SWCA INC. ENVIRONMENTAL CONSULTANTS
8461 Turnpike Drive, Suite 100 · Westminster, Colorado 80031
(303) 487-1183 · FAX (303) 487-1245

ECOLOGICAL CONSTRAINTS SURVEY OF THE SCOTT RANCH PROPERTY, LOCATED NEAR CASTLE ROCK, DOUGLAS COUNTY, COLORADO

September 11, 2000

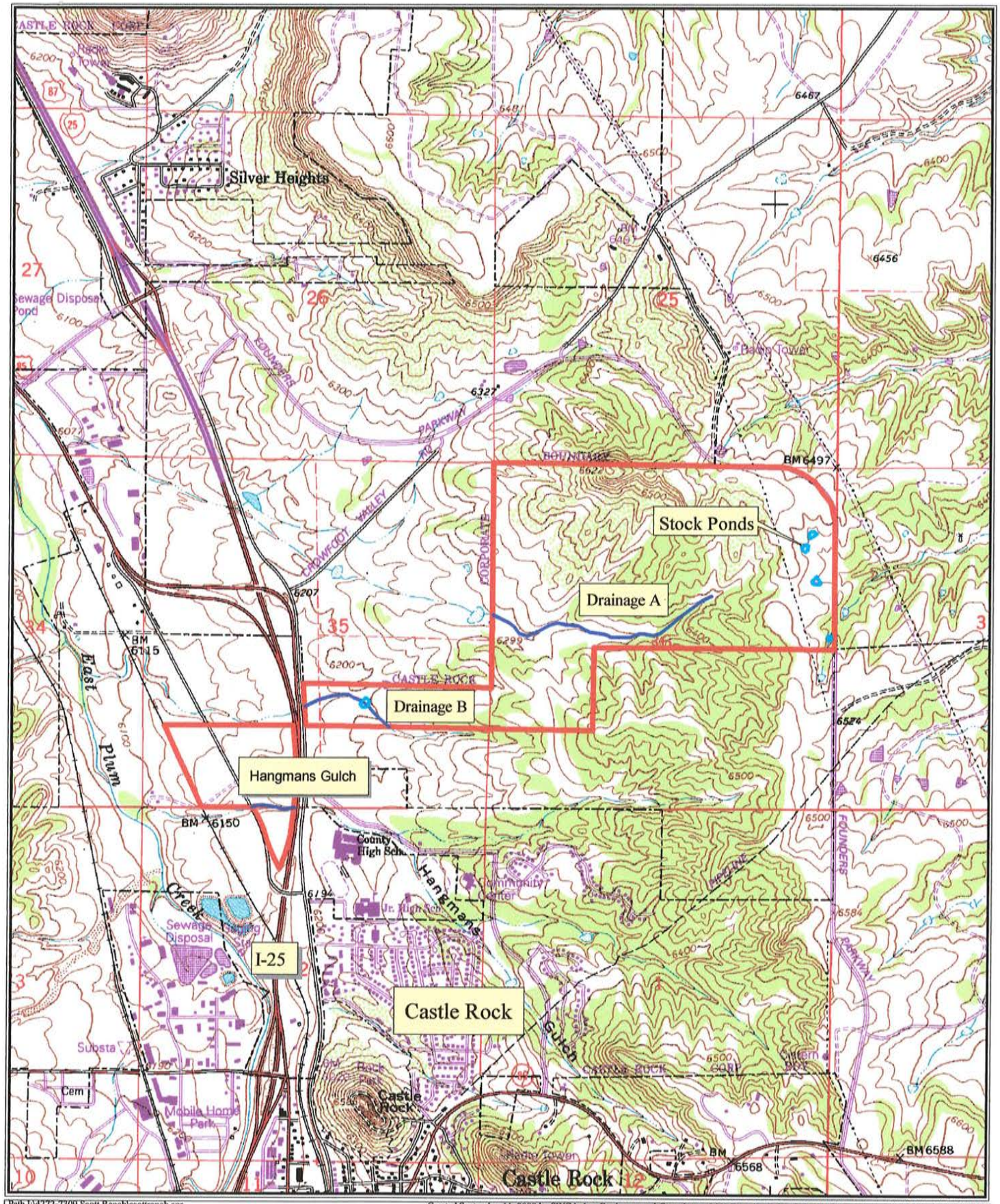
INTRODUCTION

SWCA, Inc., Environmental Consultants. (SWCA) was contracted by Chapman Golf Development to conduct an ecological constraints survey on the approximately 441-acre Scott Ranch property. The property is located near the City of Castle Rock, Douglas County, Colorado. The Scott Ranch includes property on both the east and west sides of I-25. The east portion is approximately 388 acres and is bordered by Founders Parkway to the northeast and east, undeveloped open shrub/grassland to the southeast, residential development to the southwest, open grasslands and the north I-25 frontage road to the west, and residential development to the northwest. The western portion of Scott Ranch is approximately 53 acres and is bordered by I-25 to the east, Liggett Road to the southeast, Hangman's Gulch to the southwest, the Atchison Topeka and Santa Fe Railroad line to the west, and open grasslands to the north; Liggett Road bisects this portion of the property. An old homestead, including a ranch house and other structures, is located in this portion of the property on the east side of Liggett Road. The specific location of the subject tract is shown in Figure 1.

The objective of this survey was to identify natural features that could constrain the development potential of the subject property. Features considered to be potential development constraints are those that are regulated by federal environmental regulations, including the Endangered Species Act (ESA) and the Clean Water Act (CWA). Federal Emergency Management Agency (FEMA) floodplain information was also researched to determine the flood risks of developing the property.

METHODS

SWCA biologists conducted a site visit on the subject property on August 31 and September 8, 2000. During the site visit, the property was investigated to identify the presence of potential jurisdictional waters of the U.S. and to assess the potential for occurrence of endangered species. In order to obtain flood risk information, several agencies were contacted including FEMA, the Urban Drainage District, the Douglas County Public Works Department, and the Colorado Water Conservation Board.



Path I:\4272-7309 Scott Ranch\scottranch.apr

