GEI Consultants

Consulting Engineers and Scientists

February 9, 2024
Project 2303995

VIA EMAIL: amanda@studio-campo.com

Amanda Jeter, Principal
Studio Campo

Re: Baseline Inventory, Natural Resources Assessment, and Constraints Report for Fishers Canyon Open Space Master Plan – DRAFT for Internal Review Only

Dear Ms. Jeter:

The purpose of this document is to provide an overview of on-site natural resources and planning level constraints related to these resources in order to support the creation of the Fishers Canyon Open Space Master Plan (Master Plan), which is being developed for the City of Colorado Springs, Colorado (City). The City purchased the approximately 343-acre Fishers Canyon Open Space (Property) in 2020 and 2021 through the Trails Open Space, and Parks (TOPS) sales tax and the Conservation Fund for the purpose of establishing a new multi-use open space area for the City. As part of the Fishers Canyon Open Space enhancement, the City seeks to incorporate ecological constraints into the planning process to avoid and minimize impacts to natural resources from trail creation, recreational use, and long-term management and maintenance. This letter describes sensitive areas and resources located on the Property and guidance on the related constraints to aid in public outreach efforts and initial trail planning activities. Additional information including cultural resources, trail alignment adjustments, and further guidance for the management of natural resources will be provided throughout the master planning process, which is anticipated to be completed in August 2024.

1.0 Project Location and Background

The Property is located at 38°45'12.30"N, 104°50'50.99"W, adjacent to the Cheyanne Mountain Space Force Station (Cheyenne Mountain SFS) and Cheyenne Mountain State Park (State Park) to the south and southwest, and the Cheyenne Mountain and Broadmoor Bluffs communities to the east and northeast, respectively. Cloud Camp, a facility owned by the Broadmoor Hotel, defines the northern-most border of the Property. The western portion of the Property is bound by Pikes-San Isable National Forests – Pikes Peak Ranger District, which is managed by the U.S. Forest Service (USFS) (Figure 1).

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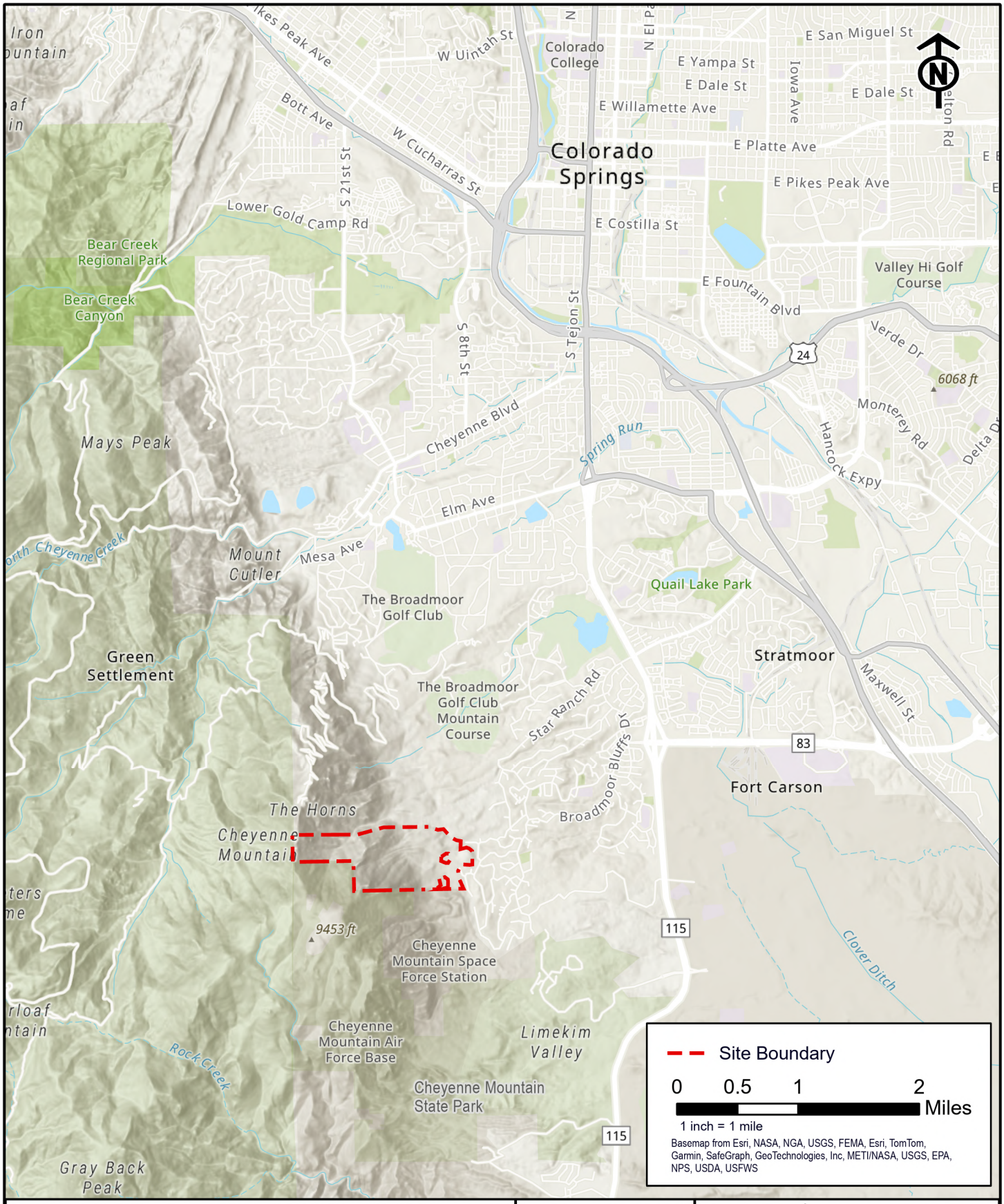

