



Technical Memo

PO Box 272150
Fort Collins, CO 80527

Date: January 10, 2023

To: Town of Timnath

From: Cedar Creek Associates, Inc.

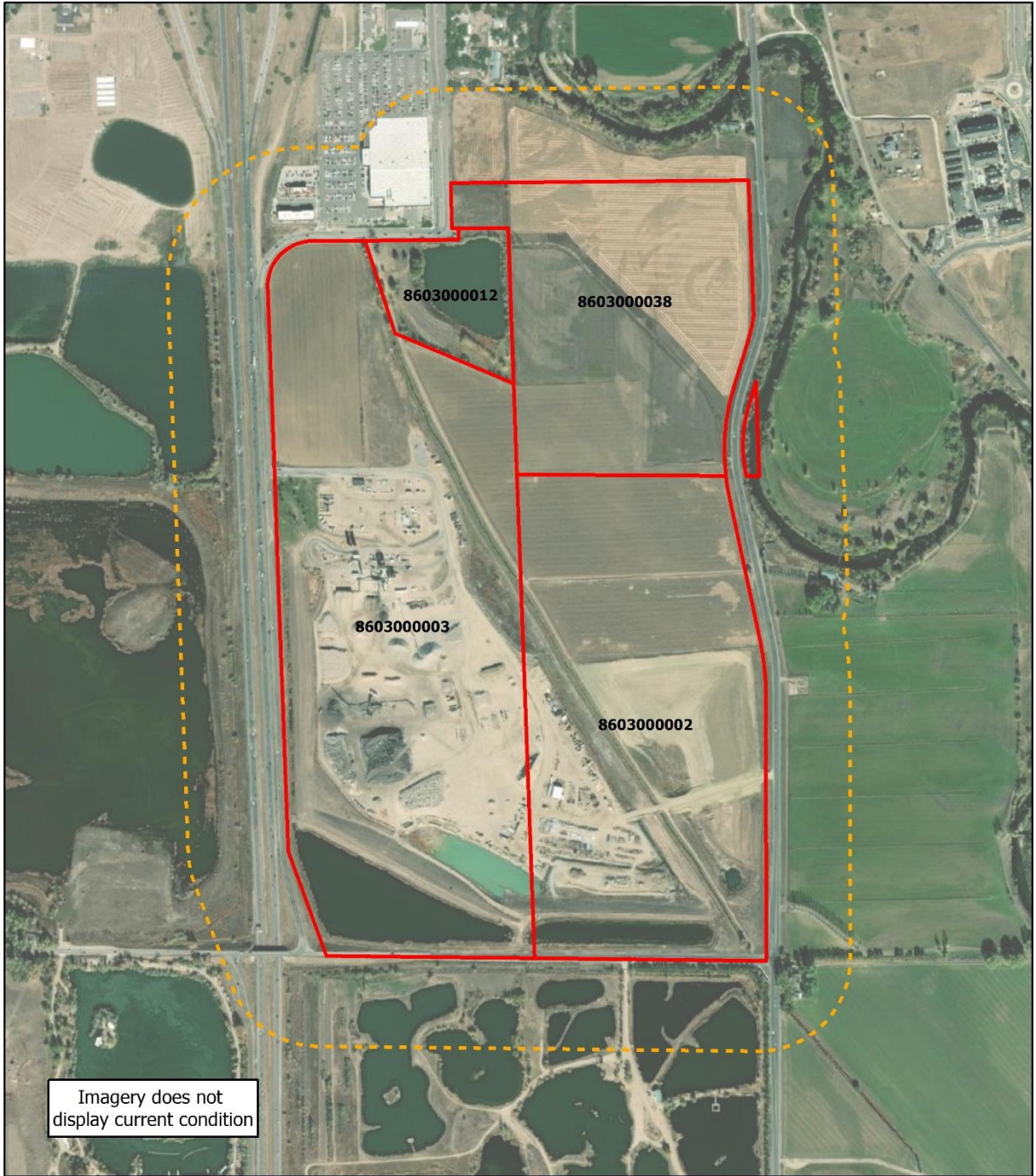
Subject: Ladera Subdivision Project - Ecological Characterization Study

This Ecological Characterization Study (ECS) Memo is submitted to identify habitats and natural resource areas on or within proximity of proposed development. The Ladera Subdivision Project Site is comprised of parcels 8603000002, 8603000003, 8603000012, and 8603000038, which are situated south of Harmony Road and east of Interstate 25, Larimer County, Colorado (Figure 1). A site visit to evaluate ecological characteristics of the project site was completed on January 5, 2023.