Created September 11, 2000 by SWCA, Inc. Environmental Consultants, 8461 Turnpike Drive, Suite 100, Westminster, CO 80031 303.487.1183

Figure 1. Project Location Map

Stock Pond
Drainages
Property Boundary

N
W E
S

0.5 0 0.5 Miles

Scale 1:24,000
Base Map: USGS 7.5 Minute Series
Quadrangle: Castle Rock North
Douglas County, CO

PROPERTY DESCRIPTION

Topography of the property consists of gently rolling hills along the western edge (mean elevation 6,200 feet) that slope eastward to form high bluffs in the northeastern portion of the property which represents the highest elevation point on the property (6,622 feet). The majority of the property drains westward and lies within the Plum Creek drainage system. The far eastern edge of the tract drains east into the Cherry Creek drainage system.

The property consists of open grassy areas, low wooded areas, and upland wooded areas. Vegetation on the property can be classified into three main categories; open grasslands, shrublands, and ponderosa pine woodlands. Open grasslands are mainly found on the eastern and western edges of the property, though smaller grassy openings are interspersed throughout most of the property. Dominant vegetation within these grasslands includes blue grama (*Bouteloua gracilis)*, three-awn grass (*Aristida* sp.), Great Plains yucca (*Yucca glauca*), diffuse knapweed (*Centaurea diffusa*), and fringed sage (*Artemisia frigida*) interspersed with plains prickly pear (*Opuntia polyacantha*) and common mullein (*Verbascum thapsus*). The majority of the property west of I-25 consists of weeds such as diffuse knapweed and kochia (*Kochia scoparia*) and various grasses, dominated by downy brome (*Bromus tectorum*). Vegetation on the triangular section to the south of Hangman's Gulch is similar but also contains scattered young ponderosa pines up to 20 feet tall.

Wooded areas in lower elevations are dominated by 4- to14-foot tall Gambel oak (*Quercus gambelii*) with scattered taller ponderosa pine (*Pinus ponderosa*) trees interspersed by grassy openings.

Upper slopes on the property are dominated by ponderosa pines up to 70 feet in height, with a relatively dense understory of Gambel oak. Scattered Rocky Mountain juniper (*Juniperus scopulorum*) trees and mountain mahogany (*Cercocarpus montanus*) shrubs are also present in these areas. Small grassy openings are interspersed on these upper slopes as well.

Vegetation along the rocky bluffs consists mainly of Gambel oak, Rocky Mountain juniper, and mountain mahogany.