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Figure 1

PROJECT LOCATION MAP

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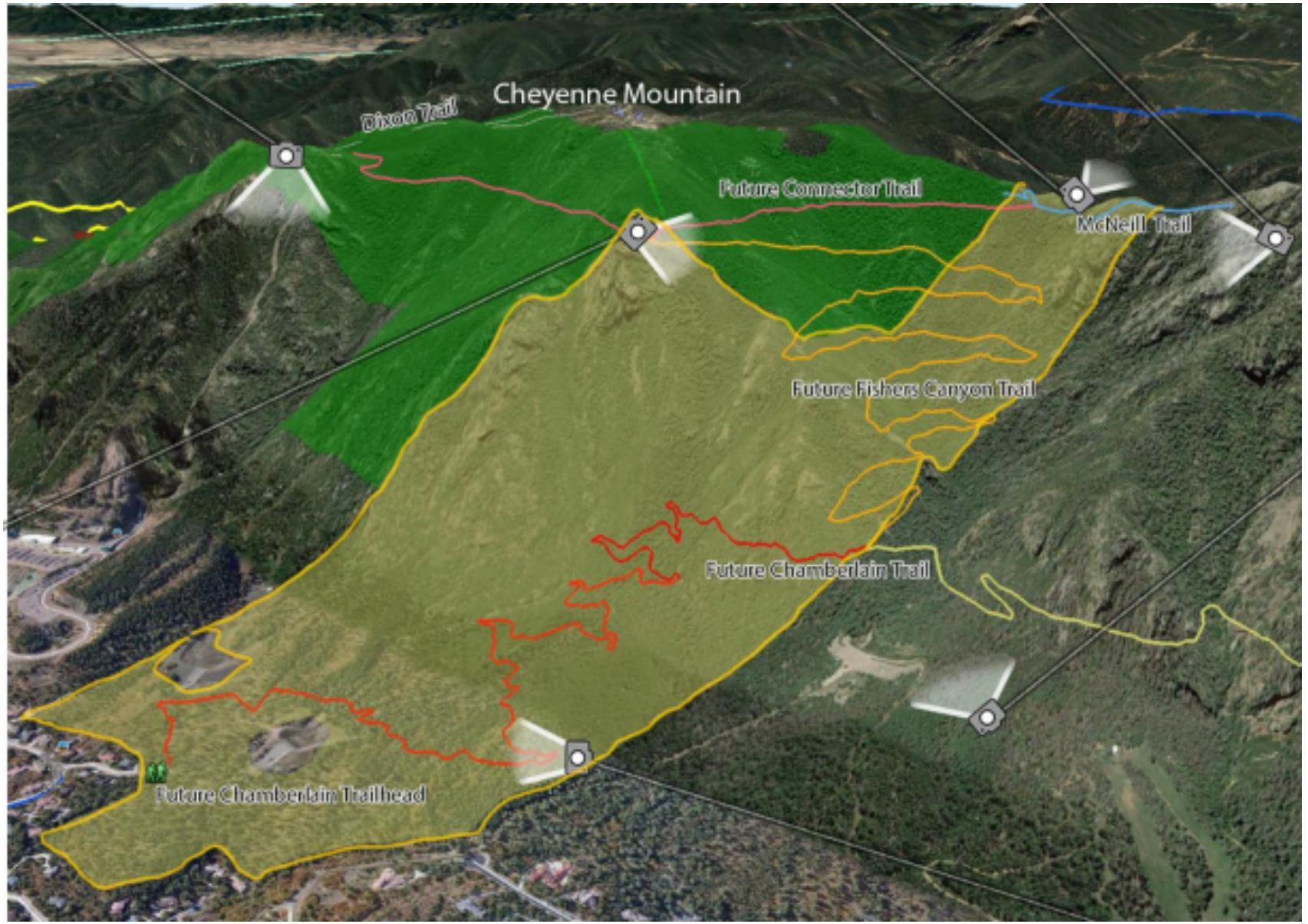
The Property is currently free of any formalized recreational enhancement or usable structures. Historically, the site included a homestead that was owned and inhabited by the Fisher family in the early 20th century. Seeing the success of local day and overnight mountain excursion areas, the Fisher's attempted to turn the Property into a tourism destination for picnicking and daytime outings. However, these efforts were unsuccessful, and the homestead was abandoned. Elsewhere on the Property, limited water infrastructure enhancements occurred via the artificial impoundment of springs and seasonal surface water that was piped above ground to supply gravity-fed irrigation to the Broadmoor's golf course beginning in approximately 1910. These facilities have also since been abandoned in place, with some of this system still visible (Deitemeyer, D. Pers. Comm).

Today, the Property experiences some informal use from the adjacent communities, within the lower elevations, including dog walking and hiking. The MacNeill Trail, which is a non-designated trail used for private hiking tours led by local outfitters along the western-most ridgeline, also receives formalized public recreation. Two stormwater and sediment detention basins have been carved out within the Property boundary. These areas are currently owned, managed, and maintained by the surrounding home communities. Several unpaved two-track roads allow for maintenance access to these sites, as needed. Additionally, approximately 89.3 acres of wildfire mitigation was performed on-site in 2023. This mitigation included the mastication, chipping, harvesting, loading and hauling of dense ponderosa pine (*Pinus ponderosa*) and gamble oak (*Quercus gambelii)* stands in the eastern-most portions of the Property. Several informal access routes and staging areas associated with these fire mitigation activities remain visible.

An important goal of the future Master Plan is to continue these fire mitigation activities as well as to add formalized trails and other recreational opportunities to the Property. A primary focus of these efforts includes connecting the Fishers Canyon Open Space to the Chamberland Trail and assisting in the completion of this 26-mile route through the foothills of Colorado Springs. Additional connector trails are also anticipated within the Property to connect with the MacNeill Trail and the Dixon Trail, which is located on Cheyanne Mountain State Park land, which is owned and managed by Colorado Parks and Wildlife (CPW) (Figure 2). Some, if not all, trails are being developed as multi-use facilities that can support activities such as mountain biking, hiking, equestrian and trail running, as well as pathways within the eastern-most areas that are compliant with the Americans with Disabilities Act (ADA). Additionally, the Fishers Canyon Open Space may allow for activities such as rock climbing and bouldering as well as picnic facilities, parking and a visitors information area.

GEI Consultants, Inc. (GEI), working as a subconsultant to Studio-Campo Landscape Architecture and Planning, has been retained to review and identify on-site ecological resources, such as protected aquatic areas, sensitive species, and other wildlife, in order to minimize adverse environmental impacts from the enhancement and operation of Fishers Canyon Open Space. Ecological assessments were aided by desktop reviews of the area followed by site visits, which occurred on September 7, October 30, and 31, 2023.

Figure 2: Conceptual Trail Map



2.0 Summary of Aquatic and Biological Resources Identified On-site

2.1 Aquatic Resources

The U.S. Fish and Wildlife (USFW) National Wetland Inventory (NWI) identifies three areas of potentially regulated riverine features within the Property (Figure 3). All three of these features are unnamed tributaries of Fountain Creek. During site visits to the southern and middle tributaries on September 7 and October 30, 2023, no surface water was present within either feature. A defined bed and bank for both tributaries was observed and some riparian-associated species, such as Wood's rose (*Rosa Woodsii*) and wax current (*Ribes cereum*) were identified. The north tributary was not physically investigated due to a combined lack of legal access and insufficient time to safely access these areas during the site visits. The majority of the north tributary is outside of the Property boundary; however, this drainage ultimately splits into three smaller gulches to form a *turkey foot* system in the western-most portions of the site. A small freshwater emergent feature which forms an aquatic basin within the north tributary has also been mapped by NWI along the northeastern boundary; however, this feature is located entirely outside of the Fishers Canyon Open Space boundary.

Additional regulated aquatic features exist on the Property, which were not identified by the NWI database. These include a small unnamed tributary downstream of a large water tank owned and operated by Colorado Springs Utilities (CSU) and a fourth unnamed tributary located between the middle and north tributaries defined by NWI (Figure 3). The feature downstream of the water tank (*Water Tank Tributary*) pools against the southern detention basin embankment, forming a small aquatic basin that likely holds water for a portion of the year, as evidenced by the presence of aquatic vegetation such as cattails (*Typha* spp.) within this area. Anecdotal information provided by the City indicates that hydrology in this portion of the Property is provided by a small subsurface spring, which was encountered during the installation of the water tank. The hydrology within this aquatic basin may also be somewhat supported by seepage from the water tank itself.

The fourth and final unnamed tributary is referred to, informally, as *Dead Bear Creek* due to the discovery of a bear carcass in this feature by City staff at an earlier, unknown, date. The lower portion of Dead Bear Creek contains some of the pipe works associated with the Broadmoor golf course irrigation system with a small impoundment feature that continues to catch water from a groundwater seep. This is the only on-site feature visited that contained visible flowing water.

In addition to these features, two detention basins "carveouts" exist within the outer boundary of the Property. A small stand of cattails was observed in the bottom-most portion of each of these basins however no standing water was observed in either feature during the September 7 and October 30 site visits. These areas are currently excluded from the Property. No other aquatic features have been identified within the Property boundary. Because of the steepness of the site as well as the friable soils, the Property is prone to erosion and increased sedimentation if vegetation is removed through overuse, fire, or landslide.

