NATURAL FEATURES AND WETLANDS REPORT

for

Homestead North Residential
El Paso County, CO

PREPARED FOR:

Sterling Ranch Metropolitan District No. 1
4325 N Nevada Avenue #100
Colorado Springs, CO 80907
Contact: James Morley

PREPARED BY:

Bristlecone Ecology, LLC
2023 W. Scott Place
Denver, CO 80211
Contact: Dan Maynard
Phone: 971.237.3906

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1.0 INTRODUCTION

Sterling Ranch Metropolitan District No. 1 ("Applicant") retained Bristlecone Ecology, LLC ("B.E." or "Agent") to perform an environmental assessment and prepare an Natural Features and Wetlands Report for the proposed Homestead North residential project ("Project") located in unincorporated El Paso County (EPC), Colorado. Contact information for both Applicant and Agent is provided below:

| Applicant	Agent
Jim Morley as agent for	Dan Maynard as agent for
Sterling Ranch Metropolitan District No. 1	Bristlecone Ecology, LLC
4325 N Nevada Avenue #100	2023 W Scott Place
Colorado Springs, CO 80907	Denver, Colorado 80211
Phone: 719-471-1742	Phone: (971) 237-3906
Email: jmorley3870@aol.com	dmaynard@bristleconeecology.com

1.1. Purpose and Goals

The purpose of this Natural Features and Wetlands Report is to find and document natural resources and existing site conditions in order to identify potential environmental constraints that may affect the development of the Project. In addition, a goal of this report is to provide guidance on regulatory issues that could influence site development in accordance with development planning and application submittals in EPC. Environmental resources and constraints addressed include:

- Vegetation
- Soils
- Aquatic Resources/Wetlands/Waters of the U.S. (WOTUS)
- Wildfire Hazard
- Wildlife Impacts
- Federal and State Listed Threatened and Endangered (T&E) Species

1.2. Project Description and Site Location

The Project will consist of 224 residential lots, open space tracts, stormwater detention facilities, arterial roads, utilities, and other associated facilities and infrastructure. The Project is located on approximately 92 acres southeast of the intersection of Vollmer Road and Poco Road, and is bounded by Vollmer Road on the west side and undeveloped land on the north, east, and south (Figure I: *Project Location Map*). The site is located in portions of Sections 28 and 33, Township 12S, Range 65W, and can be found on the U.S. Geological Survey's (USGS) Falcon NW 7.5-minute quadrangle (USGS 2020). Topography of the Project consists of flat to rolling foothills grasslands about a half mile from the pine-oak woodlands of the Black Forest to the northwest.
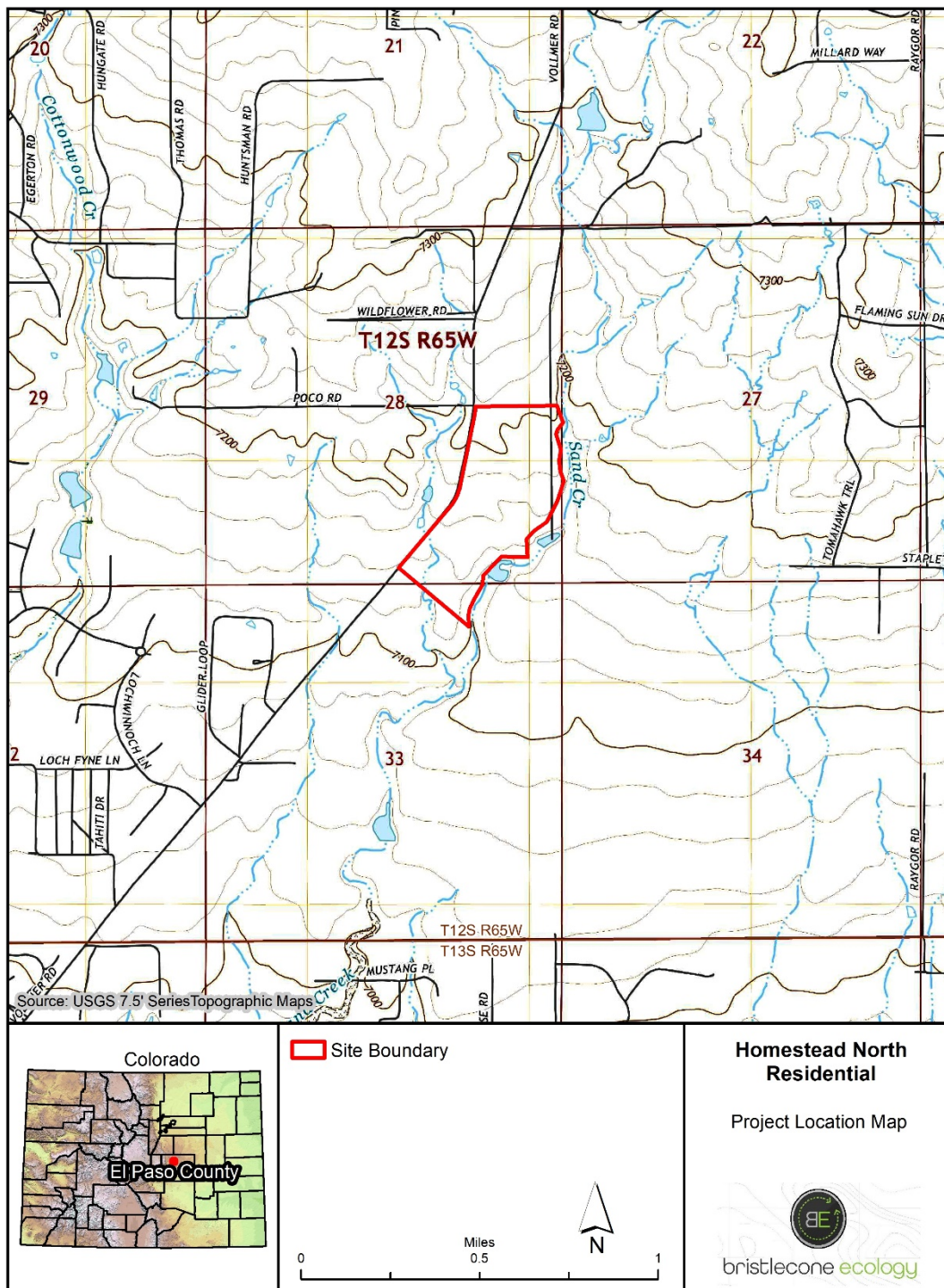
Figure 1: Project Location Map

2.0 METHODOLOGY

B.E. performed a desktop review to gather background information about the environmental setting of the Project area. Publicly available data sources queried via desktop included:

- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) data
- USFWS Critical Habitat Portal
- Species profiles and spatial data from Colorado Parks and Wildlife (CPW)
- USFWS National Wetland Inventory (NWI) data
- USGS National Hydrography Dataset (NHD)
- USGS aerial imagery
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels
- Google Earth current and historic aerial imagery
- Colorado State Forest Service (CSFS) Wildfire Hazard Maps
- National Resources Conservation Service (NRCS) county soil survey data
- Colorado Natural Heritage Program (CNHP) Survey of Critical Biological Resources

Following the desktop review of these resources, a site reconnaissance was conducted on July 2nd, 2020 to field-verify results of the review and identify potential impacts to these resources and constraints to development. The field reconnaissance focused on identifying and mapping wetland habitat and WOTUS, on classifying vegetation communities on the site, and on identifying suitable wildlife habitat, particularly that which could support T&E species.

3.0 ENVIRONMENTAL SETTING

The Project area is located within the Foothill Grasslands ecoregion in Colorado (Chapman et al. 2006). Topography of the Project consists mainly of a mix of flat to rolling grasslands, bordered on the east side by the Sand Creek stream corridor; pine woodlands interspersed with a few shrubs are located less than a mile to the north of the site. The Foothills Grasslands Ecoregion is composed of a mixture of tall and mid-grasses and isolated pine woodlands (Chapman et al. 2006). Dominant species include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and yellow Indiangrass (*Sorghastrum nutans*; Chapman et al. 2006).

Elevations of the Project site range between approximately 7,110 and 7,220 feet above mean sea level (AMSL). The Project site contains no Colorado Natural Heritage Conservation Areas or Potential Conservation Areas according to the CNHP (2019), and according to the USFWS' Information for Planning and Conservation (IPaC; 2020), does not contain Wildlife Refuges or Hatcheries. The area has been used historically as rangeland, but residential and commercial development is increasing steadily.

3.1. Vegetation

The entire Project site is within the Foothill Grasslands, with the predominant vegetation corresponding to that ecoregion. Blue grama (*Bouteloua gracilis*), needle-and-thread (*Hesperostipa comata*), and Junegrass (*Koeleria macrantha*) are the dominant species in uplands throughout the site. Other upland species present include threadleaf sedge (*Carex filifolia*), thickspike wheatgrass (*Elymus lanceolatus*), fringed sage (*Artemisia frigida*), soapweed yucca (*Yucca glauca*), Woods' rose (*Rosa woodsii*), yarrow (*Achillea millefolium*), and hairy false goldenaster (*Heterotheca villosa*), among others. Ponderosa pines (*Pinus ponderosa*) are scattered along the banks of Sand Creek in the northern half of the site. Within wetter areas including wetlands, all of which were associated with Sand Creek, artic rush (*Juncus arcticus*) and Nebraska sedge (*Carex nebrascensis*) are the dominant species, with Drummond's rush (*Juncus drummondii*) and beaked sedge (*Carex utriculata*) also commonly occurring. The wettest areas support panicled bulrush (*Scirpus microcarpus*) and narrowleaf cattail (*Typha latifolia*). A few patches of relatively stunted Western snowberry (*Symphoricarpos occidentalis*) represent the only shrubs present on the site. Sand Creek's perennial hydrology supports an overstory of narrowleaf cottonwoods (*Populus angustifolia*) and a few peachleaf willows (*Salix amygdaloides*). Sandbar willows (*Salix exigua*) are dominant along large portions of Sand Creek and form a thick midstory. Much of the site has been disturbed by cattle grazing, but vegetative cover is relatively extensive. Diversity is moderate for this ecoregion, and the structure of vegetation in the uplands is somewhat poorly developed. Riparian and wetland habitats, where not excessively affected by cattle, are well established and healthy, but do not provide sufficient stabilization to prevent persistent and problematic erosion of the Sand Creek streambanks.

Several noxious weeds are present at the site, mostly scattered throughout the property in low densities. Weed species observed included diffuse knapweed (*Centaurea diffusa*), wavy-leaf thistle (*Cirsium undulatum*), Scotch thistle (*Onopordum acanthium*), common mullein (*Verbascum thapsus*), and kochia (*Kochia scoparia*). Smooth brome (*Bromus inermis*), a non-native grass, is present in more mesic areas along Sand Creek.

B.E. reviewed CNHP data for the Falcon NW, Colorado 7.5-minute quadrangle, which summarizes vegetation communities in the state by USGS quadrangle. Data were reviewed to determine the probability of the presence/absence of significant natural communities, rare plant areas, or riparian corridors that may be within the Project area. Based on CNHP's data and the site reconnaissance, the probability of these plant communities being impacted by Project development is described below in Table 1.

Table 1. Potentially Impacted Vegetation Communities (CNHP 2019)

Plant Community (Type)	Status[1]	Presence and Location	Probability of Impacts
Andropogon gerardii - Sporobolus heterolepis Western Foothills Grassland (Xeric Tallgrass Prairie)	G2, S1	Mesic habitats of the Rocky Mountain foothills and riverine habitats. This type is a regional endemic found only in eastern Colorado, western Oklahoma, and possibly elsewhere. Reportedly occurs in the nearby Black Forest.	None. Community is not present in the Project area.
Hesperostipa comata – Bouteloua gracilis – Carex filifolia Grassland (Montane Grasslands)	G5, S2	Occurs in relatively mesic savanna habitats, on gentle to moderate south- and west-facing slopes. Dense habitat occurs between 0.5-1 mile to the west-northwest in the Black Forest.	None. Project area lies on the fringe of this community.

[1]G=Global; S=State; 1=Critically Imperiled; 2=Imperiled; 3=Rare or Uncommon; 4=Widespread, Abundant, and Apparently Secure; 5=Demonstrably Widespread, Abundant, and Secure.

3.2. Soils

Soil survey data and reports were reviewed to determine the potential for the presence of geologic hazards within the Project (NRCS 2019b). The NRCS provides information on soil properties that would influence the development of building sites for dwellings with basements, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Qualitative soil ratings are assigned to each major soil group and include 'Not Limited', 'Somewhat Limited', and 'Very Limited'. 'Not Limited' indicates that the soil type has properties that are very favorable for the specified type of construction. 'Somewhat Limited' indicates that the soil type has properties that are moderately favorable for the specified type of construction. These limitations can generally be overcome through planning and design considerations. 'Very Limited' indicates that the soil type has properties that cannot generally be overcome through design and planning considerations (NRCS 2019b).

