be present in riparian areas, flood plains, and upland forested areas. Some wetlands hold fresh water, some are saline, and others are created by underground water that discharges at or is very close to the surface. They are wet long enough and often enough to provide natural ecological functions, though they can be dry part of the year. Wetlands form part of a continuous gradient between uplands and open water. They may be bordered by both wetter areas (deepwater habitats) and by drier uplands (non-wetlands).

Wetlands and riparian areas are also protected by Executive Order 11990 (wetland protection) and 11988 (floodplain management), which regulate federal activities in wetlands or riparian areas.

Legal decisions (*Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*) indicate that jurisdictional wetlands must have a direct connection (nexus) to interstate commerce. Generally, wetlands associated with streams and intermittent drainages are considered by the COE to have a connection to interstate commerce, but isolated depressional wetlands (e.g., ponds, lakes, and potholes) often do not and, therefore, are not regulated under Section 404 of the Clean Water Act.

Recent Supreme Court rulings (*Rapanos v. United States* and *Carabell v. United States*.) direct the COE to make case-by-case analyses to determine if wetlands have a “significant nexus” to navigable waters. A significant nexus exists when it is demonstrated that a tributary or wetland has “more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of a traditional navigable water”. Determinations for the presence of a significant nexus must be made for the following waters:

- Non-navigable tributaries that do not typically flow year-round or have continuous flow for at least three months of the year.
- Wetlands that are adjacent to such tributaries
- Wetlands that are adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

2.7.2 Wetlands and Non-wetland Waters of the United States

Natural drainage patterns within the Property have been extensively modified by construction of concrete irrigation ditches, a paved highway, access roads, irrigated crop fields, and a railroad right-of-way (abandoned). Topographically, the land slopes gently to the south and overland flow paths are largely determined by openings in the railroad embankment or under the concrete irrigation ditches and in roadside ditches. Incised, eroded drainages are present where overland flows are concentrated by the railroad embankment, highway, and concrete irrigation ditches. These eroded, incised drainages are most prominent at the northern part of the Property, becoming barely un-discernable at the southern edge of the Project Area.

One palustrine open water (POW) wetland was indicated on NWI maps depicted for the area (**Figure 2**). This wetland was assessed for Clean Water Act applicability. The POW was determined to be a man-made pond associated with a historical windmill and stock tank, and is located immediately north and outside of the Property boundaries. Neither the windmill or stock tank is currently functional, nor did the POW contain water. A Routine Wetland Determination form was not completed because the POW was determined to be outside of the Property. Observations indicate that this is not a wetland applicable to the Clean Water Act due to the lack of hydrophytic vegetation and appropriate hydrologic conditions.

Two potential wetlands were identified on the Property, north of Highway 9, abutting the north side of the Property (**Figure 2**). These vegetated swales (SP- 2 and SP-3, **Figure 2**) are present where surface water seasonally collects as a result of the old railroad grade intercepting surface runoff from rangeland and irrigated crop fields (**Photographs 6 and 7, Appendix A**). Wetland Determination Data Forms for these sites are included as **Appendix B**. These sites have hydrophytic vegetation but the soils do not exhibit hydric features. Plant species present on these sites include the species listed in **Table 5**.

Table 5: Plant Species Present at Wetland Evaluation Sites

Scientific Name	Common Name	Wetland Indicator Status
<i>Amaranthus powellii</i>	Powell's amaranth	UPL
<i>Aristida adscensionis</i>	Six-weeks three awn	UPL
<i>Asclepias engelmannii</i>	Milkweed	UPL
<i>Chloris virgata</i>	Feather finger-grass	UPL
<i>Chrysothamnus nauseosus</i>	Rubber rabbitbrush	UPL
<i>Echinochloa colona</i>	Jungle-rice	FACW
<i>Eriochloa acuminata</i>	Taper-tip cup grass	FACW
<i>Hilaria mutica</i>	Tobosa	UPL
<i>Opuntia imbricate</i>	Cholla	UPL
<i>Opuntia polycantha</i>	Prickly pear cactus	UPL
<i>Panicum obtusum</i>	Vine mesquite	FAC
<i>Setaria macrostachya</i>	Plains bristlegrass	UPL
<i>Solanum eleagnifolium</i>	Silver-leaf nightshade	UPL
<i>Sorghum halapense</i>	Johnson grass	FACU
<i>Xanthium strumarium</i>	Cocklebur	FACU
<i>Yucca elata</i>	Soaptree yucca	UPL