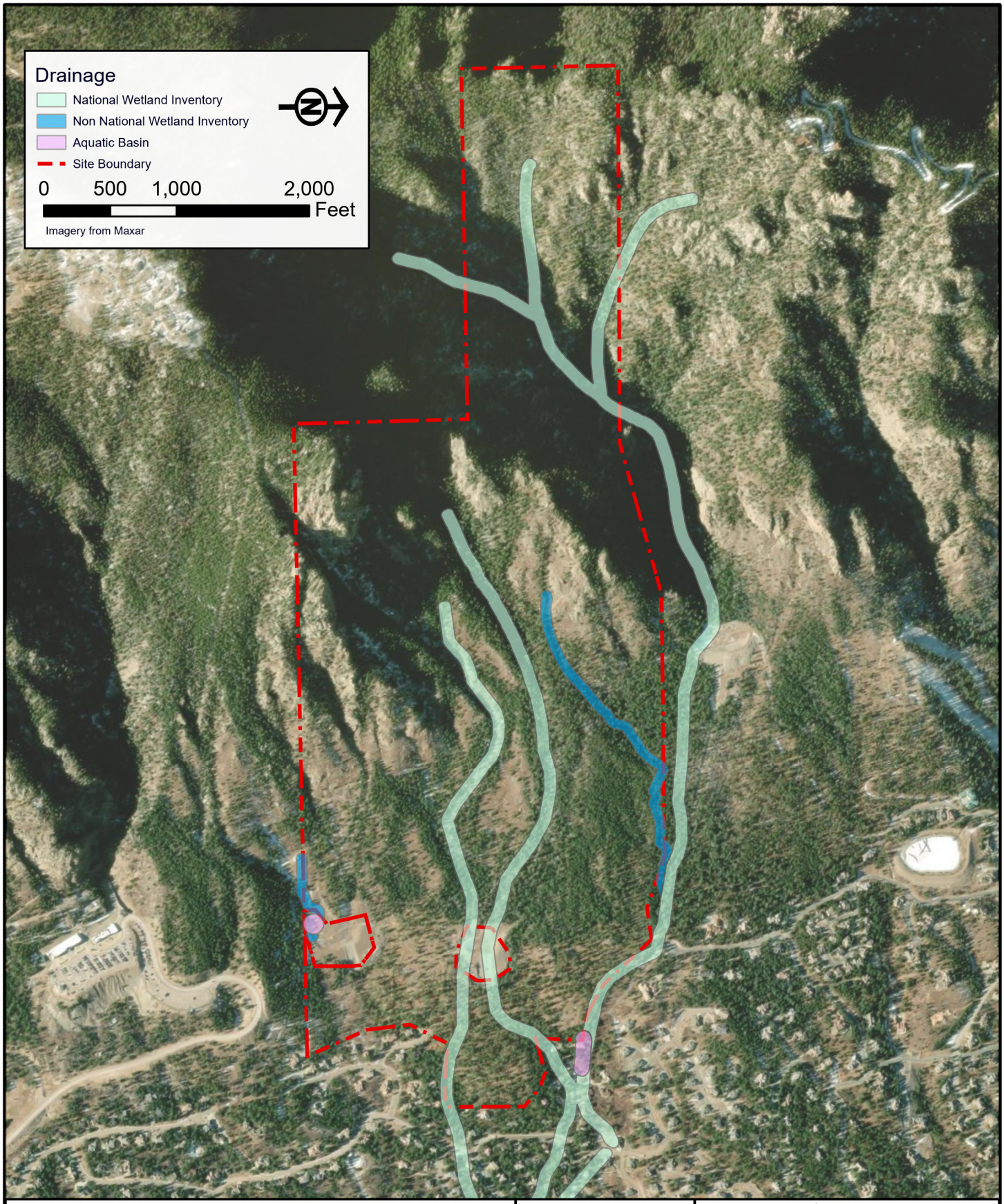


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Figure 3
ON SITE AQUATIC RESOURCES

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2.2 Sensitive Species

A desktop review of site suitability for sensitive species was conducted within the Property using the USFW's Information for Planning and Consultation (IPaC) website. Results from this desktop investigation indicated that several sensitive species may be impacted by Master Plan actions, including animals protected under the Endangered Species Act (ESA), Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). A list of these species and the probability of impacts to these species from the enhancement and operation of Fishers Canyon Open Space is summarized in Table 1.

Table 1: Sensitive Species Identified by the USFW's Information for Planning and Consultation for Fishers Canyon Open Space, City of Colorado Springs, CO.

Common Name	Scientific Name	Regulation and Status	Likelihood of Impact
Animals			
Mammals			
Gray Wolf	*Canis Lupus*	ESA - Endangered	Low – Property adjacent to urban setting; currently extirpated from area.
Tricolored Bat	*Perimyotis subflavus*	ESA- Candidate	Low – Nearest observation of this species is 7 miles southeast from Property. Generally prefers eastern plains in Colorado.
Birds			
Bald Eagle	*Haliaeetus leucocephalus*	BGEPA	Medium – Numerous recent observations near Property; suitable foraging habitat exists on-site.
Golden Eagle	*Aquila chrysaetos*	BGEPA	High – Numerous recent observations near Property; suitable nesting and foraging habitat exists on-site.
Eastern Black Rail	*Laterallus jamaicensis ssp. jamaicensis*	ESA - Threatened	Low – Species prefers persistent marshes and large river systems.
Mexican Spotted Owl	*Strix occidentalis lucida*	ESA - Threatened	Medium – Occurrence within 15 miles of the site; high quality nesting and foraging habitat exists on-site.

Common Name	Scientific Name	Regulation and Status	Likelihood of Impact
Piping Plover	*Charadrius melodus*	ESA - Threatened	Low – Species prefers persistent marshes and large river systems. This species receives blanket exclusion on IPaC for water infrastructure-related activities.
Pinyon Jay	*Gymnorhinus cyanocephalus*	ESA – Under Review	Low – Preferred habitat for this species is contiguous or large patches of pinyon pine (*Pinus edulis)* This habitat type is currently not found on-site.
Migratory Birds	Multiple	MBTA	High – High quality nesting and foraging habitat exists on-site.
Fishes			
Greenback Cutthroat Trout	*Oncorhynchus clarkii stomias*	ESA - Threatened	Low – Insufficient hydrology to support habitat on-site.
Pallid Sturgeon	*Scaphirhynchus albus*	ESA - Endangered	Low – Species prefers large plains river systems; no habitat on-site. This species receives blanket exclusion on IPaC for water infrastructure-related activities.
Insects			
Monarch Butterfly	*Danaus plexippus*	ESA - Candidate	Medium – Milkweed observed on-site; within occupied habitat for this species.
Plants			
Ute Ladies Tresses	*Spiranthes diluvialis*	ESA - Threatened	Low – Species requires persistent wet conditions; no habitat on-site
Lesser Yellow Lady's Slipper	(*Cypripedium parviflorum* var. *parv iflorum*	Regional Forester Sensitive Species (USFS)	High- Occurrences of this species have been recorded in the vicinity. Property contains habitat

In the following sections we have included a description of on-site sensitive species and their preferred habitats.