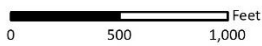
A data review was conducted to gather information and assist in the evaluation of potential natural biological resources within the property and survey area (500 ft. buffer). The data review entailed an evaluation of online resources and publications to determine the presence or potential occurrence of important natural and biological resources. This data review included:

- U.S. Fish and Wildlife Service (USFWS) Federally Listed and Proposed Endangered, Threatened, and Candidate Species and Critical Habitat as identified by the USFWS Information, Planning, and Conservation System (IPaC) Official Species List and Critical Habitat Mapper;
- Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act (BGEPA) protected species as identified on the IPAC Trust Resources Report;
- The Colorado Natural Heritage Program database statewide species and natural community tracking list for Larimer County;
- Colorado Parks and Wildlife (CPW) High Priority Habitat database and Threatened and Endangered Species List and ;
- The Colorado Wetland Inventory (CWI);
- USFWS National Wetlands Inventory (NWI); and
- US Natural Resources Conservation Service (NRCS) Web Soil Survey.

The following provides a summary of information obtained during the ECS data review and site inventory.



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Legend

- Study Area
- Proposed Development Parcels

Ladera Development Project Site



Coordinate System:
Colorado State Plane 1983
Sources:
Larimer County / Cedar
Creek

Figure 1: Ecological Characterization Study

DESKTOP ANALYSIS RESULTS

National Wetland Inventory – Figure 2 displays the findings from the query of the National Wetlands Inventory. The dataset displayed the following potential features within the study area:

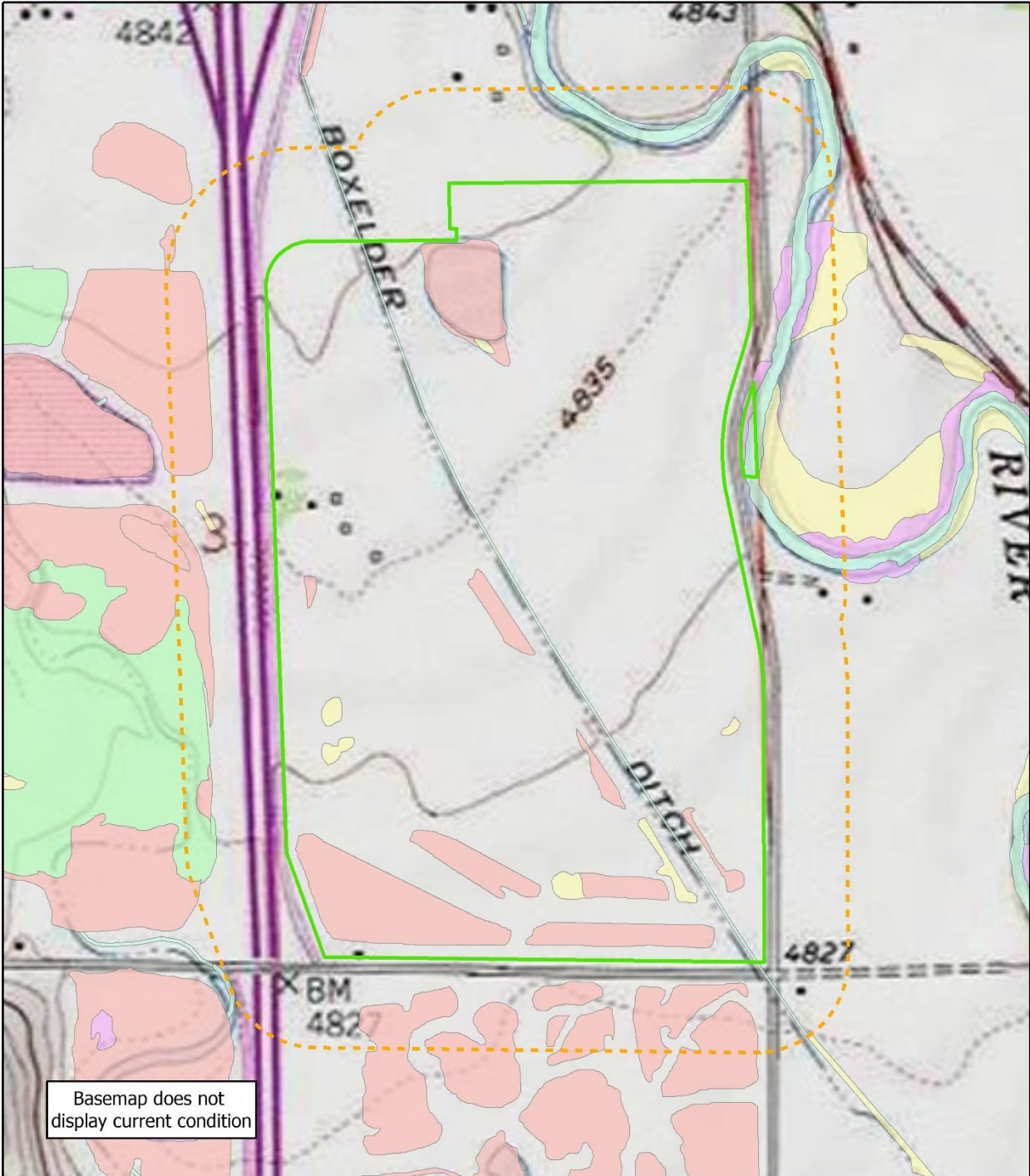
- Freshwater Emergent Wetland – Primarily associated with the riparian zone of the Cache la Poudre River to the east of the proposed development.
- Freshwater Forested/Shrub Wetland - Primarily associated with the riparian zone of the Cache la Poudre River to the east of the proposed development.
- Freshwater Ponds - Primarily associated with past or presently existing reservoirs within the proposed development and to the west and south.
- Lake - Associated with the large reservoir to the west.
- Riverine - Associated with the Cache la Poudre River to the east of the proposed development.