County soil survey data indicate that the site is composed entirely of Pring coarse sandy loam (3 to 8 percent slopes); there are no other soils series or complexes within the Project area (Figure 2: *NRCS SSURGO Soils*). Other series and complexes nearby include Blakeland loamy sand (1 to 9 percent slopes) and Columbine gravelly sandy loam (0 to 3 percent slopes) (NRCS 2019a; Figure 2). The Pring series (0 to 3 percent slopes) is rated 'Not Limited' for the construction of dwellings, with or without basements, and "Somewhat Limited" for the construction of small commercial buildings (NRCS 2019b). While Pring is the dominant series occupying the entire Project area,

there are minor components (called "inclusions") within the Pring consociation that could contribute to the overall soil composition at the site. Pring is identified as comprising roughly 85% of the series as the dominant component, while inclusions of minor series that form the remainder of the soils include the Pleasant series and other minor soils. These soils make up roughly 15% of the Project site. The remaining minor soil types on the site are not rated for the construction of dwellings.

B.E. reviewed the hydric soil ratings for all soil components present on the Project site to aid in the identification of wetland habitats during the site reconnaissance. Hydric soils are those that form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions, and their formation is required in order for wetlands to become established. The Pring series (0 to 3% slopes) was described as having a hydric rating of zero in El Paso County, meaning less than 1% of this complex is expected to be hydric. Hydric ratings are on a scale of 1 to 100, with 100 having greater hydric components (NRCS 2019a). A minor component of this complex, the Pleasant series, is rated as hydric in El Paso County and is typically found in depressions where ponding can occur. Based on these ratings, the suitability of the site for the development of hydric soils, and thus the presence of wetlands, is very low.

The Pring series is grouped into Hydrologic Group B, according to NRCS soils data (NRCS 2019a). This grouping includes soils that have a moderate infiltration rate, which results in the soils having a corresponding moderate rate of surface and ground water transmission.

Additional, detailed soil data for the Project will be presented in a soils/geology/geotechnical report that will be submitted separately.

8	Blakeland loamy sand, 1 to 9 percent slopes	
19	Columbine gravelly sandy loam, 0 to 3 percent slopes	
71	Pring coarse sandy loam, 3 to 8 percent slopes	100%

Source: NAIP Imagery, 2019

Colorado

El Paso County

Site Boundary
Soils

Homestead North Residential

NRCS SSURGO Soils

bristlecone ecology

Feet
0   250   500

N

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Figure 2: NRCS SSURGO Soils

3.3. Aquatic Resources

Aquatic resources include jurisdictional wetlands and other regulated Waters of the U.S. (WOTUS) such as streams/rivers, ponds/lakes, and ditches, as well as non-regulated wetlands, streams/rivers, ponds/lakes, ditches, and other surface water features. The USFWS' NWI and USGS' NHD datasets were reviewed for the possible presence of wetlands and streams, respectively, within the Project area. Aerial imagery (USDA 2015 and Google 2020) was reviewed to locate water features not depicted in the NWI and NHD datasets. Aquatic features that were depicted in the data can be seen in Figure 3: *Aquatic Resources Map*, and include:

- Sand Creek is mapped in the NHD data as an intermittent stream running along the eastern edge of the Project area boundary and not crossing onto the site
- Sand Creek is mapped in the NWI data as a Riverine (R4SBA) wetland, just east of and not intersecting with the Project area boundary
- A tributary to Sand Creek is mapped in the NHD data as an intermittent stream running through the southwest corner of the property
- The NWI data maps a Riverine (R4SBA) wetland in the same location
- A perennial lake/pond is mapped in the NHD data in the southeast quadrant of the Project area within the Sand Creek channel, but is shown entirely outside of the Project area
- A Palustrine-Unconsolidated Bottom-Semipermanently Flooded (PUBF) ponded wetland is mapped in the NWI data in a similar location within the Sand Creek channel, but intersects a portion of the Project area on the east side
- A perennial lake/pond is mapped in the NHD data in the north of the prior feature within the Sand Creek channel, also entirely outside of the Project area

Watercourses and other aquatic features identified in the preliminary desktop analysis were inspected in the field to assess their jurisdictional potential. A site reconnaissance and routine wetland assessment were conducted on July 2nd, 2020. The wetland assessment revealed the presence of several wetlands onsite, all of which were associated with Sand Creek. During the site reconnaissance, the following features identified in the NWI/NHD data were inspected and classified as follows (Figure 4: *Wetland Location Map*):

- Sand Creek is generally present as mapped in the NWI and NHD data, just east of the Project area boundary. The NHD classification of intermittent is partly accurate in areas where flowing water was not present during the site inspection; in other areas, where flowing water was observed and could reasonably be expected to flow throughout other seasons, Sand Creek is perhaps best classified as perennial. This is particularly true for areas downstream of the two inline impoundments.
- The tributary to Sand Creek depicted in the NHD and NWI data presents as an upland swale with some captive populations of arctic rushes. The tributary was inspected in the field for wetland indicators and did not pass hydrology or soils (see Sample Point 5 in Appendix I: *Wetland Determination Forms*).
- The NWI-depicted PUBF ponded wetland/NHD-depicted perennial lake in the channel of Sand Creek is present and is generally located as shown in the datasets. This feature was delineated as a jurisdictional pond/open water within the active Sand Creek channel. It

does not extend onto the site. This feature possesses robust wetland vegetation in the form of bulrushes (*Scirpus microcarpus* and *Schoenoplectus tabernaemontani*), narrowleaf cattails, and aquatic grasses. Although impounded, this wetland maintains hydrologic connection to upstream and downstream portions of Sand Creek.

- The perennial lake/pond mapped in the NHD data is located north of the prior wetland and is also jurisdictional despite being impounded. There is no wetland vegetation evident in the feature, and it is best classified as a jurisdictional pond/open water.
- There are many Palustrine-Emergent (PEM) wetlands associated with Sand Creek that were not mapped in the NWI data. B.E. delineated all wetlands associated with Sand Creek along the length of the Project area, most of which were outside the Project area boundary. A small section of these wetlands between the two mapped ponds extend into the Project area; all field-delineated wetlands are presumed to be jurisdictional.

Based on the information obtained from the site reconnaissance, the wetlands present on the Project site maintain a hydrologic connection to other jurisdictional aquatic features and are thus presumed jurisdictional. While only the U.S. Army Corps of Engineers (USACE) may determine the regulatory status of aquatic features under the Clean Water Act, it is B.E.'s professional opinion that the field-delineated wetlands on the site would be considered jurisdictional.
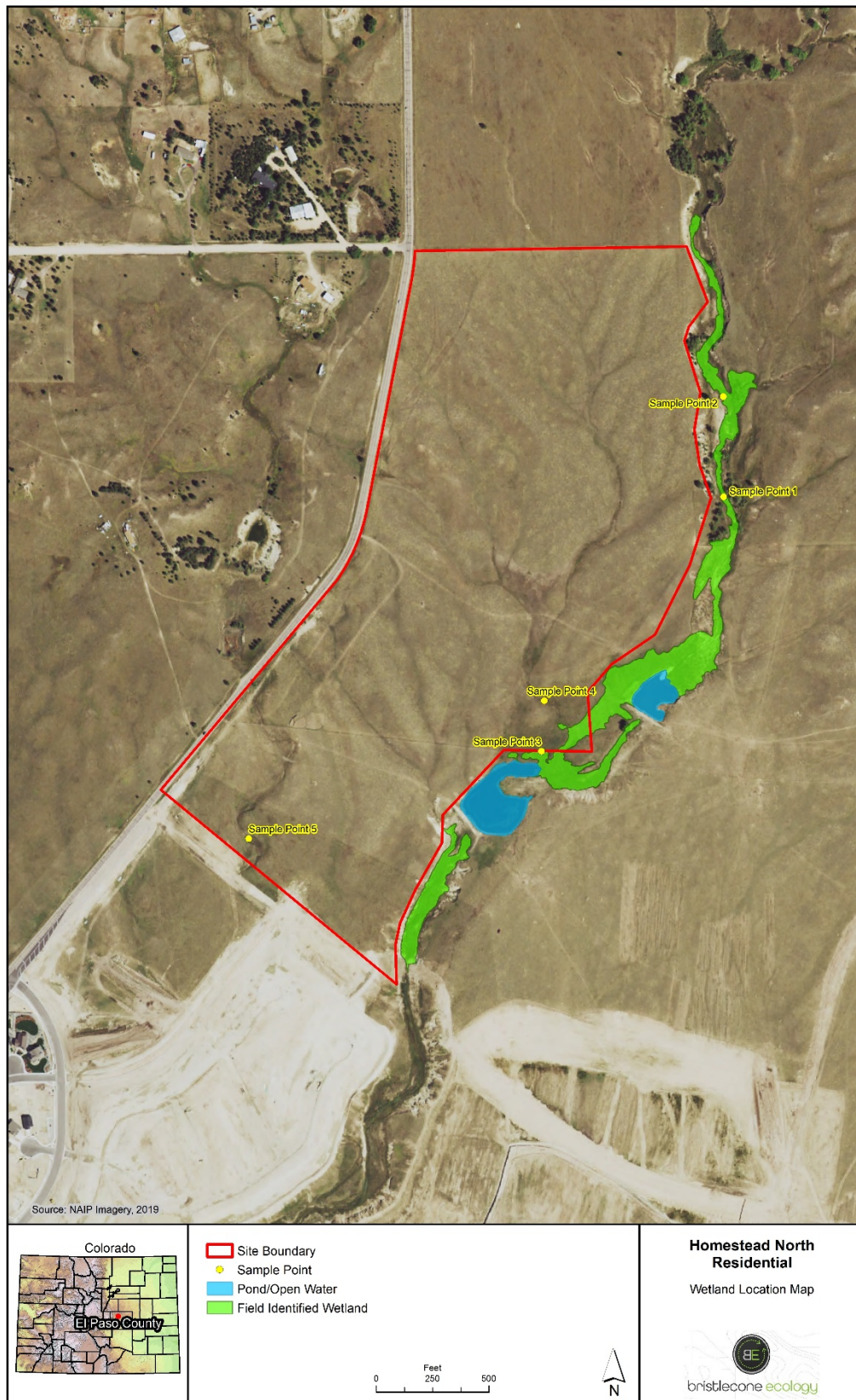
Figure 3: Aquatic Resources Map

Figure 4: Wetland Location Map

3.4. Noxious Weeds

B.E. prepared a Noxious Week Management Plan ("Plan") as a standalone document for the Project based on El Paso County requirements for noxious weed control. The Plan is a Project-specific document that has been designed to set forth Project-level regulations to prevent and control the spread of noxious weeds within the Project area and vicinity. Noxious weeds are defined as those non-native plants that aggressively invade and are detrimental to native vegetation communities and ecosystems. The *Colorado State Noxious Weed Act* (Colorado Revised Statute 35-5.5-103) developed a list of plants considered noxious in the state of Colorado that should be targeted for control by various methods dependent on list category (A, B, or C). The Plan tiers to the requirements set forth by the El Paso County Noxious Weed Management Plan (EPC 2017), and the El Paso County Noxious Weeds and Control Methods report (EPC 2018), which contain guidelines for the control and treatment of noxious weeds found in the County. EPC requires that commercial or industrial projects that include ground disturbing activities submit a project-specific noxious weed management plan. This Plan provides methods to prevent and control the spread of noxious weeds at construction and post-construction phases of the Project. See Appendix II: *Noxious Weed Management Plan.*

3.5. Wildfire Hazard

In the 2017 El Paso County Development Standards, the stated purpose and intent for fire protection and wildfire mitigation is to ensure that proposed development is reviewed for wildfire risks and adequate fire protection. No permit or approval associated with development, construction or occupancy shall be approved or issued until the provisions of these standards are satisfied. The Project area is located in the Black Forest Fire Protection District. There are two staffed fire stations in the district:

- Station 1, 11445 Teachout Road, Colorado Springs (3.67 miles from site entrance)
- Station 2, 16465 Ridge Run Drive, Colorado Springs (8.63 miles from site entrance)

The Black Forest Fire Protection District has the following operations equipment available:

Station 1:
- 3 fire engines
- 1 water hauler
- 1 ambulance
- Chief's vehicles
- Utility vehicles

Station 2:
- 1 fire engine
- 1 brush truck
- 1 water hauler
- 1 ambulance

Wildfire hazard for the Project site was evaluated using the Colorado State Forest Service's (CSFS) online Wildfire Risk Assessment Portal (WRAP; CSFS 2018). WRAP allows professional, planners, and the public to access the best scientific information regarding wildfire risk and establish prevention and mitigation measures accordingly. According to WRAP, the wildfire risk for the majority of the Project site is listed as "Moderate Risk" (CSFS 2018). There is one small pocket of "High Risk" land comprising approximately 5-10% of the site in the northwestern most portion near Poco Road (CSFS 2018; Figure 5: *Wildfire Hazard Map – Wildfire Risk*). "Wildfire Risk" is determined by CSFS by combining the burn probability rating of a site with the values-at-risk rating. While the Project site has a low to very low rating of values and assets that would be adversely impacted by wildfire, the burn probability for the entire site is rated "Moderate-High" (CSFS 2018; Figure 6: *Wildfire Hazard Map – Burn Probability*).