2.2.1 Mexican Spotted Owl

No sightings of the threatened Mexican spotted owl (MSO) have been documented on the Property; however, the site contains suitable habitat for this species. The Property is also wholly contained within designated Critical Habitat for this species. Per the Environmental Conservation Online System (ECOS) maintained by the USFW, MSOs are residents of old-growth or mature forests that possess complex structural components (uneven aged stands, high canopy closure, multi-storied levels, high tree density). Canyons with riparian or mixed conifer communities are also important components. The MSO is also found in canyon habitat dominated by vertical-walled rocky cliffs within complex watersheds, including tributary side canyons. Rock walls with caves, ledges, and other areas provide protected nest and roost sites. Canyon habitat may include small, isolated patches or stringers of forested vegetation including stands of mixed-conifer, ponderosa pine, pine-oak, pinyon-juniper, and/or riparian vegetation in which owls regularly roost and forage. MSOs are usually found in areas with some type of water source and where canopy closure is typically greater than 40 percent. Owl foraging habitat includes a wide variety of forest conditions, canyon bottoms, cliff faces, tops of canyon rims, and riparian areas. The MSO is frequently associated with pine-oak (e.g., ponderosa pine and Gambel oak) and riparian forests with mixed age classes. Human activity (hiking, shooting, off-road vehicle activity) in or near nesting, roosting, or foraging sites may result in abandonment of an area, and indirectly may affect habitat parameters from trampling, vegetation removal, or increased fire risk (USFW 2023a).

Suitable habitat was observed during all site visit events. Protocol surveys developed by the USFW have not been performed on the Property due to inappropriate timing; however, survey locations were identified for follow-up protocol surveys should these be required by USFW. If protocol surveys do occur, they are anticipated to be conducted starting in spring 2024 through summer 2025 and will be performed according to the most current USFW protocol survey requirements (USFW 2022). Potential survey locations are illustrated in Figure 4 and were selected to maximize species detection while protecting surveyor safety. As an alternative to performing protocol surveys, the City may work with USFW to confirm suitable habitat locations, as shown in Figure 4, and develop the appropriate avoidance and minimization measures to integrate into Fisher Canyon Open Space enhancements and long-term management plan. Based on information received by stakeholders prior to April 2024, survey locations may be further modified.

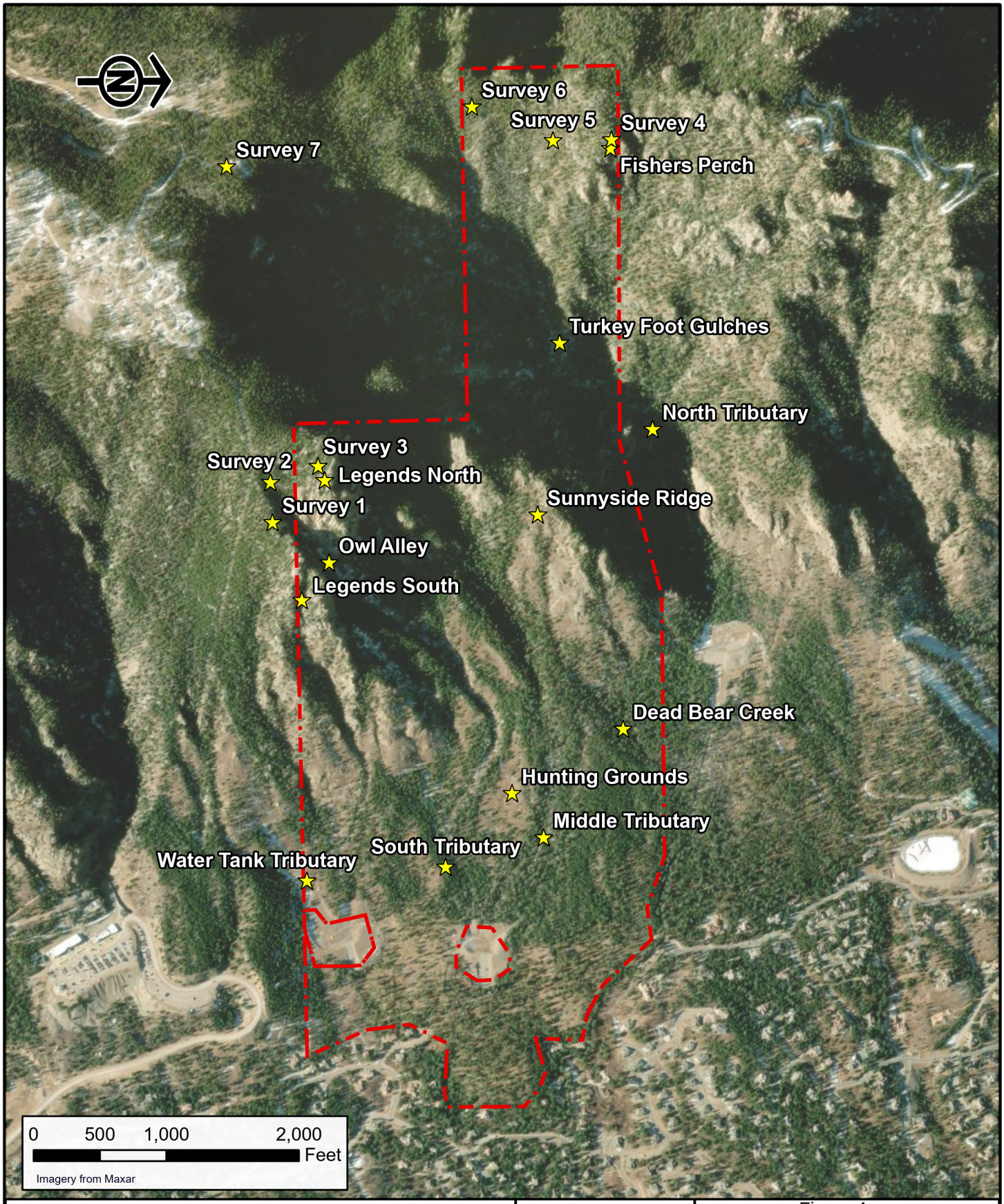

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Figure 4
MEXICAN SPOTTED OWL SURVEY LOCATIONS AND HABITATS

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Survey Sites 1 and 2: Survey locations 1 and 2 will focus on capturing owl observations in the canyon between two large and vertical rock outcroppings, referred to as the *Legends* by City staff. For description purposes, we have further divided these outcroppings into *Legends North* and *Legends South*. The canyon within this area includes boulders, snags, and large mixed conifer trees that address a number of the habitat requirements for the spotted owl and form what is informally referred to in this report at *Owl Alley*. Direct visual review of this area on October 30 (from the bottom of Property) and October 31, 2023, (from the upper portion of the Property) revealed two viable flight paths from Owl Alley to the potential hunting grounds in the lower portions of the site where trees have been cleared resulting in increased visibility for the owls of small mammals, birds, and other food sources. These flight paths are shown in Figure 5 and correspond with the upper reaches of what becomes the South Tributary.

Figure 5: View of Survey Sites 1, 2, and 3 and Flight Paths to Potential Hunting grounds

Survey Site 3: Survey Site 3 gives an overview of an area between the Legends and a relatively low vegetation, high solar exposure hillslope. For description purposes, this area is referred to in this report as *Sunnyside Ridge*. While desktop review and site assessment from the lower portions of the site on October 30 appeared to demonstrate high quality MSO habitat in this area, review of the area from Survey Site 3 on October 31 indicated smaller, single-age class trees dominate this region, comprised almost entirely of ponderosa pine. This vegetation composition may be the result of a historic wildfire that occurred on the Property in the 1950s, according to City staff. There are also few vertical rock faces, boulders, snags or other habitat diversity elements generally preferred by the MSO. As such, this area does not provide the highest quality of habitat.