Colorado Parks and Wildlife High Priority Habitat Database – Figure 3 displays the findings from the query of the Colorado Parks and Wildlife (CPW) High Priority Habitat Database. The dataset displayed the following potential features within the study area:

- Bald Eagle / Communal Roost Site - Roost sites are defined as a 0.5-mile buffer zone around groups of or individual trees that provide diurnal and/or nocturnal perches for less than 15 wintering bald eagles in Colorado; these trees are usually the tallest available trees in the wintering area and are primarily located in riparian habitats. Communal Roost Sites are defined as groups of or individual trees that provide diurnal and/or nocturnal perches for more than 15 wintering bald eagles; these trees are usually the tallest available trees in the wintering area.
- Aquatic Native Species Conservation Waters - Defined as areas located within 500 feet of the ordinary high-water mark (centerline in absence of high-water mark) of any stream segment located within CPW designated Aquatic Native Species Conservation Waters.

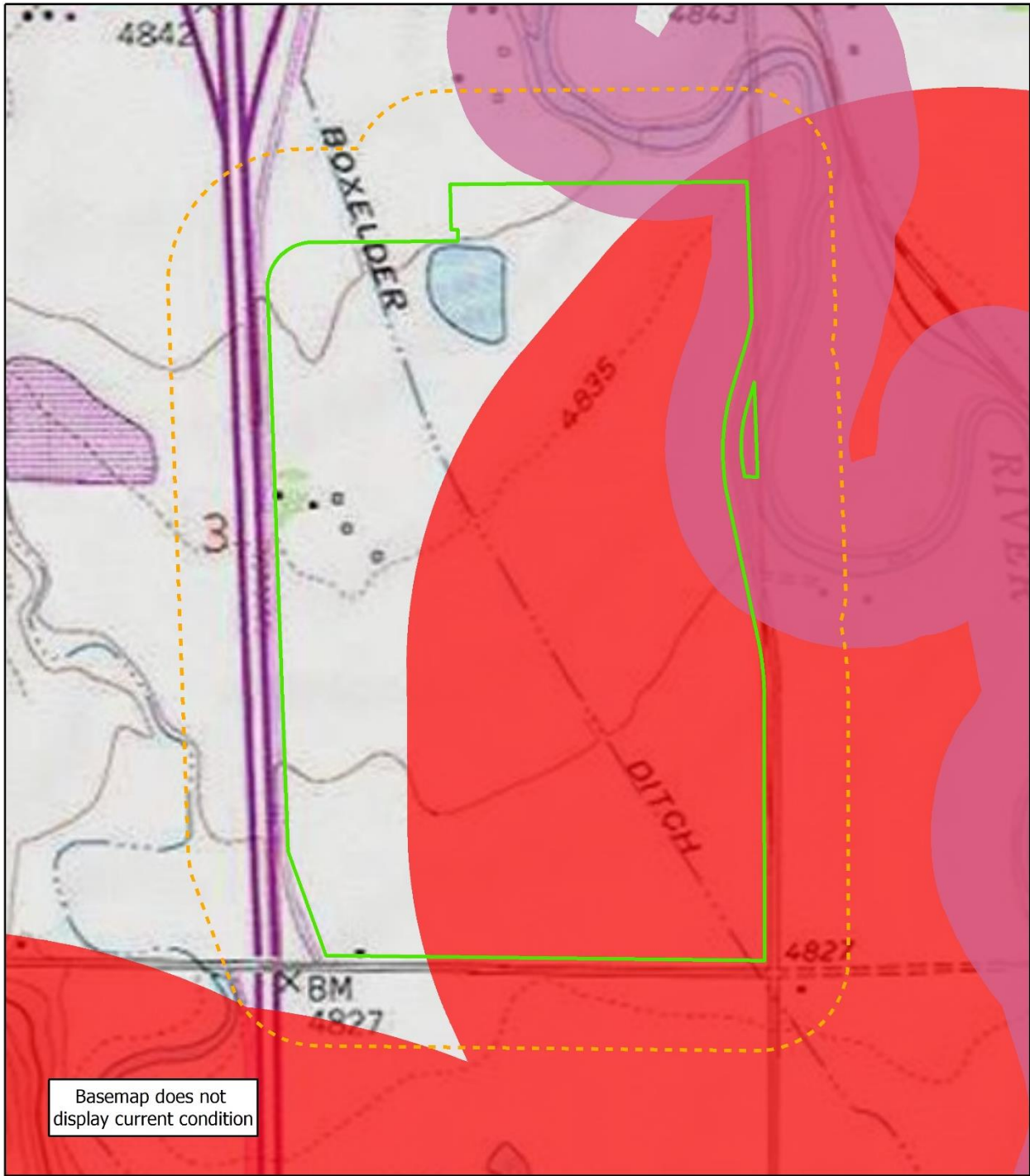
Threaten and Endangered Species Query – Information for Planning and Consultation tool was queried to determine the potential for threatened and endangered species to occur within the project area. The full report from the tool is attached to this memo but the following species were identified:

Type	Common Name	Scientific Name	Status
Mammals	Gray Wolf	<i>Canis lupus</i>	Endangered
	Preble's Meadow Jumping Mouse	<i>Zapus hudsonius preblei</i>	Threatened
Birds	Eastern Black Rail	<i>Lateralius jamaicensis ssp. jamaicensis</i>	Threatened
	Piping Plover	<i>Charadrius melodus</i>	Threatened
	Whooping Crane	<i>Grus americana</i>	Endangered
Fishes	Greenback Cutthroat Trout	<i>Oncorhynchus clarkii stomias</i>	Threatened
	Pallid Sturgeon	<i>Scaphirhynchus albus</i>	Endangered
Insect	Monarch Butterfly	<i>Danaus plexippus</i>	Candidate
Plants	Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	Threatened
	Western Prairie Fringed Orchid	<i>Platanthera praeclara</i>	Threatened



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		<ul style="list-style-type: none"> Study Area Proposed Ladera Development <p>NWI Wetlands</p> <ul style="list-style-type: none"> Freshwater Emergent Wetland Freshwater Forested/Shrub Wetland Freshwater Pond Lake Riverine 	<p>Ladera Development Project Site</p>
<p>Coordinate System: Colorado State Plane 1983</p> <p>Sources: Larimer County / Cedar Creek</p>			<p>Figure 2: National Wetland Inventory</p>