3.6. Wildlife Communities

The Project site provides moderate quality habitat for some grassland and riparian wildlife, including birds, mammals, reptiles, and possibly amphibians. Development of the site would inevitably affect some potential habitat for wildlife, but based on the findings of the site reconnaissance, B.E. classifies the expected impacts as relatively low. Wildlife that could be affected were identified first by referencing CPW's Species Activity Mapping (SAM) spatial data to assess the likelihood of occurrence for state TES, state species of concern (SC), and other general wildlife, including big game species. The Colorado Natural Heritage Program (2019) also provides species status data from tracked natural animal and plant communities in the state. The review indicated that there is potential for the occurrence of 14 mammals, 15 birds, and 14 reptiles, including one SC mammal, one state threatened mammal, and one state threatened bird (Table 2. SAM Wildlife Potential for Occurrence).
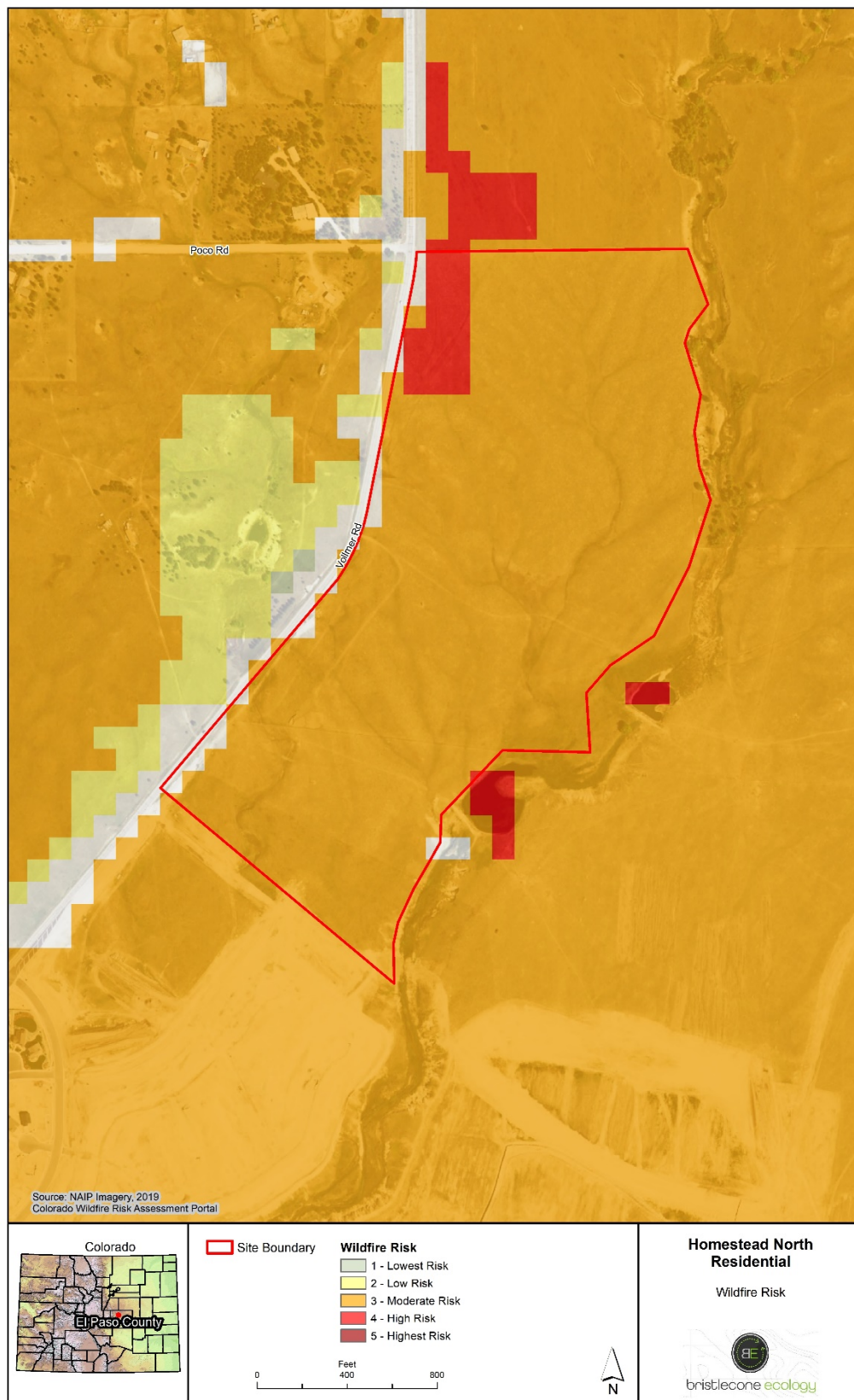
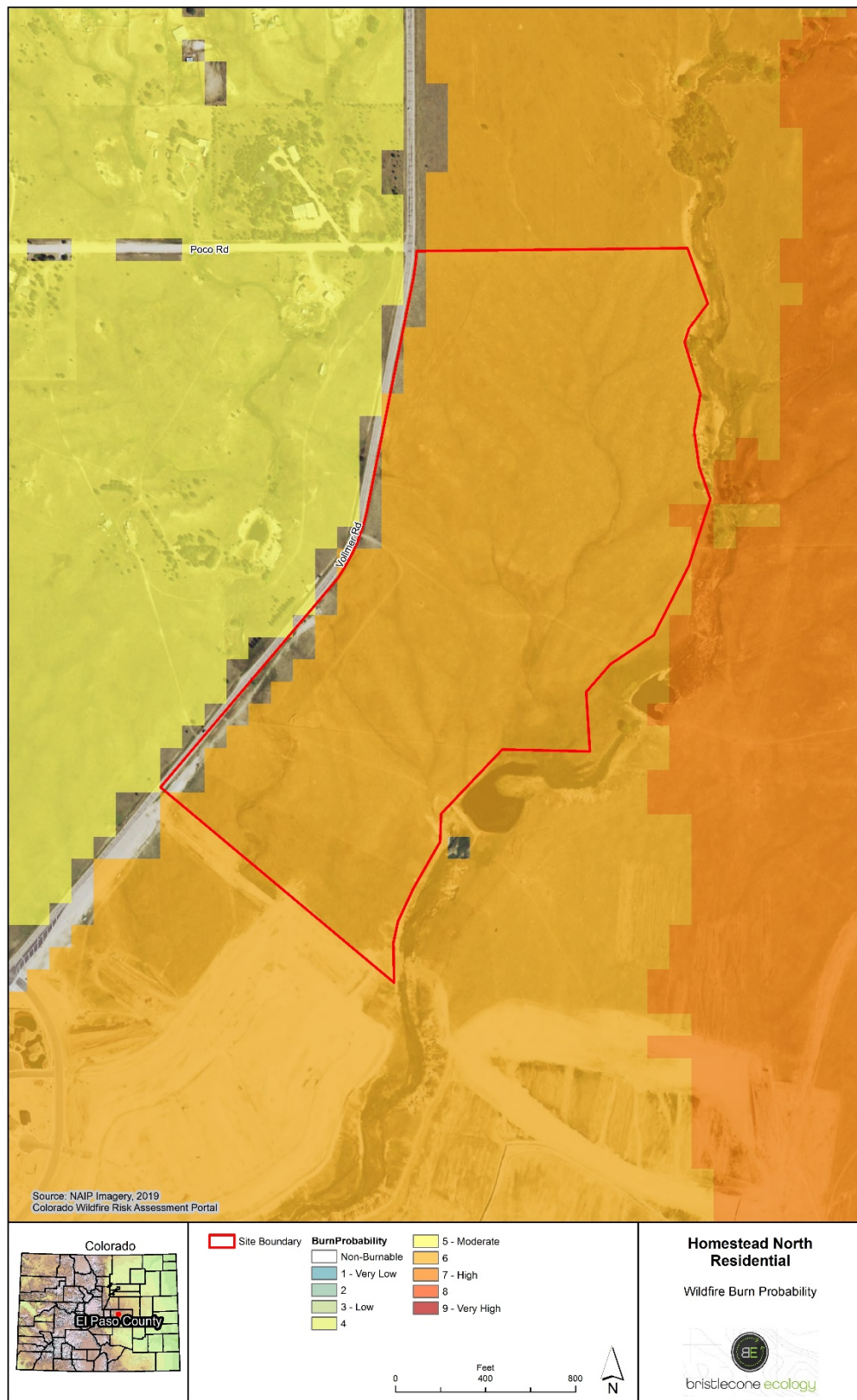**Figure 5: Wildfire Hazard Map – Wildfire Risk**

Figure 6: Wildfire Hazard Map – Burn Probability

Table 2. SAM Wildlife Potential for Occurrence (CPW 2019)

Common Name	Scientific Name	Type of Occurrence (CPW 2019)	Status[1,2]
Mammals			
Big brown bat	*Eptesicus fuscus*	Overall range	n/a
Black bear	*Ursus americanus*	Overall range Human conflict area	n/a
Black-tailed prairie dog	*Cynomys ludovicianus*	Overall range Potential occurrence	SC, S3
Fringed myotis	*Myotis thysanodes*	Overall range	n/a
Hoary bat	*Lasiurus cinereus*	Overall range	n/a
Little brown myotis	*Myotis lucifugus*	Overall range	n/a
Mountain lion	*Puma concolor*	Overall range	n/a
Mule deer	*Odocoileus hemionus*	Overall range Concentration area	n/a
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	Overall range	FT, ST, S1
Pronghorn	*Antilocapra americana*	Overall range	n/a
Silver-haired bat	*Lasionycteris noctivagans*	Overall range	n/a
Western red bat	*Lasiurus blossevillii*	Overall range	n/a
Western small-footed myotis	*Myotis ciliolabrum*	Overall range	n/a
White-tailed deer	*Odocoileus virginianus*	Overall range Concentration area	n/a
Birds			
Band-tailed pigeon	*Patagioenas fasciata*	Breeding range	S4B
Brewer's sparrow	*Spizella breweri*	Breeding range	S4B
Burrowing owl	*Athene cunicularia*	Breeding range	ST
Cassin's sparrow	*Peucaea cassinii*	Breeding range	n/a
Golden eagle	*Aquila chrysaetos*	Breeding range	BGEPA, S3S4B
Grasshopper sparrow	*Ammodramus savannarum*	Breeding range	S3S4B
Lark bunting	*Calamospiza melanocorys*	Breeding range	S4
Lazuli bunting	*Passerina amoena*	Breeding range	S5B
Lewis' woodpecker	*Melanerpes lewis*	Breeding range	S4
Northern harrier	*Circus hudsonius*	Breeding range	S3B
Prairie falcon	*Falco mexicanus*	Breeding range	S4B, S4N
Rufous hummingbird	*Selasphorus rufus*	Migration range	n/a
Swainson's hawk	*Buteo swainsoni*	Overall range	S5B
Virginia's warbler	*Oreothlypis virginiae*	Breeding range	S5
Wild turkey	*Meleagris gallopavo*	Overall and winter ranges	n/a

Table 2. SAM Wildlife Potential for Occurrence (CPW 2019)

Common Name	Scientific Name	Type of Occurrence (CPW 2019)	Status[1,2]
Reptile and Amphibians			
Bullsnake	*Pituophis catenifer sayi*	Overall range	n/a
Greater short-horned lizard	*Phrynosoma hernadesi*	Overall range	n/a
Lesser earless izard	*Holbrookia maculate*	Overall range	n/a
Milksnake	*Lampropeltis elapsoides*	Overall range	n/a
Many-lined skink	*Plestiodon multivirgatus*	Overall range	n/a
Ornate box turtle	*Terrapene ornata ornata*	Overall range	n/a
Painted turtle	*Chrysemys picta*	Overall range	n/a
Plains garter snake	*Thamnophis radix*	Overall range	n/a
Prairie lizard	*Sceloporus consobrinus*	Overall range	n/a
Plateau fence lizard	*Sceloporus tristichus*	Overall range	n/a
Prairie rattlesnake	*Crotalus viridis*	Overall range	n/a
Six-lined racerunner	*Aspidoscelis sexlineata*	Overall range	n/a
Smooth greensnake	*Opheodrys vernalis*	Overall range	n/a
Terrestrial gartersnake	*Thamnophis elegance*	Overall range	n/a

[1]FT=Federally Threatened; ST=State Threatened; SC=State Species of Concern; BGEPA=Bald and Golden Eagle Protection Act

[2]State (S) or Global (G) CNHP Status: 1=Critically Imperiled; 2=Imperiled; 3=Vulnerable; 4=Apparently Secure, but Cause for Long Term Concern; 5=Demonstrably Secure; B=Breeding; N=Non-breeding

Following review of the SAM data, a site reconnaissance was performed to field-verify the information provided in the SAM data and perform a general wildlife survey. In general, the site provides moderate quality habitat for wildlife. The site is dominated by one primary vegetation community, represented by typical Foothill Grasslands vegetation such as blue gramma, prairie Junegrass, and Kentucky bluegrass (*Poa pratensis*). Riparian and wetland vegetation are also present within the Sand Creek floodplain and are well established. The site has been previously disturbed, and cattle are actively being grazed. Invasive weeds such as diffuse knapweed and Scotch thistle are spread throughout the site in relatively low numbers, with no noticeable concentration areas. While some of the species listed in the SAM data may occur on the site, few were observed, and the majority are not expected to occur based on the limited habitat availability. Pronghorn (*Antilocapra americana*), white-tailed deer (*Odocoileus virginianus*), lark bunting (*Calamospiza melanocorys*), lazuli bunting (*Passerina amoena*), and Swainson's hawk (*Buteo swainsoni*) were the only species in the SAM data that were observed on-site. In particular, there is no suitable habitat for the state-listed Preble's meadow jumping mouse (*Zapus hudsonius preblei* or PMJM) and the state-threatened burrowing owl (*Athene cunicularia*). There is habitat

available for the state sensitive black-tailed prairie dog (*Cynomys ludovicianus*) but they are not present on the site and no burrows were observed.