We continue to include Survey Site 3 in our protocol plan to both confirm these assumptions and provide full survey coverage of the Legends area.

Survey Site 4: This survey site will provide survey cover to the northern gulch of the turkey foot (Figure 3). Surveys from this location will also allow for additional coverage of the entire turkey foot system. For ease of identification, this area is referred to as *Fisher's Perch* in this report due to the rocky outcropping. The north gulch of the turkey foot, which roughly demarcates the boundary between the Property and Cloud Camp, provides excellent habitat components for the MSO including steep rock faces with numerous ledges and mixed conifer and gamble oak forests with a variety of age class trees present. Several flight paths from this area may provide movement for the MSO from the ridgeline to hunting grounds near Survey Site 5 and/or in lower portions of the Property (Figure 6).

Survey Site 5: Survey Site 5 will serve to provide protocol coverage of both individuals and habitat conditions for the middle gulch of the turkey foot system. Visual observations of this location on September 7 showed this area to be xeric with reduced vegetation cover and few rock outcroppings or ledges. Therefore, this area may provide limited nesting or roosting habitat for the MSO. Due to more limited vegetation in close proximity to larger trees, this area may provide suitable foraging habitat for this species and will be surveyed to capture hunting individuals

Survey Sites 6 and 7: Survey Sites 6 and 7 are intended to capture the southern-most gulch of the turkey foot associated with the north tributary (Figure 3). Due to safety and time constraints, this area has not been fully investigated for MSO suitability. However, based on desktop analysis and visual review of the area from Survey Site 5, this area appears to be comprised of a mix of similar age class ponderosa pines and aspens (*Populous tremuloides*), with minimal rock outcroppings, indicating suboptimal habitat. More details will be incorporated from protocol surveys in April.

Figure 6: View of Survey Site 4 and Flight paths to Potential Hunting Grounds

Tributaries Survey Sites: Survey locations on the lower portion of the Property will be occur at the South Tributary and Middle Tributary. Surveys at these locations will allow for coverage of MSOs traveling from roosting and nesting sites further west on the Property to the hunting grounds and other foraging areas. The South Tributary Survey Site contains a ponderosa pine/gamble oak complex of a variety of age classes as well as some riparian vegetation such as wax current and Woods Rose. The Middle Tributary Survey Site contains a mix of white fir and Douglas fir (*Pseudotsuga menziesii*) with older class trees and a dense canopy.

Dead Bear Creek Survey Site: Dead Bear Creek Survey Site contains a similar vegetation composition as the Middle Tributary Site, comprised of white and Douglas fir. Flowing surface water was also observed in this feature during the October 30 site visit as well as numerous boulders and snags. The presence of water and high rock walls provides and retains air humidity as well as habitat complexity preferred by the MSO. Dead Bear Creek is also adjacent to the hunting grounds, providing easy access to forage areas. This area is assumed to provide high quality habitat for this species.

Hunting Grounds Survey Site: The Hunting Grounds Survey Site is located in an area that was targeted for previous fire mitigation activities. Vegetation observed in this area on October 30 is comprised primarily of small gamble oak, and a variety of forbs and grasses. While much of the herbaceous vegetation is non-native, improved ground visibility for the MSO immediately adjacent to large and mixed conifer forest stands associated with the Middle Tributary and Dead Bear Creek indicates this area may provide high quality hunting grounds for the MSO, which prefers perch and pounce techniques for hunting (USFW, 2023a).

Lower Property Transects: MSO utilization of the lower portions of the Property is anticipated to consist of scattered foraging activities. Due to the relatively even topography of this area, which limits safety concerns for surveyors, and the unpredictable species use, survey efforts in this area will comprise of walking transects, in line with USFW protocols. These transects will be more fully discussed in the protocol survey results memorandum, which is anticipated for completion in May 2024.

Sensitive habitat sites for the MSO, as well as other species as described below, have been compiled onto an ecological constraints map (Figure 7). Protocol surveys and/or additional measures developed in coordination with the USFW and local stakeholders may further refine locations for avoidance within the final Master Plan.

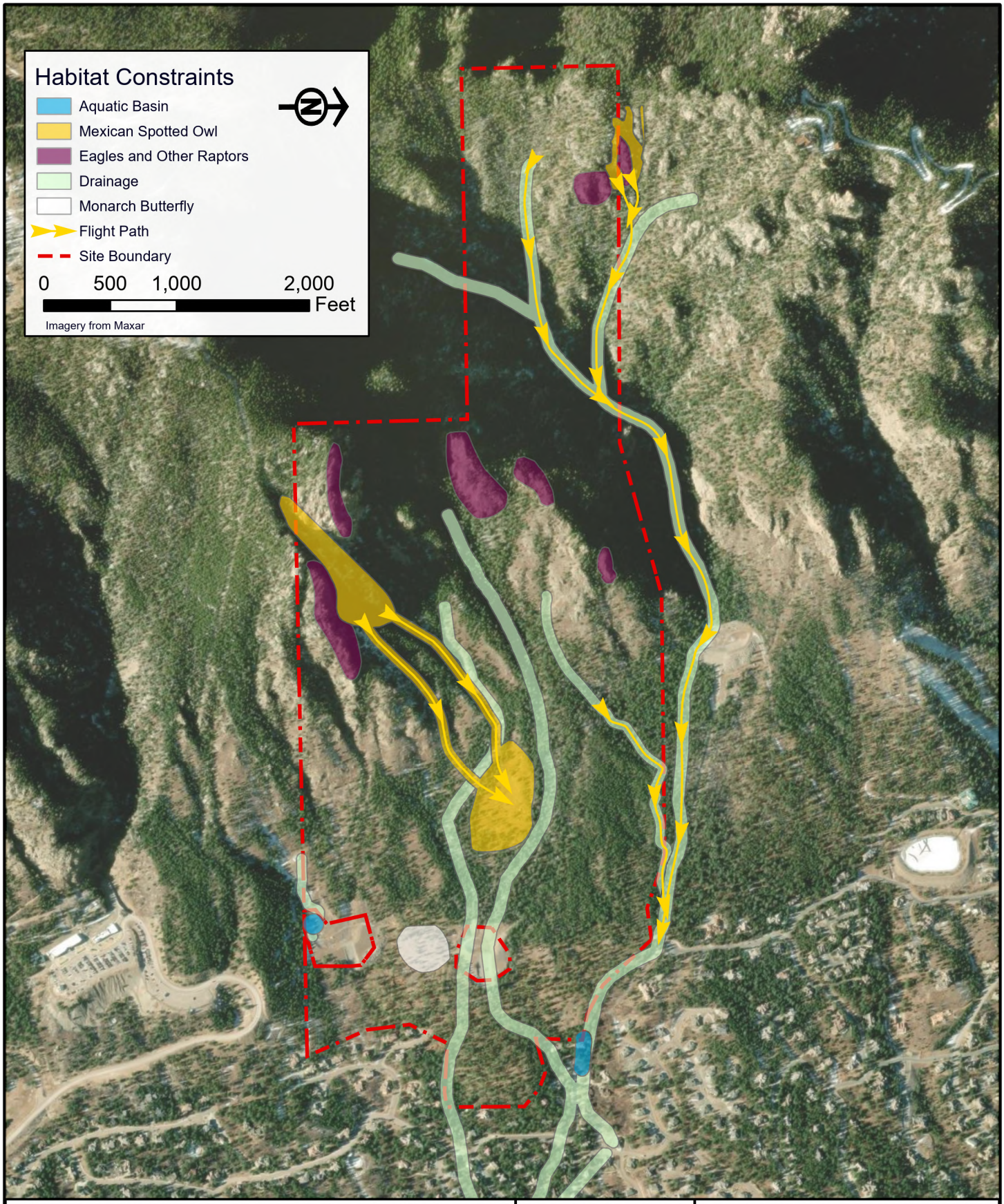

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Figure 7
ECOLOGICAL CONSTRAINTS