RESULTS

Endangered Species

The United States Fish and Wildlife Service (USFWS) lists 11 species of animals and plants that currently or did formerly reside in Douglas County as either federally endangered, threatened, proposed for listing, or as candidate species. These include the following: three species of birds – bald eagle (*Haliaeetus leucocephalus*), Mexican spotted owl (*Strix occidentalis lucida*), and mountain plover (*Charadrius montanus*); four species of mammals – Preble's meadow jumping mouse (*Zapus hudsonius preblei*), black-footed ferret (*Mustela nigripes*), swift fox (*Vulpes velox*),

and Canada lynx (*Lynx canadensis*); one fish - greenback cutthroat trout (*Oncorhynchus clarki stomias*), one butterfly - Pawnee montane skipper (*Hesperia leonardus montana*); and two plants - Colorado butterfly plant (*Gaura neomexicana coloradensis*) and Ute ladies'-tresses (*Spiranthes diluvialis*). An additional species, the black-tailed prairie dog (*Cynomys ludovicianus*), is a candidate species with no federal protection restrictions at this time. The mountain plover has been officially proposed for listing.

Species listed as endangered or threatened by the USFWS are protected by the ESA, which prohibits "take." Take is defined in the ESA as "harass, harm, pursue, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." For these species, habitat destruction alone, even without direct harm to the animal, may be considered take by the USFWS. No protection of listed plant species is required on private lands unless development of the lands requires federal funding or authorization.

Specific federal status for each of the species listed or petitioned for Douglas County is presented in Table 1.

Table 1. Current Status of Federally Listed Species in Douglas County, Colorado

Species	Federal Status
Bald eagle	Threatened/Proposed for Delisting
Mexican spotted owl	Threatened
Mountain plover	Proposed Threatened
Black-footed ferret	Endangered
Swift fox	Candidate Species
Canada lynx	Threatened
Black-tailed prairie dog	Candidate Species
Greenback cutthroat trout	Threatened
Ute Ladies'-tresses	Threatened
Pawnee montane skipper	Threatened
Colorado butterfly plant	Proposed Threatened

A brief discussion about the potential impacts to each of these eleven species from development of the proposed project is presented below.

Bald Eagle

Bald eagles typically inhabit large open waterbodies throughout the breeding season in order to fish or scavenge. The project area lies in upland areas and away from any large open bodies of water. As such, the regular occurrence of bald eagle on or immediately adjacent to the project site during the breeding season is considered extremely unlikely. During migration and winter, eagles will utilize

areas away from water, especially to scavenge upon dead animals. However, migration and winter use by eagles on the subject tract is considered to be minimal due to a lack of adequate prey base (fish, waterfowl, prairie dogs, etc.). This lack of proper nesting and foraging habitat suggests that the regular occurrence of this species on or immediately adjacent to the project site is highly unlikely.

Mexican Spotted Owl

The Mexican spotted owl is known to occur in Mexico, west Texas, New Mexico, Arizona, Utah, and Colorado. In the northern portion of its range, the spotted owl uses slickrock canyons; towards the south, the species' habitat affinities gradate more towards forested mountains and canyons. Though the species is listed by the USFWS as occurring in Douglas County, no records of the species exist for this area.[1]

Mountain Plover

The mountain plover is known to breed in the Rocky Mountain states from Canada south to Mexico, with most breeding birds occurring in Montana and Colorado. Requisite nesting habitat for the species consists of expansive prairie areas containing short vegetation, bare ground, and flat topography. Mountain plovers show a strong affiliation for sites that have been heavily grazed, but may also attempt to breed on fallow and cultivated fields that mimic natural habitats. According to Kingery[2], there are no known nesting areas for mountain plover in Douglas County. The lack of extensive prairie on the subject tract indicates that the regular presence of mountain plover is extremely unlikely.