Birds were the most common wildlife observed on the site during the reconnaissance. Species included barn swallow (*Hirundo rustica*), Brewer's blackbird (*Euphagus cyanocephalus*), Bullock's oriole (*Icterus bullockii*), Canada goose (*Branta canadensis*), cliff swallow (*Petrochelidon pyrrhonota*), eastern kingbird (*Tyrannus tyrannus*), Eurasian collared-dove (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), great blue heron (*Ardea herodias*), horned lark (*Eremophila alpestris*), killdeer (*Charadrius vociferus*), lark bunting, lark sparrow (*Chondestes grammacus*), lesser goldfinch (*Spinus psaltria*), mallard (*Anas platyrhynchos*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), pine siskin (*Spinus pinus*), northern rough-winged swallow (*Stelgidopteryx serripennis*), red-winged blackbird (*Agelaius phoeniceus*), savannah sparrow (*Passerculus sandwichensis*), Say's phoebe (*Sayornis saya*), sora (*Porzana carolina*), Swainson's hawk, turkey vulture (*Cathartes aura*), vesper sparrow (*Pooecetes gramineus*), western kingbird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), white-breasted nuthatch (*Sitta carolinensis*), and yellow warbler (*Setophaga petechia*). These species tend to prefer open habitats, marshes, or wooded areas like the predominant habitats present on-site.

The site provides some potential nesting habitat for raptors, and ample habitat for northern harrier (*Circus hudsonius*), which nests on the ground in grasslands (though this species was not observed). The riparian corridor of Sand Creek provides sufficient substrate for tree-nesting raptors such as Swainson's hawk, red-tailed hawk (*Buteo jamaicensis*), and the cavity-nesting American kestrel (*Falco sparverius*). A territorial Swainson's hawk was observed on-site giving alarm calls and circling the riparian corridor in the northern half of the Project area where trees are more abundant, however no sign of a nest was found in any of the trees.

The Project area provides some habitat for mammals including rodents, deer, and carnivores. Other than two or three individual pronghorns, mammals were not observed during the site reconnaissance, but several species are expected to occur, including coyote (*Canis latrans*) and red fox (*Vulpes vulpes*). Evidence of fossorial mammals was minimal, but a few eskers (mounds) were observed, presumably of pocket gophers (family *Geomidae*). The area is suitable year-round range for mule deer (*Odocoileus hemionus*) and white-tailed deer and is listed as a concentration area for both. The site also has potential to provide foraging and breeding habitat for predators such as coyote, red fox, gray fox (*Urocyon cinereoargenteus*), and potentially black bear (*Ursus americanus*). No black-tailed prairie dogs and no historic or active prairie dog burrows were observed, which also precludes the presence of burrowing owls, a prairie dog burrow specialist.

3.7. Federally Listed T&E Species

The USFWS IPaC database (USFWS 2020) was used to determine the likelihood of occurrence of federally listed T&E species within the Project area. The IPaC query listed nine species, including four birds, two fishes, and two flowering plants with the potential to occur within the Project area (Table 3. Federally Listed T&E Species Potentially Impacted by the Project). B.E. has provided our professional opinion regarding the probability that these species may occur within the Project site and their probability of being impacted by Project development.

Table 3. Federally Listed T&E Species Potentially Impacted by the Project (USFWS 2020)

Common Name	Scientific Name	Habitat Requirements and Likelihood of Impacts	Federal Status[1]
Birds			
Least tern	*Sternula antillarum*	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. **Likelihood of impacts: None, Project is not within the watersheds listed.**	FE
Mexican spotted owl	*Strix occidentalis lucida*	Requires mature, old-growth forests of white pine, Douglas fir, or ponderosa pine and narrow canyons with steep slopes and rocky cliffs (Gutiérrez et al. 1995). The closest USFWS designated Critical habitat is 12 miles west in mountainous terrain (USFWS, 2017b). **Likelihood of impacts: None, habitat not present.**	FT
Piping plover	*Charadrius melodus*	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. **Likelihood of impacts: None, Project is not within the watersheds listed.**	FT
Whooping crane	*Grus americana*	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. **Likelihood of impacts: None, Project is not within the watersheds listed.**	FE
Fishes			
Greenback cutthroat trout	*Oncorhynchus clarkii stomias*	Cold, clear, gravely headwater streams and mountain lakes that provide an abundant food supply of insects. Genetic sampling has confirmed that the only remaining native pure-strain population occurs in a four mile stretch of creek outside of its native range in Bear Creek (Metcalf et al. 2012). Reintroduction efforts are ongoing in the South Platte River system. **Likelihood of impacts: None, habitat not present.**	FT
Pallid sturgeon	*Scaphirhynchus albus*	Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. **Likelihood of impacts: None, Project is not within the watersheds listed.**	FE
Flowering Plants			
Ute ladies'-tresses orchid	*Spiranthes diluvialis*	Primarily occurs along seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels or valleys, and lakeshores. May also occur along irrigation canals, berms, levees, irrigated meadows, gravel pits, borrow pits, and other human-modified wetlands. Potentially suitable habitat may be present, but there are no known populations in El Paso County, and site is above elevation where surveys are required (USFWS 1992). **Likelihood of impacts: None, extremely unlikely for the species to occur, site is not in an area that requires surveys.**	FT

Common Name	Scientific Name	Habitat Requirements and Likelihood of Impacts	Federal Status[1]
Western prairie fringed orchid	*Platanthera praeclara*	Occurs in tallgrass prairie in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and Oklahoma. Water-related activities/use in the N. Platte, S. Platte and Laramie River Basins may affect listed species in Nebraska. **Likelihood of impacts: None, Project is not within the watersheds listed.**	FT

[1]FE= Federally Endangered; FT=Federally Threatened

3.8. Toxic Materials

A Phase 1 Environmental Site Assessment (ESA) was performed for the greater Sterling Ranch property in accordance with ASTM E1527-00 standards to document any toxic materials or other hazardous site conditions that could be present. The ESA included the following:

- An inspection of site and visual reconnaissance of surrounding properties
- Interviews with past and present owners (or designated representatives) and occupants of the site
- Interviews with state and/or local government officials
- A review of federal, state, and tribal environmental record sources through a database search of the site and surrounding properties to the minimum search distances specified in the ASTM Standard
- Reviews of historical use information for the site (aerial photographs, fire insurance maps, city directories, etc.)
- Preparation of a Phase I ESA report for the site

Phase I activities are managed and overseen by an Environmental Professional (EP) as required and defined by the ASTM E1527-00 standard. The EP is responsible for rendering their opinion on whether the ESA findings are considered a Recognized Environmental Condition (REC), Historical REC, Controlled REC, or de minimis condition. According to the Phase 1 ESA, some environmental conditions were present within Sterling Ranch, which includes the Project area, but the Project site itself was not listed in any of the regulatory environmental databases. Neighboring properties, including other portions of Sterling Ranch, had the following environmental conditions identified:

- A sand mining operation southwest of the Project site on the main portion of Sterling Ranch. The Phase 1 ESA recommends monitoring the operation for spills and leaks; these would not be expected to affect the Project area as the operation is downstream/down gradient of the Project site.
- Two on-site wells used for watering livestock were observed, one to the south and one to the east of the Project site.
- Two pipelines were observed southwest of the Project site, one transporting natural gas and one petroleum. The Kaneb Pipe Company and Colorado Interstate Gas are responsible for ensuring their safe operation and would be responsible for any spill/leaks. No further recommendations were provided.

According to the Phase 1 ESA, no RECs or significant environmental concerns are present in connection with the Project site. The full report of the ESA is appended here for reference (Appendix III: *Phase I Environmental Site Assessment*).

4.0 SUMMARY OF IMPACTS

4.1. Vegetation

Vegetation will be unavoidably disturbed through development of the Project site. The vast majority of the site is classified as Foothill Grasslands, which is the primary ecosystem type that will be impacted. The site is generally of moderate quality and impacts are not expected to imperil or substantially harm this or other ecosystems, though development of the site will result in the loss of approximately 92 acres of grasslands. No globally or state-sensitive vegetation communities are present, according to CNHP data for sensitive vegetation communities and site reconnaissance (CNHP 2019). The Project site is on the fringe of the Ponderosa Pine Woodlands, a globally and state stable vegetation community. There are few trees on the property and significant impacts are not expected. Development of the site will likely increase and improve arboreal habitat through the planting of trees in yards and in open spaces. The highest quality habitat on the site is along Sand Creek in the well-developed wetlands and riparian corridor. These areas will largely be undisturbed by Project construction, so the highest quality habitats will remain.

4.2. Aquatic Resources

Essentially one aquatic resource, albeit extensive and with many features, is present on the Project site, the jurisdictional Sand Creek river system and associated wetlands (Figure 3). Sand Creek is mapped in NHD/NWI data as an intermittent riverine wetland system in a relatively narrow channel. Site reconnaissance confirmed that Sand Creek and its associated wetlands are more extensive than depicted in the NWI/NHD data. All field-delineated wetlands associated with Sand Creek are expected to be considered jurisdictional by the USACE. As such, any impacts resulting to Sand Creek wetlands from construction of the Project are expected to require a Section 404 permit from the USACE. Based on current Project design plans, some impacts to jurisdictional wetlands necessitating a 404 permit are anticipated.

4.3. Noxious Weeds

Noxious weeds are present on the Project site in several areas but in generally limited quantities. There were no large concentrations of noxious weeds, but scattered noxious weeds were found throughout various portions of the site. List A Species, which require reporting and eradication by Colorado law (Colorado Department of Agriculture [CDA] 2006), were not detected. List B Species require either eradication, containment, or suppression; List C Species require control through either public education or chemical control. List B and List C Species that were detected during the site reconnaissance included:

List B

- Scotch thistle
- Diffuse knapweed

List C

- Common mullein

It is possible that additional noxious weed populations may be present on the site. A site inventory to identify and map noxious weeds during the growing season would be required to accurately catalogue all populations on the site. A Noxious Weed Management Plan has been prepared for the Project (Appendix II) detailing recommendations for identifying and controlling the spread of noxious weeds prior to, during, and/or post-construction.

4.4. Wildfire

The majority of the Project area is mapped as "Moderate" wildfire risk with a few small pockets of "High" risk present. The site is rated low-very low in terms of values and assets present that could be lost to wildfire; it is rated "Moderate-High" in terms of burn probability based on the available fuels at the site. The nearest fire response is the Black Forest Fire Protection District Station 1, which is 3.67 miles away.

Development of the site would result in a reduction of the available fuels for wildfires, while simultaneously increasing the values and assets present on the site. As such, the wildfire risk index for the Project is expected to stay close to the same as a result of development.