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2.2.2 Golden and Bald Eagles and Other Raptors

Golden and bald eagles are anticipated to utilize the Property to some degree. Bald eagles are unlikely to nest on-site as these activities are generally performed adjacent to large waterbodies or rivers (USFW 2023b). Golden eagles are known to nest on rocky ledges and canyon walls, similar to areas identified for the MSO. In particular, areas of interest for this species likely include the canyon walls of the Legends and prominent rock formations such as Fisher's Perch (Figure 7). Foraging by both species may occur on the Property, especially in the lower elevations. During the October 30 site visit, an immature golden eagle was observed perching on a prominent rock on the North Legends, confirming use of the Property by this species.

Other raptor species like utilize the site in addition to MSO and eagles. This includes peregrine falcons (*Falco peregrinus*) and a variety of hawk species. Similar to eagles and owls, these animals forage in more open areas, such as those observed on the eastern edge of the site, and utilize the steep canyon walls, cliff faces, and rocky ledges for resting, nesting, and identifying prey. A red tail hawk (*Buteo jamaicensis*) was observed overhead on the September 7 visit in the vicinity of Fisher's Perch.

2.2.3 Migratory Birds

Site visits were performed outside of the migratory bird breeding season, which generally lasts from April 1 – August 31 in the Colorado Springs region. As such, few migratory birds were observed. Habitat for migratory songbirds was observed throughout the Property, with the site providing an overall blend of mixed conifer forest, ponderosa forest, scrub-shrub areas, grasslands, and some riparian zones. Species diversity and use is expected to increase on-site due to the fire mitigation activities that have occurred, providing additional habitat complexity that can support a broader variety of species within the site. It is anticipated that most of migratory bird activity will be focused within the site's drainages (Figure 7).

Observed migratory bird species during the October 30 site visit include a flock of sandhill cranes (*Antigone canadensis*) in flight. These animals were likely migrating, following a route that is tied roughly with the Arkansas River and its tributaries from the San Luis Valley to the southern U.S. Given the lack of large and persistent aquatic features within the Property, it is unlikely that these animals utilize the site. .

2.2.4 Monarch Butterfly

The September 7 site visit occurred during the monarch migration period in Colorado. However, no monarchs were observed during this time. Approximately 10 individual milkweed plants (*Asclepias* spp.), which are the primary host plant for this species, were identified in the vicinity of the detention basins on September 7, indicating the Property may provide some suitable habitat for this species (Figure 7).

2.3 Other Resources

2.3.1 Other Wildlife

The Property occurs within the exurban interface, connecting densely populated neighborhoods to the east with large tracts of USFS lands to the west. The Cheyenne Mountain SFS to the south

also provides disturbance while the Cheyanne Mountain State Park provides both recreational disturbance and a conservation corridor for wildlife in the region. Rock Creek and Turkey Creek, which exist approximately three and seven miles to the south of the Property, respectively, also provide important wildlife connectivity corridors for a number of wildlife species as these animals move from the plains to the foothills that make up the western boundary of the Fishers Canyon Open Space. As such, the Property serves as an important buffer between wild and urban landscapes for many animals including mule deer (*Odocoileus hemionus*), mountain lions (*Puma concolor*), and black bears (*Ursus Americanus*), as well as a variety of non-migratory raptors and avian species as they move between these two ecological subregions. Wildlife use of the Property is demonstrated by a desktop review of CPW high priority habitats (Colorado Oil and Gas Conservation Commission, 2023), which includes a portion of the site within the Mule Deer Winter concentration area. Further, City staff observed a bear carcass within the Dead Bear Creek drainage, demonstrating use of the site by this species. City staff also confirmed that mountain lions are present on-site.

The pinyon jay (*Gymnorhinus cyanocephalus*) and tricolored bat (*Perimyotis subflavu*s) are both sensitive species that have seen recent declines in their populations. The pinyon jay is currently under review by the USFW for consideration as a proposed listed species, due to habitat loss of pinyon forests resulting from changes in historic natural fire regimes and removal of trees as part of cattle grazing operations (USFW, 2024a). The tricolored bat is proposed for listing as an endangered species, due primarily to the spread of white nose syndrome that has decimated bat populations (USFW, 2024b). The original proposed listing was published as a public notice in September 2022 but no further official action has yet been taken on this species (USFW, 2022).

The pinyon jay has been observed in habitats near the Turkey Creek drainage, the headwaters of which are approximately 7 miles south of the western-most edge of the Property. Tricolored bats have also been observed in this area, using the foothill sub-ecoregion as hibernacula. Additional use by the tricolored bat has been recorded further on the eastern plains within the Fort Carson military installation, where most observations of this animal have occurred (D. Follett, pers. comm. 2024). No significant pinyon pine stands have been observed within the Fishers Canyon Open Space during the three site visit events performed by GEI. However, climate change and additional habitat loss may result in movement of either of these species onto the Property at a later date.

2.3.2 Plants

No federally listed plant species were observed during any of the conducted site visits; however, at least eight occurrences of the lesser yellow lady's slipper (*Cypripedium parviflorum* var. *parviflorum*), a Regional Forester Sensitive Species (RFSS) are known from the region the immediate region (USFS, 2022). This species prefers mixed conifer forests at higher elevations, such as those found within the Fishers Canyon Open Space (USFS, 2024a). systems, providing a diverse habitat that supports wildlife and ecological functions.

Additionally, the site supports a contiguous landscape of mixed conifers, gamble oak, ponderosa pine, grassland, and aspen. While fire mitigation measures implemented in 2023 are anticipated to have an overall benefit to the Property in the long-term by providing additional diversity to the Property while reducing the risk of catastrophic wildfire to the site and surrounding region, initial site response will result in the emergence of a significant quantity of noxious and invasive plant

species. Surveys for plants I these areas will be conducted in the springtime to assess the extent of these undesirable species and develop management actions to address these populations.

3.0 Recommendations

The ecological constraints map is provided in Figure 7 to assist in planning and illustrates areas for avoidance and minimization measures for enhancement and land management activities. This constraints map corresponds with the ecological recommendations provided below. An overall constraints GIS layer has also been provided to the City. Additional recommendations and constraints may be added to either map based on City, agency, and/or stakeholder engagement prior to finalization of the Master Plan.

3.1 Aquatic Features

3.1.1 Delineation

To the extent possible and in consideration of access and safety, a U.S. Army Corps of Engineers (USACE) delineation of on-site aquatic features should be performed prior to finalizing trail, parking, and park facility designs. This delineation will allow for the identification of regulated aquatic features and facilitate any permitting activities that may be needed for further enhancement, land management, and site maintenance within Fishers Canyon Open Space. A delineation will also clarify the location of permanent or semi-permanent surface water, which has significant value to wildlife and aquatic species both on and off the Property, allowing for more informed future land management decisions. This delineation will be especially important in lower elevations of Fishers Canyon Open Space and along the MacNeill Trail where higher human use and enhancement activities are anticipated. Whenever possible, access to these features should be avoided to the extent practicable.