Preble's Meadow Jumping Mouse

The Preble's meadow jumping mouse is believed to be a rare subspecies of the widespread meadow jumping mouse (*Zapus hudsonius hudsonius*) that exists along heavily vegetated riparian areas within seven counties of the Front Range of Colorado and in five counties in southern Wyoming. Past studies have indicated that the mouse occurs mostly in open wet meadows and riparian corridors consisting of grasses, forbs, and shrubs. In Douglas County, this typical habitat consists of complex riparian communities composed of multi-strata woodland and herbaceous species such as coyote willow (*Salix exigua*), western snowberry (*Symphoricarpos albus*), choke cherry (*Prunus virginiana*), and wetland grasses. Cattail (*Typha* sp.) stands are generally not thought of as prime jumping mouse habitat. More recent studies have indicated that the mouse may occasionally use (hibernate and forage in) adjacent slope areas that support various grasses, western snowberry, Gambel oak (*Quercus gambelii*), and chokecherry. However, the full extent of temporal and spatial

---

[1] Andrews, R. and R. Righter. 1992. Colorado Birds: A Reference to Their Distribution and Habitat. Denver Museum of Natural History, Denver, Colorado.

[2] Kingery, H.E. (ed.). 1998. Colorado Breeding Bird Atlas. Published by Colorado Bird Atlas Partnership and Colorado Division of Wildlife

utilization of these areas on the entire subspecific level, and whether the mouse is dependent upon these areas for survival, have not been determined.

Based on the site visit, it is the opinion of SWCA biologists that the subject property does not contain suitable habitat for Preble's meadow jumping mouse. Investigations of all on-site drainageways revealed a lack of water and riparian shrub cover, which is requisite to the mouse. The nearest known mouse habitat is East Plum Creek located approximately 2/10 mile from the western boundary of the subject tract. This suggests that no negative impacts to Preble's meadow jumping mouse will result from development of the Scott Ranch property.

Black-Footed Ferret

Black-footed ferrets historically ranged across the entire Great Plains; however, isolation of and reduction in the number of prairie dog (*Cynomys* sp.) colonies, a primary food source, has eliminated the black-footed ferret from the vast majority of its' former range. Currently, the ferret is known to occur only in areas of reintroduction efforts in Wyoming, South Dakota, Arizona, Montana, and western Colorado/eastern Utah. No prairie dog towns were observed during the site investigation on the Scott Ranch property. The extreme rarity of black-footed ferret and the lack of prey, suggest that no significant adverse effects to the species will occur as a result of development of the Scott Ranch property as it is extremely unlikely that it is present on the subject tract.

Swift Fox

The swift fox historically occurred across the Great Plains and southwestern deserts. Loss of preferred habitat consisting of short- and mid-grass prairies and grasslands due to settlement and agriculture caused the reduction in the densities and distribution of the species. Conversion from prairie regimes to agricultural lands is thought to have heavily reduced the available prey base for the fox. The small amount of ungrazed prairie cover type on the subject property suggests that the regular presence of swift fox on the subject tract is highly unlikely.

Canada Lynx

The Canada lynx historically occurred in coniferous forests across Alaska, Canada, the northern tier of the United States, and south along the Rocky Mountains to southern Colorado and possibly northern New Mexico. Current distribution appears to have shrunk northward. The current status of lynx in Colorado was uncertain when the State of Colorado began a reintroduction program in the south-central portion of the state. Typically, potentially suitable lynx habitat is high montane coniferous forests above 9,000 feet mean sea level where snowshoe hare *(Lepus americanus*), the preferred prey of lynx, are found. The Scott Ranch property lies between 6,200 feet and 6,700 feet in elevation. The low elevation of the property coupled with its proximity to other development along Interstate 25 suggests that the regular occurrence of Canada lynx on the subject property would be extremely unlikely.

Black-tailed Prairie Dog

In early 1999, the National Wildlife Federation petitioned the USFWS to list the black-tailed prairie dog as a threatened species under the ESA. The USFWS underwent its 90-day review to determine if the petition was potentially warranted. In May 1999, the agency agreed that the petition was warranted and declared the species as a candidate species. As previously stated, no prairie dog colonies were found during the site investigation of the Scott Ranch property, therefore, impacts to the species due to development are not anticipated.

Greenback Cutthroat Trout

Once thought to be extinct and only found in Colorado, the greenback cutthroat trout is endemic to the mountain drainages of the Arkansas and South Platte River systems. The subject tract lies east of the mountains and downstream of suitable greenback trout waters and contains no permanent flowing waters. Therefore, the presence of the greenback cutthroat trout on the subject tract is extremely unlikely.