4.5. Wildlife

Similar to the impacts for vegetation, some wildlife will inevitably be affected by development of the Project area. Some species that prefer suburban habitats including some species of birds are expected to benefit from increased bird feeders and trees in yards. Designated open spaces will also conserve some of the open grassland habitats that are currently available, but open space will be reduced on the whole. Implementation of a stormwater management plan will assist in protecting water quality in downstream reaches, which will provide additional benefits to aquatic species including invertebrates. Detention facilities may add seasonal water features that could support additional wildlife such as waterfowl. Negligible impacts to forest species are expected as few trees will be cleared for construction and wildfire hazard reduction. Since grasslands are the most dominant habitat type, grassland species are expected to experience the greatest negative impacts. Deer, foxes, and bears may experience adverse effects from the increase in urbanization in close proximity to wildland areas in the greater vicinity.

4.6. Federally Listed T&E Species

Federally listed T&E species are not expected to occur on the Project. All species listed either occur in habitats that were not present on the site or would only conditionally be affected if development were to affect downstream populations in different river systems.

4.7. Toxic Materials

A detailed discussion of anticipated impacts for toxic materials is included in the Phase 1 ESA report for the Project (Appendix III). No RECs or significant environmental concerns were noted in the Phase I ESA on the Project site.

5.0 RECOMMENDATIONS

Upon completion of a desktop review, site reconnaissance, and routine wetland delineation, B.E. finds that few environmental constraints are present within the Project area. Constraints are summarized below within the regulatory context that they apply, and recommendations are provided.

5.1. Clean Water Act

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into WOTUS (including wetlands) without a valid permit. Wetland habitat is present in association with Sand Creek, a jurisdictional water body, and these wetlands are expected to be jurisdictional. Should the Project impact jurisdictional aquatic resources on the Project site, permitting pursuant to Section 404 of the CWA would be required. Based the preliminary site layout and the proximity of development to jurisdictional aquatic resources, it is anticipated that a Section 404 may be required.

It is recommended that the Applicant determine the need for Section 404 permits and obtain any necessary permits prior to beginning construction.

5.2. Endangered Species Act

Section 9(a)(1) of the Endangered Species Act prohibits the take of federally listed species and their habitats, and defines such take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S.C. § 1531). There is no suitable habitat for PMJM on the site, and the site is located within the Colorado Springs Preble's Block Clearance zone, so consultation with the USFWS is not required (. Another federally listed species, Ute ladies'-tresses orchid, has a very low likelihood of occurring within the Project area in potentially suitable wetland habitats, but is not expected to occur. Because the site is above the altitudinal threshold for ULTO surveys of 6,500 feet, no further due diligence is recommended. No impacts to any federally listed species are anticipated from site development and no further due diligence recommendations are provided.

5.3. Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

Migratory birds, and the parts, nests, or eggs of such a bird receive statutory protection under the MBTA, which prohibits intentional take of migratory birds. Bald and golden eagles (*Haliaeetus leucocephalus* and *Aquila chrysaetos*, respectively) receive additional statutory protection from accidental take and disturbance under the BGEPA. Both acts particularly apply to nesting birds and their nests. There were no nests observed on the site, but nesting substrates for raptors are available along Sand Creek; there is no suitable habitat for eagles. Further nesting substrates for other migratory birds are present in the form of open grasslands, and trees and shrubs along the riparian corridor, all of which are expected to be used by some migratory birds during the nesting season.

It is recommended that vegetation clearing/grubbing of the site occur outside of the nesting season (March 15th to July 31st) to avoid disturbing nesting migratory birds.

5.4. Colorado Noxious Weed Act

In order to ensure Project compliance with the Colorado Noxious Weed Act, and to comply with the requirements of El Paso County's Noxious Weed Management Plan Act, the Noxious Weed Management Plan referenced in Section 3.4 of this report should be implemented, and further site-specific weed management should be implemented on an ongoing basis.

5.5. Non-Statutory Considerations

There is potential for other wildlife, including some big game, to occur within the site. However, no big game migratory routes traverse the Project. In addition, ranges for several migratory birds, including the state-threatened burrowing owl, overlap the Project area, though habitat for burrowing owls is not present based on the lack of prairie dog presence. Coordination with CPW would determine the appropriate avoidance measures to take during and after construction regarding general wildlife.

Should you have any questions regarding the information or recommendations provided in this report, please feel free to contact Bristlecone Ecology at dmaynard@bristleconeecology.com.

Sincerely,

Bristlecone Ecology, LLC

Daniel Maynard
Ecologist

6.0 REFERENCES

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APPENDIX I

WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Homestead North City/County: El Paso County Sampling Date: 7/2/2020

Applicant/Owner: Sterling Ranch Metro District No. 1 State: CO Sampling Point: Sample Pt 1

Investigator(s): Dan Maynard Section, Township, Range: Sec 27, T12S, R65W

Landform (hillslope, terrace, etc.): Streambed Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): LRR G Lat: 38.973667 N Long: -104.663237 W Datum: WGS84

Soil Map Unit Name: Pleasant NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ☐ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ☐

Are Vegetation N , Soil N , or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ☐	**Is the Sampled Area**
Hydric Soil Present?	Yes ✓ No ☐	**within a Wetland?** Yes ✓ No ☐
Wetland Hydrology Present?	Yes ✓ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus angustifolia	10	✓	FAC
2. Salix amygdaloides	1		FACW
3.			
4.			
	11 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15'x15')			
1. Populus angustifolia (saplings)	2		FAC
2. Salix exigua	17	✓	FACW
3. Pinus ponderosa	1		UPL
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Carex nebrascensis	35	✓	OBL
2. Juncus arcticus	40	✓	FACW
3. Juncus drummondii	5		FACW
4. Asclepias speciosa	3		FAC
5. Equisetum laevigatum	1		FAC
6. Poa pratensis	10		FAC
7. Achillea millefolium	1		FACU
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30'x30')			
1. N/A			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5.00

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = 0.00

Hydrophytic Vegetation Indicators:

+ 1 - Rapid Test for Hydrophytic Vegetation

+ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ☐

Remarks:

Scirpus microcarpus, Carex utriculata nearby

SOIL Sampling Point: <u>Pt 1</u>

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10 YR 3/2	95	10 YR 4/3	5	C	PL	SCL	
4-9"	10 YR 4/3	100	-	-	-	-	LS	Med-coarse
9-18+"	10 YR 5/3	100	-	-	-	-	Sand	Coarse

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.   [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)	- Sandy Gleyed Matrix (S4)	**Indicators for Problematic Hydric Soils[3]:**
- Histic Epipedon (A2)	+ Sandy Redox (S5)	- 1 cm Muck (A9) (**LRR I, J**)
- Black Histic (A3)	- Stripped Matrix (S6)	- Coast Prairie Redox (A16) (**LRR F, G, H**)
- Hydrogen Sulfide (A4)	- Loamy Mucky Mineral (F1)	- Dark Surface (S7) (**LRR G**)
- Stratified Layers (A5) (**LRR F**)	- Loamy Gleyed Matrix (F2)	- High Plains Depressions (F16)
- 1 cm Muck (A9) (**LRR F, G, H**)	- Depleted Matrix (F3)	(**LRR H outside of MLRA 72 & 73**)
- Depleted Below Dark Surface (A11)	- Redox Dark Surface (F6)	- Reduced Vertic (F18)
- Thick Dark Surface (A12)	- Depleted Dark Surface (F7)	- Red Parent Material (TF2)
- Sandy Mucky Mineral (S1)	- Redox Depressions (F8)	- Very Shallow Dark Surface (TF12)
- 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)	- High Plains Depressions (F16)	- Other (Explain in Remarks)
- 5 cm Mucky Peat or Peat (S3) (**LRR F**)	(**MLRA 72 & 73 of LRR H**)	[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: <u>N/A</u>

Depth (inches): <u>N/A</u>

Hydric Soil Present?   Yes ✓   **No** ☐

Remarks:

Significant accretions have created a perched layer where shallow hydric conditions support hydrophytes

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)	- Salt Crust (B11)
- High Water Table (A2)	- Aquatic Invertebrates (B13)
- Saturation (A3)	- Hydrogen Sulfide Odor (C1)
- Water Marks (B1)	- Dry-Season Water Table (C2)
- Sediment Deposits (B2)	+ Oxidized Rhizospheres on Living Roots (C3)
- Drift Deposits (B3)	(**where not tilled**)
- Algal Mat or Crust (B4)	- Presence of Reduced Iron (C4)
- Iron Deposits (B5)	- Thin Muck Surface (C7)
- Inundation Visible on Aerial Imagery (B7)	- Other (Explain in Remarks)
- Water-Stained Leaves (B9)	

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3)
(**where tilled**)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
+ Geomorphic Position (D2)
+ FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?	Yes ☐	No ✓	Depth (inches): _____
Water Table Present?	Yes ☐	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ✓	Depth (inches): _____

Wetland Hydrology Present?   Yes ✓   **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Homestead North   City/County: El Paso County   Sampling Date: 7/2/2020

Applicant/Owner: Sterling Ranch Metro District No. 1   State: CO   Sampling Point: Sample Pt 2

Investigator(s): Dan Maynard   Section, Township, Range: Sec 27, T12S, R65W

Landform (hillslope, terrace, etc.): Floodplain Bench   Local relief (concave, convex, none): None   Slope (%): 1

Subregion (LRR): LRR G   Lat: 38.974888 N   Long: -104.663229 W   Datum: WGS84

Soil Map Unit Name: Pring   NWI classification: R4SBA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ___ (If no, explain in Remarks.)

Are Vegetation N , Soil N , or Hydrology N significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No ___

Are Vegetation N , Soil N , or Hydrology N naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ___	
Hydric Soil Present?	Yes ✓ No ___	**Is the Sampled Area within a Wetland?** Yes ✓ No ___
Wetland Hydrology Present?	Yes ✓ No ___	

Remarks:

Near the wetland boundary

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15'x15')			
1. Salix exigua	37	✓	FACW
2. Salix bebbianna	1		FACW
3.			
4.			
5.			
	38 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Juncus arcticus	30	✓	FACW
2. Carex utriculata	25	✓	OBL
3. Cyperus squarrosus	25	✓	OBL
4. Equisetum laevigatum	4		FAC
5. Carum carvi	3		UPL
6.			
7.			
8.			
9.			
10.			
	87 = Total Cover		
Woody Vine Stratum (Plot size: 30'x30')			
1. N/A			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 13.00

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-):   4   (A)

Total Number of Dominant Species Across All Strata: 4   (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =   0.00

Hydrophytic Vegetation Indicators:

+ 1 - Rapid Test for Hydrophytic Vegetation

+ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ___

Remarks:

SOIL

Sampling Point: Pt 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type¹	Loc²	Texture	Remarks
0-3"	2.5 Y 4/2	100	-	-	-	-	LS	Fine
3-6"	10 YR 3/2	98	7.5 YR 4/6	2	C	PL	SL	
6-10"	2.5 Y 5/2	67	10 YR 5/8	3	C	PL	SCL	
6-10"	2.5 Y 4/3	30					SCL	
10-14"	2.5 Y 4/3	93	10 YR 5/8	7	C	PL	SCL	
14-18+"	2.5 Y 5/3	100	-	-	-	-	Sand	Med-coarse

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Column 1	Column 2	Indicators for Problematic Hydric Soils³:
- Histosol (A1)	- Sandy Gleyed Matrix (S4)	- 1 cm Muck (A9) (**LRR I, J**)
- Histic Epipedon (A2)	- Sandy Redox (S5)	- Coast Prairie Redox (A16) (**LRR F, G, H**)
- Black Histic (A3)	+ Stripped Matrix (S6)	- Dark Surface (S7) (**LRR G**)
- Hydrogen Sulfide (A4)	- Loamy Mucky Mineral (F1)	- High Plains Depressions (F16)
- Stratified Layers (A5) (**LRR F**)	- Loamy Gleyed Matrix (F2)	(**LRR H outside of MLRA 72 & 73**)
- 1 cm Muck (A9) (**LRR F, G, H**)	- Depleted Matrix (F3)	- Reduced Vertic (F18)
- Depleted Below Dark Surface (A11)	- Redox Dark Surface (F6)	- Red Parent Material (TF2)
- Thick Dark Surface (A12)	- Depleted Dark Surface (F7)	- Very Shallow Dark Surface (TF12)
- Sandy Mucky Mineral (S1)	- Redox Depressions (F8)	- Other (Explain in Remarks)
- 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)	- High Plains Depressions (F16)	³Indicators of hydrophytic vegetation and
- 5 cm Mucky Peat or Peat (S3) (**LRR F**)	(**MLRA 72 & 73 of LRR H**)	wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ✓ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Column 1	Column 2	Secondary Indicators (minimum of two required)
- Surface Water (A1)	- Salt Crust (B11)	- Surface Soil Cracks (B6)
- High Water Table (A2)	- Aquatic Invertebrates (B13)	- Sparsely Vegetated Concave Surface (B8)
- Saturation (A3)	- Hydrogen Sulfide Odor (C1)	- Drainage Patterns (B10)
- Water Marks (B1)	- Dry-Season Water Table (C2)	- Oxidized Rhizospheres on Living Roots (C3)
- Sediment Deposits (B2)	+ Oxidized Rhizospheres on Living Roots (C3)	(**where tilled**)
- Drift Deposits (B3)	(**where not tilled**)	- Crayfish Burrows (C8)
- Algal Mat or Crust (B4)	- Presence of Reduced Iron (C4)	- Saturation Visible on Aerial Imagery (C9)
- Iron Deposits (B5)	- Thin Muck Surface (C7)	- Geomorphic Position (D2)
- Inundation Visible on Aerial Imagery (B7)	- Other (Explain in Remarks)	+ FAC-Neutral Test (D5)
- Water-Stained Leaves (B9)		- Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes ☐ No ✓ Depth (inches): _____