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0 500 1,000 Feet



Legend

-  Study Area
-  Proposed Ladera_Development
-  Aquatic Native Species Conservation Waters
-  Bald Eagle Roost Site HPHE1

Ladera Development Project Site

Figure 3: CPW High Priority Habitat



Coordinate System:
Colorado State Plane 1983
Sources:
Larimer County / Cedar
Creek

ECOLOGICAL CHARACTERIZATION STUDY FINDINGS

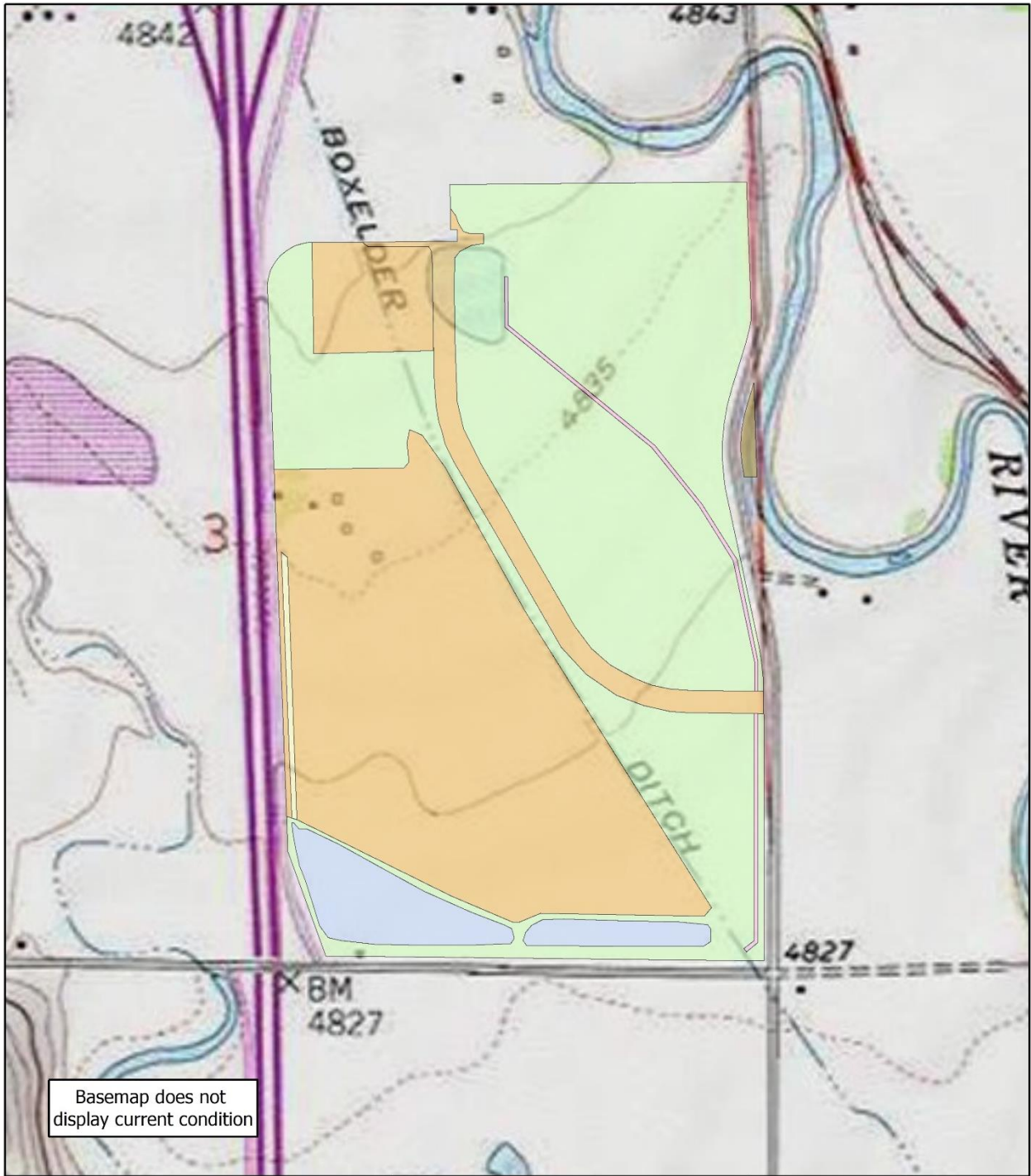
Cedar Creek conducted a field evaluation to verify the presence of resource identified in the desktop analysis. The following site description also relies on an Approved Jurisdictional Determination from the Army Corps of Engineers (dated 5/14/2021), a CLOMR Habitat Assessment Report authored by Wildland Consultants (dated June 2021), and engineering drawings for re-routing and channelization of Boxelder Ditch (dated 1/28/2022).