Pawnee Montane Skipper

The Pawnee montane skipper is a butterfly species occurring in the South Platte River drainage of Colorado near Waterton Canyon in southern Jefferson County, approximately 15 miles northwest of the Scott Ranch property. It is found in open grassy areas including native prairies, fields, barrens, and meadows. The highly restricted range of this insect and the distance of the subject tract from its' known range suggests that the presence of the Pawnee montane skipper on the Scott Ranch property is extremely unlikely.

Ute Ladies'-Tresses

The Ute ladies'-tresses is an orchid found in wet meadows and wetland habitats. Due to a lack of suitable wetland areas, it is highly unlikely that the species exists on the Scott Ranch property.

Colorado Butterfly Plant

The Colorado butterfly plant is known to occur within sub-irrigated, alluvial soils of drainage bottoms surrounded by mixed-grass prairie at elevations from 5,800 to 6,200 feet. The Scott Ranch property lies outside of the known elevational range for this species and lacks alluvial drainage bottoms; therefore, impacts to the butterfly plant should not be an issue.

Clean Water Act

The U.S. Army Corps of Engineers (Corps) enforces Section 404 of the CWA, which regulates the discharge of dredged or fill material into all waters of the U.S., including wetlands. Such waters are known as "Jurisdictional Waters of the U.S." and have been defined to include not only obvious water bodies such as rivers, lakes, harbors, and bays, but also less obvious bodies of water such as intermittent streams, wetlands, and even stock ponds when they occur in-line on streams and drainages.

Current regulations regarding impacts from a proposed action to jurisdictional waters of the U.S., including wetlands, totaling more than 1/2 acre require the prior acquisition of an individual Section 404 permit issued by the Corps. Impacts to jurisdictional waters from small-scale draining or filling totaling more than 1/10 acre but less than 1/2 acre are typically authorized under a Nationwide Permit. A pre-construction notification must be provided to the Corps for impacts of this size before development can begin. The Corps has 30 days to respond with either a notice to proceed or, in rare cases, it may require an individual permit. If no response is received within 30 days, the applicant may proceed under authorization of a Nationwide Permit. If an impact to jurisdictional waters totals less than 1/10 acre, the action is generally permitted under Nationwide Permits and no pre-construction notification to the Corps is required.

The portion of streams typically considered as jurisdictional by the Corps generally consists of the area contained within the "normal high water mark." The normal high water mark is generally defined as the line where the incised portion of the stream meets the terrestrial vegetation.

Wetlands are defined by the Corps as "those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." To qualify as a wetland, three criteria must be generally met: wetland hydrology, hydric soils, and the dominant presence of wetland indicator plant species

The assessment by SWCA of the Scott Ranch property was not a full delineation, but rather an assessment of the presence of potential jurisdictional waters of the U.S., including wetlands. Results of the on-site assessment indicate that portions of the Scott Ranch property contain potential jurisdictional waters of the U.S., though the extent and quality of those waters is as yet unknown. Since it is the agency that takes jurisdiction of waters of the U.S., only the Corps can make the final determination of the jurisdictional status of these areas.

Potential jurisdictional waters on the Scott Ranch property are located along portions of three main drainages (Figure 1). Drainage A extends east to west for approximately 3,800 feet along the central portion of the property. The banks of the lower reaches of drainage A are dominated by Gambel oak and shrubs including skunkbrush (*Rhus trilobata*) and choke cherry, and weeds such as leafy spurge (*Euphorbia esula*) and diffuse knapweed, with scattered grassy openings. The lower, approximately

650 linear feet, of Drainage A has cut-banks that vary between 6 and 30 feet in width. Within the cut banks, the drainage floor is mainly five feet in width. Scattered forbs and oak are present occasionally on the channel floor. Just upstream from this scoured portion, the channel disappears for approximately 1,200 feet and the drainage is vegetated throughout. The uppermost 2,000 linear feet of Drainage A on the subject tract is again channelized with an approximate two-foot width of scoured area on the drainage floor with banks ranging between 7 to 10 feet in height. Through personal communication with Mr. Terry McKee of the Denver Regulatory Office of the Omaha District of the Corps, SWCA has opined that the upper and lower channelized portions of Drainage A are potentially jurisdictional while the unchannelized center portion is likely to be non-jurisdictional.