Water Table Present? Yes ☐ No ✓ Depth (inches): _____

Saturation Present? Yes ☐ No ✓ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes ✓ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers

Great Plains – Version 2.0

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Homestead North   City/County: El Paso County   Sampling Date: 7/2/2020
Applicant/Owner: Sterling Ranch Metro District No. 1   State: CO   Sampling Point: Sample Pt 3
Investigator(s): Dan Maynard   Section, Township, Range: Sec 28, T12S, R65W
Landform (hillslope, terrace, etc.): Terrace   Local relief (concave, convex, none): Concave   Slope (%): 1
Subregion (LRR): LRR G   Lat: 38.970591 N   Long: -104.666114 W   Datum: WGS84
Soil Map Unit Name: Pring   NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ☐ (If no, explain in Remarks.)
Are Vegetation N , Soil N , or Hydrology N significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No ☐
Are Vegetation N , Soil N , or Hydrology N naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ☐	**Is the Sampled Area**
Hydric Soil Present?	Yes ✓ No ☐	**within a Wetland?** Yes ✓ No ☐
Wetland Hydrology Present?	Yes ✓ No ☐	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15'x15')			
1. N/a			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Carex nebrascensis	18	✓	OBL
2. Juncus arcticus	18	✓	FACW
3. Juncus drummondii	25	✓	FACW
4. Carex praegracilis	25	✓	FACW
5. Campanula rotundifloria	4		FAC
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30'x30')			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10.00

Dominance Test worksheet:

Number of Dominant Species
That Are OBL, FACW, or FAC
(excluding FAC-):   4   (A)

Total Number of Dominant
Species Across All Strata: 4   (B)

Percent of Dominant Species
That Are OBL, FACW, or FAC: 100.00   (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =   0.00

Hydrophytic Vegetation Indicators:

+ 1 - Rapid Test for Hydrophytic Vegetation
+ 2 - Dominance Test is >50%
__ 3 - Prevalence Index is ≤3.0[1]
__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present?   Yes ✓ No ☐

Remarks:

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7"	10 YR 2/1	97	10 YR 4/6	3	C	M	SCL	Fine
7-15"	10 YR 2/1	100	-	-	-	-	SCL	Fine
15-18+"	2.5 Y 3/1	100	-	-	-	-	SCL	Med

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.   [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- - Histosol (A1)
- - Histic Epipedon (A2)
- - Black Histic (A3)
- + Hydrogen Sulfide (A4)
- - Stratified Layers (A5) (**LRR F**)
- - 1 cm Muck (A9) (**LRR F, G, H**)
- - Depleted Below Dark Surface (A11)
- - Thick Dark Surface (A12)
- - Sandy Mucky Mineral (S1)
- - 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- - 5 cm Mucky Peat or Peat (S3) (**LRR F**)

- - Sandy Gleyed Matrix (S4)
- - Sandy Redox (S5)
- - Stripped Matrix (S6)
- - Loamy Mucky Mineral (F1)
- - Loamy Gleyed Matrix (F2)
- - Depleted Matrix (F3)
- - Redox Dark Surface (F6)
- - Depleted Dark Surface (F7)
- - Redox Depressions (F8)
- - High Plains Depressions (F16)
  (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- - 1 cm Muck (A9) (**LRR I, J**)
- - Coast Prairie Redox (A16) (**LRR F, G, H**)
- - Dark Surface (S7) (**LRR G**)
- - High Plains Depressions (F16)
  (**LRR H outside of MLRA 72 & 73**)
- - Reduced Vertic (F18)
- - Red Parent Material (TF2)
- - Very Shallow Dark Surface (TF12)
- - Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present?   Yes ✓ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- - Surface Water (A1)
- - High Water Table (A2)
- - Saturation (A3)
- - Water Marks (B1)
- - Sediment Deposits (B2)
- - Drift Deposits (B3)
- - Algal Mat or Crust (B4)
- - Iron Deposits (B5)
- - Inundation Visible on Aerial Imagery (B7)
- - Water-Stained Leaves (B9)

- - Salt Crust (B11)
- - Aquatic Invertebrates (B13)
- + Hydrogen Sulfide Odor (C1)
- - Dry-Season Water Table (C2)
- + Oxidized Rhizospheres on Living Roots (C3)
  (**where not tilled**)
- + Presence of Reduced Iron (C4)
- - Thin Muck Surface (C7)
- - Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- - Surface Soil Cracks (B6)
- - Sparsely Vegetated Concave Surface (B8)
- - Drainage Patterns (B10)
- - Oxidized Rhizospheres on Living Roots (C3)
  (**where tilled**)
- - Crayfish Burrows (C8)
- - Saturation Visible on Aerial Imagery (C9)
- - Geomorphic Position (D2)
- + FAC-Neutral Test (D5)
- - Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?	Yes ☐	No ✓	Depth (inches): _____
Water Table Present?	Yes ☐	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes ☐	No ✓	Depth (inches): _____

Wetland Hydrology Present?   Yes ✓ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Homestead North City/County: El Paso County Sampling Date: 7/2/2020

Applicant/Owner: Sterling Ranch Metro District No. 1 State: CO Sampling Point: Sample Pt 4

Investigator(s): Dan Maynard Section, Township, Range: Sec 28, T12S, R65W

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): LRR G Lat: 38.971206 N Long: -104.666064 W Datum: WGS84

Soil Map Unit Name: Pring NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ☐ (If no, explain in Remarks.)

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ☐

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ☐	**Is the Sampled Area**
Hydric Soil Present?	Yes ☐	No ✓	**within a Wetland?** Yes ☐ No ✓
Wetland Hydrology Present?	Yes ☐	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15'x15')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Carex nebrascensis	38	✓	OBL
2. Hordeum jubatum	10		FACW
3. Oxalis stricta	10		FACU
4. Juncus arcticus	15	✓	FACW
5. Poa sp.	7		-
6. Taraxacum officinale	2		UPL
7. Cirsium undulatum	1		UPL
8.			
9.			
10.			
	83 = Total Cover		
Woody Vine Stratum (Plot size: 30'x30')			
1. N/A			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 17.00

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	38	x 1 =	38
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	17	x 4 =	68
UPL species	3	x 5 =	15
Column Totals:	83 (A)		171 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

− 1 - Rapid Test for Hydrophytic Vegetation

+ 2 - Dominance Test is >50%

+ 3 - Prevalence Index is ≤3.0[1]

− 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

− Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ☐

Remarks:
Somewhat cattle-affected

SOIL   Sampling Point: Pt 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18"	10 YR 2/2	100	-	-	-	-	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.   [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)   **Indicators for Problematic Hydric Soils[3]:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (**LRR F**)
- 1 cm Muck (A9) (**LRR F, G, H**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- 5 cm Mucky Peat or Peat (S3) (**LRR F**)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)
  (**MLRA 72 & 73 of LRR H**)

- 1 cm Muck (A9) (**LRR I, J**)
- Coast Prairie Redox (A16) (**LRR F, G, H**)
- Dark Surface (S7) (**LRR G**)
- High Plains Depressions (F16)
  (**LRR H outside of MLRA 72 & 73**)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present?   Yes ☐   No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3)
  (**where not tilled**)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3)
  (**where tilled**)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- + FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?	Yes ☐	No ☑	Depth (inches): ___	
Water Table Present?	Yes ☐	No ☑	Depth (inches): ___	
Saturation Present? (includes capillary fringe)	Yes ☐	No ☑	Depth (inches): ___	**Wetland Hydrology Present?** Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: __Homestead North__   City/County: __El Paso County__   Sampling Date: __7/2/2020__

Applicant/Owner: __Sterling Ranch Metro District No. 1__   State: __CO__   Sampling Point: __Sample Pt 5__

Investigator(s): __Dan Maynard__   Section, Township, Range: __Sec 28, T12S, R65W__

Landform (hillslope, terrace, etc.): __Swale__   Local relief (concave, convex, none): __Concave__   Slope (%): __2__

Subregion (LRR): __LRR G__   Lat: __38.969565 N__   Long: __-104.670699__   Datum: __WGS84__

Soil Map Unit Name: __Pring__   NWI classification: __R4SBA__

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ☐ (If no, explain in Remarks.)

Are Vegetation __N__, Soil __N__, or Hydrology __N__ significantly disturbed?   Are "Normal Circumstances" present? Yes ✓ No ☐

Are Vegetation __N__, Soil __N__, or Hydrology __N__ naturally problematic?   (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ✓
Hydric Soil Present?	Yes ☐ No ✓	
Wetland Hydrology Present?	Yes ☐ No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30'x30')	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15'x15')			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5'x5')			
1. Hordeum jubatum	12		FACW
2. Juncus arcticus	40	✓	FACW
3. Elymus trachycaulus	15	✓	FACU
4. Aster sp.	3		UPL
5. Poa pratensis	10		FAC
6. Carex praegracilis	10		FACW
7. +			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum __10.00__

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): __1__ (A)

Total Number of Dominant Species Across All Strata: __2__ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: __50.00__ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	62	x 2 =	124
FAC species	10	x 3 =	30
FACU species	15	x 4 =	60
UPL species	3	x 5 =	15
Column Totals:	90 (A)		229 (B)

Prevalence Index = B/A = __2.54__

Hydrophytic Vegetation Indicators:

− 1 - Rapid Test for Hydrophytic Vegetation

− 2 - Dominance Test is >50%

+ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ☐

Remarks:

SOIL   Sampling Point: Pt 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18"	10 YR 2/2	100	-	-	-	-	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.   [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)   **Indicators for Problematic Hydric Soils[3]:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (**LRR F**)
- 1 cm Muck (A9) (**LRR F, G, H**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- 5 cm Mucky Peat or Peat (S3) (**LRR F**)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)
  (**MLRA 72 & 73 of LRR H**)

- 1 cm Muck (A9) (**LRR I, J**)
- Coast Prairie Redox (A16) (**LRR F, G, H**)
- Dark Surface (S7) (**LRR G**)
- High Plains Depressions (F16)
  (**LRR H outside of MLRA 72 & 73**)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present?   Yes [ ]   **No** [✓]

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3)
  (**where not tilled**)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3)
  (**where tilled**)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- + Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present?   Yes [ ]   No [✓]   Depth (inches): _____

Water Table Present?   Yes [ ]   No [✓]   Depth (inches): _____

Saturation Present?   Yes [ ]   No [✓]   Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present?   Yes [ ]   **No** [✓]

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

US Army Corps of Engineers   Great Plains – Version 2.0

APPENDIX II

NOXIOUS WEED MANAGEMENT PLAN

NOXIOUS WEED MANAGEMENT PLAN

for

Homestead North Residential
El Paso County, CO

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APPENDICES

EXECUTIVE SUMMARY

Bristlecone Ecology, LLC ("Bristlecone") was retained by Sterling Ranch Metropolitan District No. 1 ("Applicant") to prepare a Noxious Weed Management Plan ("Plan") for the proposed Homestead North Residential Development ("Project"), in unincorporated El Paso County, Colorado. The Project would develop 224 residential lots on approximately 92 acres of undeveloped land southeast of the intersection of Vollmer Road and Poco Road, and bounded by Vollmer Road on the west and Sand Creek on the east.

This Plan is a Project-specific document that has been designed to set forth Project-level regulations to prevent and control the spread of noxious weeds within the Project area and vicinity. Noxious weeds are defined as those non-native plants that aggressively invade and are detrimental to native vegetation communities and ecosystems. The *Colorado State Noxious Weed Act* (Colorado Revised Statute 35-5.5-103) developed a list of plants considered noxious in the state of Colorado that should be targeted for control by various methods dependent on list category (A, B, or C). The Plan shall tier to the requirements set forth by the El Paso County (EPC) Noxious Weed Management Plan (2017a), which contains guidelines for control and treatment of noxious weeds found in the County. EPC requires that residential projects that include ground disturbing activities submit a project-specific noxious weed management plan. This Plan provides methods to prevent and control the spread of noxious weeds at construction and post-construction phases of the Project.