3.1.2 Buffers

Trails, roads and other facilities should be located a minimum of 100 feet from the top of bank of tributaries and other aquatic features. Many of the on-site features, especially Dead Bear Creek, show signs of erosion and deep channel incision due to the steep grade and naturally friable soils found throughout the Property. This erosion will be exacerbated through site use, which will lead to reduced water quality both on and off the Property, and impacts to aquatic life in receiving waters such as Fountain Creek. Limiting direct user access to water features and tributaries will also reduce land management effort and costs by limiting the need for retaining walls, riprap, and sediment removal.

3.1.3 Designated Stream Crossings

Where tributary or aquatic resource crossings are required, free-span bridges or appropriately-sized natural bottom culverts are recommended. These structures will more freely allow water, sediment and debris to pass through the tributaries during large storm events. Allowing a freer flow of water will also reduce scouring and incision, leading to an increased resiliency of natural aquatic features and reduced maintenance cost. Additional measures to discourage entrance of recreational users into tributaries, such as fencing, vegetation planting, or other barriers at each crossing should be strongly considered to reduce erosion at these access points.

3.1.4 Stream Stabilization

In areas where stream stabilization becomes necessary due to increased erosion or vegetation loss, these activities should be conducted with the use of low-tech solutions. This may include the establishment of high density vegetation along the drainage banks or the installation of Post-Assisted Log Structures (PALS) or log jams into the tributary banks. Additional measures to consider in the eastern portions of Fishers Canyon Open Space may include conducting minor grading combined with revegetation to form shallow benches to widen channel surface area, slow water velocities and reduce scour. Riprap, rock, or other traditional bank stabilization measures should be avoided wherever possible as this accelerates water flow, increases erosion, and will degrade waterways on and off site.

3.1.5 Dog Feces Stations

Should dogs be allowed within the Fishers Canyon Open Space, dog feces stations, including bags and rubbish containers, should be established at high use locations throughout the site. This includes near the trailhead and parking areas and, if possible, along the MacNeill Trail. Informational signs about water quality implications from not cleaning up after pets are also recommended.

3.2 Sensitive Species

3.2.1 Mexican Spotted Owl

Due to the suitable habitat on-site and this species' sensitivity to human disturbance from activities such as biking, hiking and climbing, access into high quality habitat areas should be limited to the maximum extent practicable. Understanding the goals of the Master Plan and the presence of this habitat, the following initial constraints should be considered:

Avoidance of Owl Alley: Based on desktop review and site observations on October 30 and 31, human use of this area should be highly limited. Additionally, Flight Path 1, as shown on Figure 6, should be avoided for hiking or rock-climbing access to the Legends rock outcropping area. Seasonal or high-use closures of the Legends to avoid breeding season (March – August) should also be considered. Similar considerations should be given to Dead Bear Creek.

Avoidance of Fisher's Perch and Dead Bear Creek: Access to Fisher's Perch should be limited during the MSO breeding season (March – August). Access to this area using the northern-most gulch of the turkey foot (Flight Path 1, Figure 6) should be avoided to allow MSO access from nesting areas to the hunting grounds. While this area receives some disturbance due to the proximity of the site near Cloud Camp, most of the existing disturbance occurs along the ridgeline, outside of these sensitive habitat areas.

Daytime Use of Hunting Grounds and Waterways: The MSO is primarily a nocturnal hunter. Therefore, access to the Property should be limited to sunrise to sunset, daily, especially within the hunting grounds and the lower reaches of the Southern, Middle, and northern tributaries, as well as Dead Bear Creek.

3.2.2 Golden and Bald Eagle and Other Raptors

Suitable habitat for eagles and other raptors exists throughout the Property, primarily focused on prominent rock outcroppings and perches. Additionally, numerous surveys performed in the region have resulted in positive identification of these animals. Human visitation to these areas should be avoided, especially during the breeding season

Avoidance of Potential Nesting Sites: Similar to the MSO, the valley between the Legends and the gulch north of Fisher's Perch should be avoided to limit disturbance to golden eagles and other raptors. Seasonal closures to support nesting activities should be considered. In Colorado, this period extends from December 15 - July 31 for most raptor species (CPW, 2020).

Observations and Closures: City staff or community members may consider the creation of a monitoring program with opportunities to easily report eagle sightings within the Property. If observed birds appear repeatedly on-site, additional seasonal or temporary closures of these areas can be incorporated into the annual site management plan.

Limited Rock Climbing Access: Rock climbing access should exclude sensitive areas identified in Figure 6. Instead, designated bouldering locations can be established using on-site or imported bouldering materials within the eastern areas of Fishers Canyon Open Space. If complete avoidance of rock climbing in areas defined in Figure 6, is not feasible, seasonal closures in line with the raptor nesting period (December 15-July 31) should be enforced.

3.2.3 Migratory Birds

Suitable habitat for migratory birds exists throughout the property. Thoughtful land management will be key to protecting these on-site resources.

Avoidance of Drainages: Where possible, disturbance of drainages should be avoided. Riparian corridors provide habitat and key foraging areas for many migratory birds due to the presence of water and insect communities.

Rubbish Containers: Areas for trash disposal should be available at all high use locations throughout the Property. These containers should be emptied and maintained on a regular basis to limit predation from domestic cats, racoons, foxes and other species, which are attracted to garbage and human debris.

Land Management Activities: To the extent feasible, disruptive activities such as construction, mechanical weed removal, grading, and erosion control should be conducted outside of the migratory bird breeding period (April 1 – August 31) to reduce nest destruction and/or abandonment. If this time window cannon be avoided for construction or other enhancement activities within Fishers Canyon Open Space, a site specific avian monitoring plan should be developed and implemented prior to the start of disturbance activities.

Lighting: Use of bright lights should be avoided an hour before sunrise and an hour after sunset. If lighting is needed, directional lighting should be installed that avoids shining lights into trees or bushes (e.g., downward or side facing) (USFW, 2015).

3.2.4 Monarch Butterfly

Monarch butterflies may utilize the site. To limit impacts to these species, coordinated planting and herbicide management should occur.

Vegetation Planting: Milkweed recruitment should be encouraged throughout the Property. This may include the establishment of a maintained native garden that incorporates milkweed at or along trailheads and picnic areas. Milkweed should also be considered in soil stabilization approaches or revegetation mixes throughout the Property.

Vegetation Management: Vegetation management should occur outside of the monarch migration season to the extent possible (September 1 – October 15). Vegetation mowing and herbicide use should be avoided during this time period. Further, to the extent feasible, milkweed should be avoided during herbicide application either through the incorporation of focused spot treatments to limit application to this plant or by limiting herbicide use to those chemical variations or timing that reduces impacts to this vegetation.

Regional Coordination: Monarch monitoring events should be established to aid in tracking populations and movement of this species throughout the region. These efforts can be combined with existing surrounding agency programs or be established as a tool for community engagement. Existing volunteer efforts exist with the Colorado Butterfly Monitoring Network through the Butterfly Pavilion in Westminster, Colorado (Colorado Butterfly Pavilion, 2024).

3.2.5 Lesser Yellow Lady's Slipper

Baseline and Focused Surveys: Focused surveys should be performed for this species along drainages and other cool damp areas within the Property. Surveys should occur in early to mid-summer months when the plant is blooming to maximize the chance of observation. Baseline surveys should be performed prior to public use of Fishers Canyon Open Space, with repeat surveys performed every three to five years to inform herbicide application and other land management decisions.