Drainage B extends for approximately 1,500 (to be updated Monday afternoon 8/11/00) feet in the southwestern portion of the property east of I-25. The upper 600 linear feet of this drainage on the property is similar to the channelized lower reaches of Drainage A and are potentially jurisdictional. The lower portion of Drainage B contains a stock pond with no visible channelization below the pond. This roughly 900 linear feet of Drainage B below the pond is vegetated throughout and is not likely to be considered jurisdictional by the Corps. Drainage B crosses under I-25 to the west and meanders along the northern boundary of the Scott Ranch property on the west side of the interstate. Portions of the channel cross onto and off of the property; however, as with the lower section of Drainage B on the east side of I-25, this portion of the drainage is not likely to be jurisdictional, as it is vegetated throughout.

Hangman's Gulch crosses the portion of the property west of I-25. This gulch was dry at the time of the survey. The 686 feet of this drainage that cross the subject tract have a scoured sandy channel bottom approximately 15 to 20 feet in width with banks 20 to 30 feet in height. The banks are vegetated by grasses including smooth brome (*Bromus inermis*) interspersed by weeds such as diffuse knapweed and sunflower (*Helianthus* sp.) Yucca, mullein, and skunkbrush are also scattered along the banks, as well as a few 50 to 70 foot tall ponderosa pines. No wetland vegetation is present within Hangman's Gulch. This drainage is likely to be considered jurisdictional by the Corps due to the scoured, unvegetated channel (per T. McKee)

Five stock ponds were identified on the property (Figure 1). Some of these ponds contain narrow fringe wetland vegetation dominated by spikerush (*Eleocharis* sp.), a wetland indicator plant species. However, it is the opinion of SWCA that it is unlikely that these ponds would be determined jurisdictional by the Corps. Only the pond within Drainage B is located in a potentially jurisdictional drainage. This pond does not contain any wetland areas, and is located in a portion of Drainage B that is most likely not jurisdictional (per T. McKee). Formal delineations of wetlands and other jurisdictional waters would need to be conducted on the property to accurately determine the amount and location of areas which may be considered jurisdictional by the Corps.

Flood Risk

Information obtained from FEMA indicates that Drainage A lies outside of known limits of floodplain study areas, signifying that no federal floodplain studies have been conducted on the property (Figure 2). However, using the study information for bordering areas of the property, it is the opinion of SWCA that no areas of significant flooding risks are present within the property. Just beyond the property boundary to the west, Drainage A is shown on the FEMA map as having a Zone A 100-year flood hazard area that extends no more than 100 feet from the stream bed. The

designation of Zone A indicates that no base flood elevations have been determined for this drainagearea. It is assumed that the remainder of Drainage A on the subject tract would have a similar 100-year flood hazard area of 100 feet from the streambed or less. No information is given for Drainage B, either within the property, or adjacent to it. Due to the elevational gradient of the Scott Ranch property, it is likely that potentially significant runoff from storm events may develop in drainages A and B. The remainder of the property on the east side of I-25 is designated as Zone X, which lies out of the 500-year floodplain. Hangman's Gulch, which crosses the southern portion of the property on the west side of I-25, is mapped with base flood elevations determined for the 100-year floodplain (Zone AE). This 100-year floodplain is no more than 100 feet wide where it crosses the Scott Ranch property. This information was obtained from FEMA Flood Insurance Rate Maps (FIRMs) for Douglas County, CO, community panel numbers 080049-0188 and 080049-0189.

CONCLUSION

Based on the site visit, it is the opinion of SWCA that the vast majority of the Scott Ranch property would be clear of constraints by the ESA, CWA, or FEMA.

It is the opinion of SWCA that, of the eleven listed species that are thought by USFWS to presently or historically reside in Douglas county, none are likely to occur on the Scott Ranch property. Therefore, it is believed that no impacts to federally listed or proposed threatened, endangered, or candidate species are likely to occur as a result of development of the subject tract.

Portions of three main drainages on the Scott Ranch property are potentially jurisdictional by the Corps. However, only the Corps can determine if the drainages are jurisdictional. If the Corps considers the drainages jurisdictional and development plans indicate impacts to more than 1/2 acre of the jurisdictional waters, Section 404 permitting by the Corps would be necessary.