1.0 INTRODUCTION AND PROJECT LOCATION

Sterling Ranch Metropolitan District No. 1 ("Applicant") retained Bristlecone Ecology, LLC ("Bristlecone") to prepare a Noxious Weed Management Plan ("Plan") for the proposed Homestead North Residential Development ("Project") located in El Paso County (EPC), Colorado. The Project will consist of 224 residential lots, open space tracts, stormwater detention facilities, arterial roads, utilities, and other associated facilities and infrastructure. The Project is located on a 92-acre parcel southeast of the intersection of Vollmer Road and Poco Road, and bounded by Vollmer Road on the west and Sand Creek on the east (Figure I: *Project Location Map*). The site is located in portions of Sections 28 and 33, Township 12S, Range 65W, and can be found on the U.S. Geological Survey's (USGS) Falcon NW 7.5-minute quadrangle (USGS 2020).

The Project area is located in the Foothill Grasslands ecoregion near its intersection with the Pine-Oak Woodlands in Colorado (Chapman et al. 2006). Topography of the Project consists of flat to rolling foothills grasslands about a half mile from the pine-oak woodlands of the Black Forest to the northwest. The Foothills Grasslands Ecoregion is composed of a mixture of tall and mid-grasses and isolated pine woodlands (Chapman et al. 2006). Dominant species include little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), switchgrass (*Panicum virgatum*), and yellow Indiangrass (*Sorghastrum nutans*; Chapman et al. 2006). Vegetation cover on the Project site is generally extensive, though previously disturbed, and lacks the structure and plant diversity typical of more healthy vegetation communities in this ecoregion. Elevations of the Project area range between approximately 7,110 and 7,220 feet above mean sea level (AMSL). Sand Creek just to the east supports a well-developed complex of wetlands and riparian vegetation.
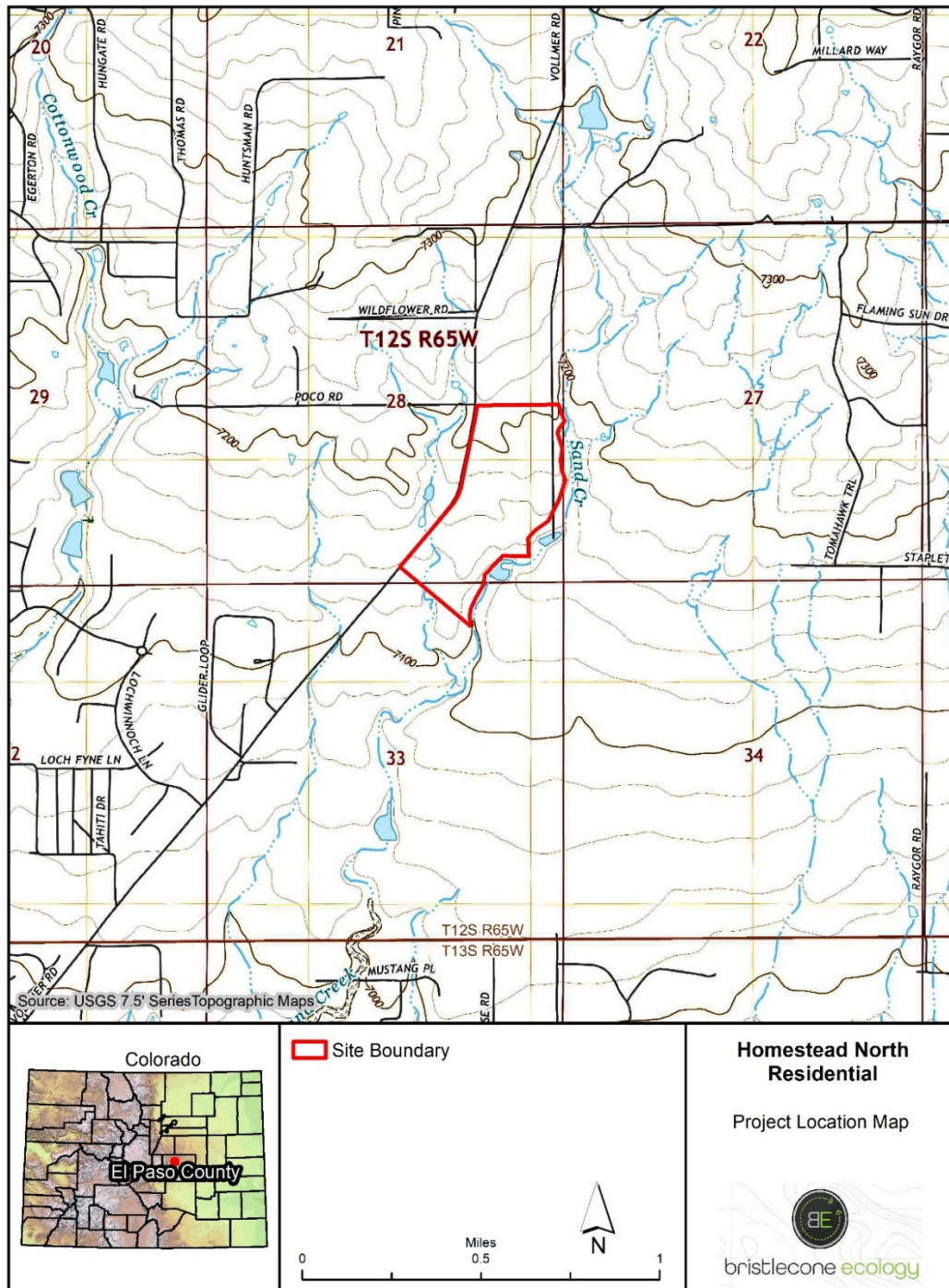
Figure 1: Project Location Map

2.0 NOXIOUS WEED MANAGEMENT BACKGROUND

The spread of invasive species roughly mirrors the rise in human travel and commerce (Mack *et al.* 2000 and Sheley *et al.* 1996). Many noxious weeds have been identified as aggressive, weather resistant, escaped ornamentals from residential landscapes (Westbrooks 1998). *The Federal Noxious Weed Act* (7 U.S.C. 2801 et seq.; 88 Stat. 2148) was enacted in 1975 in an effort to halt the spread of noxious weeds across the country. Following guidelines set forth by the *Federal Noxious Weed Act*, Colorado passed the *Colorado Noxious Weed Act* ("Act"; C.R.S. 35-5.5-103) in 1990. The Act identified noxious weeds particular to the landscape of Colorado. As defined in the Act, noxious weeds are any non-native plant that:

- aggressively invades or is detrimental to economic crops or native plant communities;
- is poisonous to livestock;
- is a carrier of detrimental insects, diseases, or parasites;
- or is detrimental, either by direct or indirect effects, to the environmentally sound management of natural or agricultural ecosystems.

The Act was amended in 2002 to require counties to establish individual management plans relevant to local municipalities. EPC developed the *El Paso County Noxious Weed Management Plan* in 2003 (updated in 2017) to identify county-level noxious weed management practices that would preserve the economic and environmental value of EPC lands (EPC 2017a).Disturbed areas are vulnerable to infestation from noxious weeds due to the aggressive nature by which noxious weeds can spread. Construction activities including clearing, grading, and excavation promote the establishment of noxious weed species before native vegetation can reestablish within the cleared area. As such, the *EPC Noxious Weed Management Plan* requires integrated management plans for any activities requiring dirt moving activities within El Paso County (EPC 2017a). Project-specific integrated management plans should include methods to prevent, control, and monitor the spread of noxious weeds and should take into account the multiple methods by which noxious weeds germinate. Annuals typically reproduce through seed which can easily attach to equipment during construction activities. Perennials often propagate through an extensive root system. Ground disturbing activities have the potential to redistribute root sections that could quickly propagate in other areas. Because of the multiple methods by which noxious weeds spread and propagate, integrated management plans should outline education and native revegetation methods, in addition to chemical control methods (EPC 2017a).

3.0 NOXIOUS WEED MANAGEMENT PLAN

3.1 Purpose and Goals

Construction of Project facilities will occur over several months. Upon completion of construction, the Project will consist of 224 residential lots, open space tracts, stormwater detention facilities, arterial roads, utilities, and other associated facilities and infrastructure. It is anticipated that noxious weeds will concentrate along road medians and highly trafficked areas within the development areas. As such, this integrated management plan includes construction and maintenance methods to prevent, control, and monitor the spread of identified noxious weed populations within the Project. It will be the responsibility of the Homeowners' Association (HOA), should one be formed, to establish covenants to prevent and control the spread of noxious weeds. Typically, an HOA will contract a licensed herbicide applicator to seasonally survey and spray for noxious weeds throughout the development as necessary. Additionally, communal landscaped areas should be regularly mowed and treated for noxious weeds. Integrated management methods shall include the following:

- surveys to inventory and map established noxious weed populations;
- sharing of data with EPC to aid in EPC level inventory;
- chemical treatment of all identified noxious weed populations;
- and periodic post-construction treatment as needed and as determined by the HOA or other controlling entity.

Management methods identified within this Plan will comply with *Chapter 6: General Development Standards of the EPC Land Development Code* (EPC 2017b), the *EPC Noxious Weed Management Plan* (EPC 2017a) and the Act (Colorado Revised Statutes 35-5.5-103). Biological control methods are not included due to the prohibition of their use on plants targeted for eradication by the Colorado Weed Management Association (CWMA) (2015). Noxious weed species targeted would be those identified in the Act, with special consideration for those species listed in the *EPC Noxious Weeds and Control Methods* (EPC 2018).

3.2 Regulated Species

The Act identifies three levels of priority for control of noxious weeds throughout the State of Colorado ("State"). The CWMA maintains an updated list of noxious weeds known to occur in the State. CWMA also maintains a "watch list" of noxious weeds that occur in proximity to State borders and/or those species with a distribution that is not yet understood (**Appendix I**: *Colorado State Noxious Weed List*). List A noxious weeds are those species targeted for eradication. List A noxious weed populations are typically isolated in nature or rare throughout much of the State (*Colorado Revised Statutes 35-5.5-103*). Eradication and reporting of List A populations is required by law (Colorado Department of Agriculture [CDA] 2006). List B species are discretely distributed throughout the State and must be eradicated, contained, or suppressed (*Colorado Revised Statutes 35-5.5-103*). EPC requires control of all List B noxious weed populations located within the Project area (EPC 2017a). List C noxious weed populations are widespread and well established. EPC requires control of List C species through education of the public and/or chemical control (EPC 2017a).

3.3 Construction

Noxious weed management protocols during construction include prevention and treatment. Prevention and treatment shall be accomplished at the Project through surveys of construction easements, followed by primary chemical treatment. Initial inventory surveys shall occur separately from treatment, but both shall be completed before initial ground disturbing activities commence.

Noxious weed surveys shall be conducted within all construction easements prior to any ground disturbing activities. Surveyors shall use GPS units to collect data on noxious weed populations. Data collected for List C populations shall include species and general coordinates of population; data collected for List A and List B populations shall include species, coordinates for the approximate center of each identified population, and the approximate radius of the infestation. EPC shall receive a map of identified noxious weed populations within the Project. Should surveyors locate List A species, the specific data collected shall be sent to EPC. Treatment type shall be selected depending on the priority rank of the noxious weed species (List A, B, or C), and the location and density of the infestation. Chemical treatment shall include herbicide application; the suggested chemical treatment protocol is described below.

List A species must be eradicated by law (USDA 2006). Should surveyors identify List A species, a plant sample shall be collected for positive identification through EPC's Environmental Division. Upon positive confirmation of a List A species, hand pulling of the population shall be performed to remove the mechanism for creation of a seed-bank. Chemical treatment shall be applied to the area and shall be selected in compliance with the *EPC Noxious Weeds and Control Methods* (EPC 2018). List B species shall be chemically treated with an herbicide selected in compliance with the *EPC Noxious Weeds and Control Methods* (EPC 2018). Herbicide selection may vary depending upon the time of year and the life cycle of the plant. All herbicide application shall occur concurrent with initial ground disturbing activities. The herbicide applicator shall treat noxious weed populations with EPC recommended chemicals (EPC 2017a). Bristlecone recommends not treating List C noxious weeds; List C noxious weeds are well established and difficult to treat since many have hardy seed beds that are not affected by herbicide application. Rather than completely eradicate List C populations, herbicide applicators manage populations with continued seasonal treatments. A more efficient protocol would be to avoid List C weeds to the greatest extent possible during construction. It is anticipated that the HOA will treat all noxious or weedy species within development areas post-construction, including List C species, and will maintain a weed-free landscape within the Project.

Additional construction phase noxious weed management protocols shall include prevention and maintenance. Contractors shall prevent the spread of noxious weeds through the use of clean equipment and through treatment of all List A and List B populations concurrent with initial ground disturbing activities. Heavy equipment used on the site shall be washed and sprayed before mobilization on the Project. Doing so shall ensure that soils and seeds are not transported from other sites. Noxious weed treatment shall occur to areas slated for ground disturbance or immediately after initial ground disturbance activities. Doing so will ensure that active List A and List B noxious weed populations will become inactive and/or effectively managed throughout the construction phase of the Project.