Wetland hydrology is present at sites SP-2 and SP-3 during the monsoon season when runoff collects on the upslope side of the railroad embankment. It is likely that the soils at these sites have been altered by construction of the railroad and by erosional deposition from irrigated cropland that is immediately adjacent and upslope from the railroad grade. The soils at the SP- 3 have no horizon development to 20 inches, exhibit no redox features, and do not have a chroma that is typically associated with hydric soils. The soils at SP-3 have the same color and chroma (7.5 YR 3/3) as soils at SP-4, an adjacent upland site (Figure 2).

Site SP-2 has hydrophytic vegetation and wetland hydrology during the monsoon season but like site SP-3; the soils do not exhibit hydric features. The upper 2 inches of the soil horizon has a color and chroma of 7.5 YR 3/3 and from 2-18 inches the soil color and chroma are 5YR 4/4. The soil exhibits no redox features associated with anaerobic conditions. Evaluation of site SP-1 (Figure 2), in a broad swale down slope from a gap in the railroad embankment, indicated that the vegetation was not hydrophytic

and the soils had a brighter chroma (7.5 YR 3/4). It appears that in depressions formed by railroad embankment soils have slightly lower chromas than soils that do not support hydrophytic vegetation (7.5 YR 3/3 versus 7.5 YR 3/4). According to the Arid West Region Supplement, the soils of the Property may be “problem soils” based on Indicator TF2: Red Parent material described in the Arid West Regional Supplement to the Wetland Delineation Manual.

Because sites SP-2 and SP-3 have hydrophytic vegetation and wetland hydrology and the soils have been extensively altered and are derived from red parent material (“problem soils”), these sites were determined to be wetlands and were evaluated for a nexus with traditionally navigable waters of the United States. SP-2 is 0.042 acres and SP-3 is 0.245 acres.

Wetland SP-3 has a hydrologic connection to areas down-slope through a wash (Erosional Feature A, **Figure 2**). This erosional feature begins at an irrigated crop field and collects water in a constructed ditch (**Photograph 8, Appendix A**) that extends through a gap in the railroad grade (**Photograph 9, Appendix A**) and continues south (**Photograph 10, Appendix A**), for approximately 817 feet before becoming undetectable because the bank and bed become undefined. Flow from this wash seeps into the soil without connecting to other drainage features.

Erosional Feature B begins at the south boundary of the Project Area and extends south in a roadside ditch for 966 feet before being intercepted by a berm associated with an irrigation pipe (**Photograph 11, Appendix A**). This ditch exhibits features of regular flows and supports several hydrophytic plant species. This erosional feature originates at an outflow pipe from an irrigation pumping station (**Photograph 12, Appendix A**) that discharges water to the road-side ditch as part of flushing associated with maintenance. Water discharged to this ditch does not flow to a series of road-side ditches that extend along the road on the Mexican border; rather, water is confined by berms and slightly higher topographic relief before the ditch reaches the road-side border ditch. Road maintenance, agricultural management, and activities by the Border Patrol to create unvegetated strips along roads continually alter the configuration and microtopography of road-side ditches in and around the Project Area.

There are other erosional features on the Property where overland flows have been channeled through breaks in the abandoned concrete irrigation ditch, resulting in head cutting above the ditch (**Photograph 13, Appendix A**) and a drainage channel extending several hundred feet downslope from the ditch. None of these erosional features has a nexus with other drainages, ditches, or water ways. These drainages all become undefined by a bank and bed and water seeps into the broad, relatively flat upland. The vegetation associated with these erosional features is dominated by upland plant species (e.g., Powell’s amaranth, feather finger-grass, and six-weeks three awn).

None of the drainages (erosional features) has a nexus with traditionally navigable waters of the United States. The Property and surrounding land slopes toward the Mexican border, which is one-half mile from the boundary of the Property; consequently, ephemeral, non-wetland drainages that exit the

United States in the vicinity of the Project Area would have the potential to flow into the waters of Mexico.

3.0 LITERATURE CITED

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