Flood risk data for portions of Drainage A and for Drainage B are not available. However, based on data for the surrounding areas, it is the opinion of SWCA that no significant 100-year flood risks are present on the property if development does not occur within 100 feet of drainages A, B,

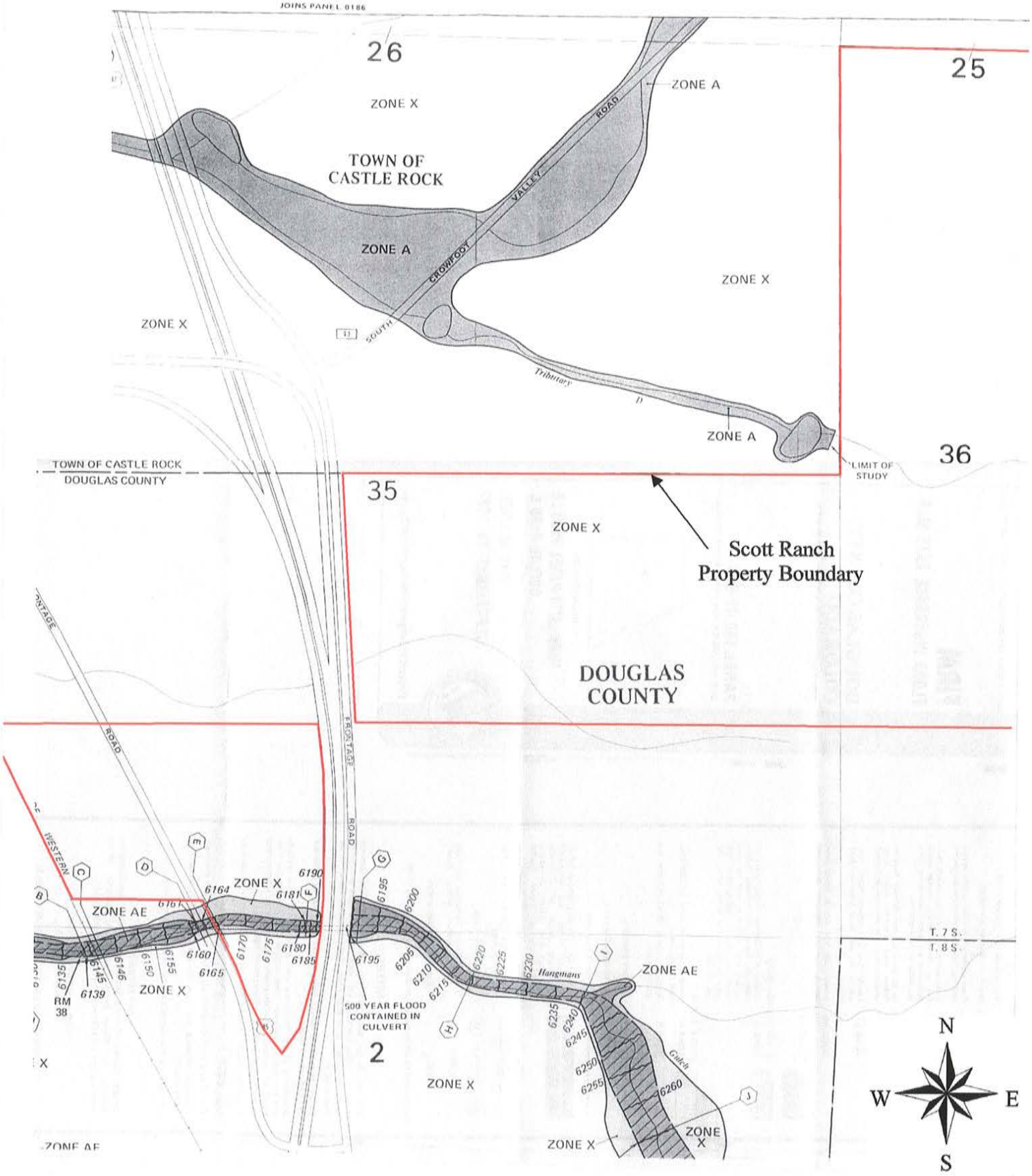


Figure 2. Flood hazard areas in the Scott Ranch vicinity, Douglas County, Colorado.
Base data provided by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM)

and Hangman's Gulch. It will be necessary to follow Douglas County building restrictions and guidelines for storm drains and other drainage related infrastructure during development of the Scott Ranch property.