It is anticipated that portions of the Project will be landscaped, including open spaces. Top-soil sources for landscaped areas shall be provided from native, on-site top-soil. Any salvaged top-soil piles shall be treated for noxious weeds and maintained and protected from erosion and/or noxious weed establishment during construction through Best Management Practices (BMPs) identified in the Project's Grading, Erosion, and Sediment Control (GESC) Plan.

3.5 Post-Construction

Post-construction noxious weed management protocols shall be limited to maintenance treatment, as needed and as determined by the HOA. It is anticipated that the landscaped areas of the Project, including private lots, will require seasonal noxious weed treatment and maintenance. Bristlecone notes that any existing List A and List B noxious weed populations should be treated concurrent with construction. Treatment of the site concurrent with initial ground disturbing activities may halt the spread of List A and List B noxious weeds in the immediate vicinity of the Project. However, noxious weed populations may persist on the Project's periphery. It shall be the HOA's responsibility to identify and treat any persistent noxious weed populations on the Project site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The Homestead North Noxious Weed Management Plan was written to comply with guidelines in the Colorado Noxious Weed Act (Colorado Revised Statutes 35-5.5-103) and the EPC Noxious Weed Management Plan. Bristlecone recommends that the Applicant conduct surveys for all noxious weed populations and treat any List A and List B noxious weed populations located within the Project area. The HOA (or other controlling entity) shall be responsible for maintaining a weed-free property following construction. Typically, chemical treatment is applied between late spring and early fall depending on the recommended treatment protocols for each noxious weed species (EPC 2017a).

Should you have any questions regarding this or any other matter, please feel free to contact our office at (971) 237-3906.

Sincerely,
Bristlecone Ecology, LLC

Daniel Maynard
Ecologist

REFERENCES

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APPENDIX I

COLORADO STATE NOXIOUS WEED LIST

Colorado Noxious Weeds (including Watch List), effective March 31, 2017

List A Species (25)

Common	Scientific
African rue	*(Peganum harmala)*
Bohemian knotweed	*(Polygonum x bohemicum)*
Camelthorn	*(Alhagi maurorum)*
Common crupina	*(Crupina vulgaris)*
Cypress spurge	*(Euphorbia cyparissias)*
Dyer's woad	*(Isatis tinctoria)*
Elongated mustard	*(Brassica elongata)*
Flowering rush	*(Butomus umbellatus)*
Giant knotweed	*(Polygonum sachalinense)*
Giant reed	*(Arundo donax)*
Giant salvinia	*(Salvinia molesta)*
Hairy willow-herb	*(Epilobium hirsutum)*
Hydrilla	*(Hydrilla verticillata)*
Japanese knotweed	*(Polygonum cuspidatum)*
Meadow knapweed	*(Centaurea nigrescens)*
Mediterranean sage	*(Salvia aethiopis)*
Medusahead	*(Taeniatherum caput-medusae)*
Myrtle spurge	*(Euphorbia myrsinites)*
Orange hawkweed	*(Hieracium aurantiacum)*
Parrotfeather	*(Myriophyllum aquaticum)*
Purple loosestrife	*(Lythrum salicaria)*
Rush skeletonweed	*(Chondrilla juncea)*
Squarrose knapweed	*(Centaurea virgata)*
Tansy ragwort	*(Senecio jacobaea)*
Yellow starthistle	*(Centaurea solstitialis)*

List B Species (40)

Common	Scientific
Absinth wormwood	*(Artemisia absinthium)*
Black henbane	*(Hyoscyamus niger)*
Bull thistle	*(Cirsium vulgare)*
Bouncingbet	*(Saponaria officinalis)*
Canada thistle	*(Cirsium arvense)*
Chinese clematis	*(Clematis orientalis)*
Common tansy	*(Tanacetum vulgare)*
Common teasel	*(Dipsacus fullonum)*
Corn chamomile	*(Anthemis arvensis)*
Cutleaf teasel	*(Dipsacus laciniatus)*
Dalmatian toadflax, broad-leaved	*(Linaria dalmatica)*
Dalmatian toadflax, narrow-leaved	*(Linaria genistifolia)*
Dame's rocket	*(Hesperis matronalis)*
Diffuse knapweed	*(Centaurea diffusa)*

List B Species (40) continued

Common	Scientific
Eurasian watermilfoil	(Myriophyllum spicatum)
Hoary cress	(Cardaria draba)
Houndstongue	(Cynoglossum officinale)
Jointed goatgrass	(Aegilops cylindrica)
Leafy spurge	(Euphorbia esula)
Mayweed chamomile	(Anthemis cotula)
Moth mullein	(Verbascum blattaria)
Musk thistle	(Carduus nutans)
Oxeye daisy	(Leucanthemum vulgare)
Perennial pepperweed	(Lepidium latifolium)
Plumeless thistle	(Carduus acanthoides)
Russian knapweed	(Acroptilon repens)
Russian-olive	(Elaeagnus angustifolia)
Salt cedar	(Tamarix chinensis, T. parviflora, and T. ramosissima)
Scentless chamomile	(Tripleurospermum perforata)
Scotch thistle	(Onopordum acanthium, O. tauricum)
Spotted knapweed	(Centaurea stoebe)
Spotted x diffuse knapweed hybrid	(Centaurea x psammogena = C. stoebe x C. diffusa)
Sulfur cinquefoil	(Potentilla recta)
Wild caraway	(Carum carvi)
Yellow nutsedge	(Cyperus esculentus)
Yellow toadflax	(Linaria vulgaris)
Yellow x Dalmatian toadflax hybrid	(Linaria vulgaris x L. dalmatica)

List C Species (16)

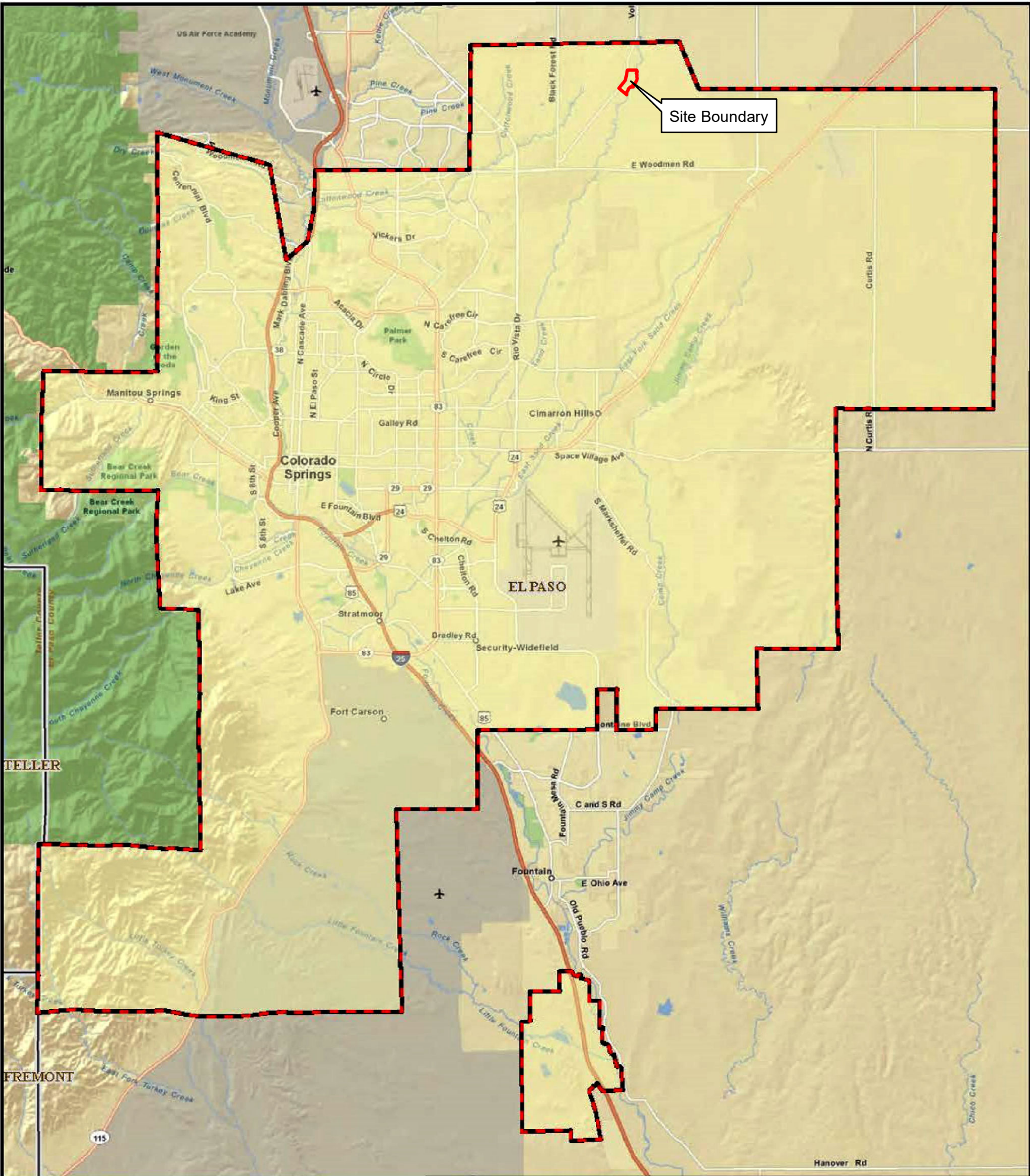| Common	Scientific
Bulbous bluegrass	(Poa bulbosa)
Chicory	(Cichorium intybus)
Common burdock	(Arctium minus)
Common mullein	(Verbascum thapsus)
Common St. Johnswort	(Hypericum perforatum)
Downy brome	(Bromus tectorum)
Field bindweed	(Convolvulus arvensis)
Halogeton	(Halogeton glomeratus)
Johnsongrass	(Sorghum halepense)
Perennial sowthistle	(Sonchus arvensis)
Poison hemlock	(Conium maculatum)
Puncturevine	(Tribulus terrestris)
Quackgrass	(Elymus repens)
Redstem filaree	(Erodium cicutarium)
Velvetleaf	(Abutilon theophrasti)
Wild proso millet	(Panicum miliaceum)

Watch List Species (24)

Common	Scientific
Asian mustard	(Brassica tournefortii)
Baby's breath	(Gypsophila paniculata)
Bathurst burr, Spiney cocklebur	(Xanthium spinosum)
Brazilian egeria, Brazilian elodea	(Egeria densa)
Common bugloss	(Anchusa officinalis)
Common reed	(Phragmites australis)
Garden loosestrife	(Lysimachia vulgaris)
Garlic mustard	(Alliaria petiolata)
Himalayan blackberry	(Rubus armeniacus)
Hoary alyssum	(Berteroa incana L.)
Japanese blood grass/cogongrass	(Imperata cylindrica)
Meadow hawkweed	(Hieracium caespitosum)
Onionweed	(Asphodelus fistulosus)
Purple pampas grass	(Cortaderia jubata)
Scotch broom	(Cytisus scoparius)
Sericea lespedeza	(Lespedeza cuneata)
Swainsonpea	(Sphaerophysa salsula)
Syrian beancaper	(Zygophyllum fabago)
Water hyacinth	(Eichhornia crassipes)
Water lettuce	(Pistia stratiotes)
White bryony	(Bryonia alba)
Woolly distaff thistle	(Carthamus lanatus)
Yellow flag iris	(Iris pseudacorus)
Yellow floatingheart	(Nymphoides peltata)

APPENDIX III
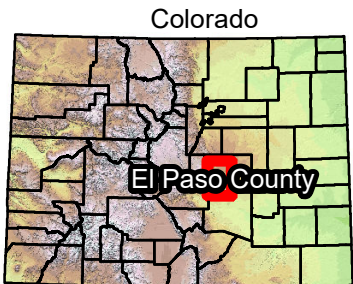
PHASE I ENVIRONMENTAL SITE ASSESSMENT

APPENDIX IV

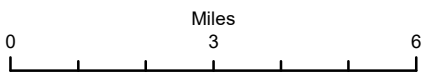*PREBLE'S MEADOW JUMPING MOUSE BLOCK CLEARANCE MAP*

Site Boundary

PREBLE'S MEADOW JUMPING MOUSE BLOCK CLEARANCE MAP: COLORADO SPRINGS

Please contact the U.S. Fish & Wildlife Service, Colorado Field Office, at (303) 236-4773 for assistance using this map. Visit http://1.usa.gov/n5r48y for more information on Preble's and the Block Clearance.

Block Clearance Area

County Boundaries

Colorado

El Paso County

Site Boundary

Miles

0   3   6

Homestead North Residential

Preble's Meadow Jumping Mouse Block Clearance Map

bristlecone ecology

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