3.3 Other Resources

To reduce impacts to other wildlife and maintain the ecological integrity of the Property, the density and scale of disturbance should be limited to the extent possible while still achieving Master Plan goals.

3.3.1 Limit Areas of Disturbance

Trail density, picnic areas, restrooms, roads, and other structures throughout the Property should remain low. Ongoing efforts should be made to limit the formation of social trails by providing designated access to key visual locations or other areas of interest and implementing actual or perceived barriers to off-trail use.

3.3.2 Education

Multi-media and/or interactive kiosks should be established to educate the public on-site sensitivity. Kiosks may also include large maps and downloadable features, such as QR codes, which can be used on cell phone apps to allow people to follow designated trails in real time.

3.3.3 Fencing

Chain link fence currently separates the Cheyanne Mountain SFS from the Fishers Canyon Open Space. Establishment of this fence line limits wildlife movement. Communication should be initiated to examine alternative options to chain link fence that will facilitate wildlife movement while protecting safety and security. This may include the establishment of specified wildlife passage areas that use smooth wire and/or the establishment of larger land buffers between public access points within the Fishers Canyon Open Space and the Cheyanne Mountain SFS boundary.

3.3.4 Pets

Leash laws should be enforced throughout the entire Fishers Canyon Open Space. The area provides an important corridor for wildlife traveling both east to west and north to south and unleashed dogs can result in the harassment of wildlife and decreased water quality due to undetected defecation. This is particularly important in spring months, when young animals are more prevalent, and during the fall during the deer rutting season.

3.3.5 Adaptive Management

Adaptive Management should be incorporated into long-term master planning. Adaptive management should track cause and effect of direct management actions that impact Fishers Canyon Open Space as well as indirect impacts from climate change and regional population growth. Adaptive management planning should remain flexible and require the development and utilization of a "living document" that can be updated on a regular basis as site, regional, and global conditions change.

4.3.6 Regional Coordination

Ongoing regional coordination and outreach will be important to promote sustainable use of Fishers Canyon Open Space and long-term site durability. Several examples of opportunities for regional coordination are summarized below:

Water Quality: Sedimentation and erosion are known significant challenges throughout the Pikes Peak Region. Coordination with local entities such as Fort Carson, CSU, and the Fountain Creek Greenway and Flood Control District (Fountain Creek District) to plan for and implement Best Management Practices (BMPs) to address erosion and sedimentation may be an important step to long-term Property operations. Coordination with these entities will also help meet regional water quality goals in a holistic and collaborate manner in Fountain Creek, Monument Creek and other receiving waterbodies.

Rubbish Removal: Participation as a designated clean up sitesite in the Fountain Creek District's "Creek Week" program will contribute to maintaining community engagement and ecological durability. Removal of debris also reduces unnatural levels of predators on-site, protecting

migratory birds and other wildlife, and reduces wildlife dependence on artificial human food sources.

Noxious and Invasive Plant Control: The Property is boarded by Cheyenne Mountain SFS and USFS lands, and is in close proximity to Cheyanne Mountain State Park. Development of an integrated pest management plan (IPM) specific to the Property that works in coordination with these other land owners will allow for long-term durability and success in controlling non-native vegetation.

Endangered Species Recovery: Active participation in recovery efforts for the MSO, in coordination with the USFS, CPW, and USFW will promote the local and native ecology of the region. These efforts may also provide additional opportunities for grant funding and other resources that can assist in long-term management and maintenance for Fishers Canyon Open Space.

Other Wildlife: Ongoing monitoring and coordination should be established with regional landowners and agencies to track and monitor wildlife populations in the region. This may include the establishment of wildlife cameras at key locations within drainages to track deer, bear, and mountain lion movement and/or the participation within various working groups and hosting of agency-focused wildlife workshops on open space properties owned by the City. These efforts will be beneficial in understanding high-priority wildlife movement across the Cheyanne Mountain SFS, Cheyanne Mountain State Park, and other natural areas such as the Turkey Creek and Rock Creek drainages within the region to aid in future planning and conservation efforts.

Tracking and monitoring collaboration is also encouraged for gaining an improved understanding of local populations of pinyon jays and tricolored bats. Efforts are underway to expand research into hibernacula and roosting sites at Fort Carson for the tricolored bats. Inclusion of the Fishers Canyon Open Space in the development of a regional wildlife biology study design for this species may prove beneficial for future monitoring and land management activities across the region.

Fire Mitigation: Wildfire is a significant concern within any exurban landscape. Intensive wildfire can not only cause significant damage to natural resources during the burn event but also post-wildfire in the form of extensive sedimentation that reduces water quality and increases erosion as well as long-term habitat loss for sensitive species and other wildlife. To protect against wildfire, City of Colorado Springs Parks, Recreation, and Cultural Resources staff are encouraged to participate in regional wildfire workshops to explore prescribed burning techniques such as slash pile and small broadcast burns in key locations. Additional fire mitigation efforts such as those that occurred on-site in 2023 should also be planned and implemented. To meet ecological objectives, fire mitigation efforts should be performed with the primary goal of restoring and maintaining natural forest ecosystem health.

Additional measures for pre-wildfire mitigation may include the installation of natural design erosion control measures (e.g., felled log and branch structures), which can be strategically placed in key locations throughout the site. These locations may include small gulleys and draws in the higher elevations of the Property so that these structure can most effectively capture sediment and runoff in the upper reaches of the watershed. Installation of these low-cost structures prior to a

wildfire event will reduce excessive erosion and gullying in lower areas of the site if a wildfire does occur.

A “live” property-wide constraints map that includes ecological considerations has been submitted to the City that incorporates these recommendations. Additional recommendations may be developed upon completion of additional ecological survey efforts, wetland delineations, cultural resource reports, and stakeholder and public outreach meetings. We look forward to the chance to continue to be part of the team that brings this exciting new open space property to the community.

4.0 References

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Photo Log

Southern drainage entering detention basin

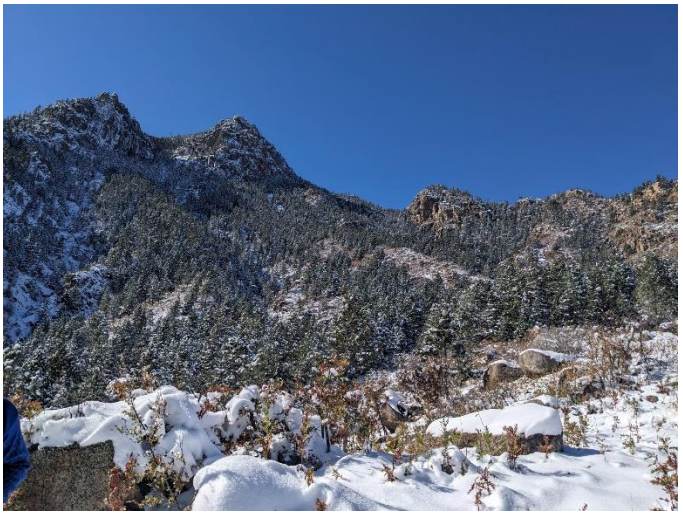
Water Tank drainage & aquatic basin

Dead Bear Creek

MacNiell Trail

Fishers Perch looking into North Turkey Foot Gulch (left

Middle drainage looking upslope



Looking downslope into Owl Alley

Hunting grounds looking at Legends, Sunnyside raptor sites

View from Fishers Perch