Ecological/Habitat Features and General Ecological Function / Wildlife Use – The Proposed Development Area contains the following habitat types displayed on Figure 4, with photos presented at the end of this document.

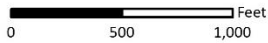
- Anthropogenic (~101.9 acres) – This habitat type is comprised of the road, commercial development, and mine facilities. There is essentially no ecological function or wildlife use in this habitat type.
- Box Elder Ditch (~1.9 acres) – This habitat type is the concrete channelized and grate covered ditch, which was recently relocated from its previous location bisecting the site (see CLOMR report). The new form of the ditch does not offer any ecological function or wildlife use.
- Groundwater Recharge Ponds (~11.9 acres) – This habitat type is comprised of the two ponds along the south border of the property. They are a permanent improvement to the property and will be maintained. These ponds can provide foraging habitat for songbirds and raptors, fisheries, and are resources for urban adapted mammals. There is limited vegetation lifeform structure, such as cattails and willows, on the reservoir fringe.
- Riparian (~0.7 acres) – This habitat is a highly functioning ecosystem associated with the Cache la Poudre River on the east edge of the property. The river provides very important habitat for the wildlife of all types and serves as a wildlife movement corridor to connectivity to other important habitats.
- Groundwater and Raw Water Recharge Channel (~1.0 acres) – This habitat along the western border of the property was constructed to deliver groundwater intercepted by a french drain and convey ditch water to the recharge ponds. It currently exhibits some vegetation structure which would provide cover for urban adapted species. This infrastructure will stay in place.
- Upland / Disturbed (~123.9 acres) – This habitat is comprised of agricultural, reclaimed mining, and disturbance areas associated with regrading. In general, when plant communities are present, they are herbaceous and lacking species diversity. Therefore, the ecological function and wildlife use is very limited in these areas. There have been prairie dogs in some areas in the past.

Wildlife use of the Project Site, particularly in the upland habitats, is low due to the surrounding urban development and limited shrub/tree cover. The mature trees located along the Cache la Poudre River provide suitable perching, nesting, and foraging habitat for songbirds and raptors. The reservoirs onsite provide opportunities for raptors and songbirds moving through the site. Wildlife species capable of existing within or using the uplands are limited to those species that are either habitat generalists capable of existing in modified urban environments or species which use a wide variety of habitats for foraging over a large area.

Wetland and Water Delineation - The Approved Jurisdictional Determination for the project site indicates that the Cache la Poudre is a Water of the United States and wetlands adjacent to the river are jurisdictional. The remaining water features onsite (recharge ponds, Box Elder ditch, groundwater and raw water recharge channel, and incidental roadside ditches) are not jurisdictional. A good portion of the features, such as Weitzel Sump, which were indicated on the National Wetland inventory are no longer existing onsite.



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- Type**
- Anthropogenic
 - Boxelder Ditch
 - Groundwater Ditch
 - Reservoir
 - Riparian
 - Upland / Disturbed

Ladera Development Project Site

Figure 4: Project Habitat Types



Coordinate System:
Colorado State Plane 1983
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Creek

Protected Species Habitat – The CLOMR report evaluated the site for potential habitat for the protected species and found there was no potential habitats onsite for threatened or endangered species. A summary of Wildland Consultants, Inc. and Cedar Creek’s findings are presented on the table below. The host plant for Monarch Butterfly (a candidate species) is commonly found throughout the front range and is likely found within the mesic areas onsite.

Species	Federal Status ¹	Habitat	Habitat Present?	Determination
Mammals				
Gray Wolf	E	The wide range of habitats includes temperate forests, mountains, tundra, taiga, and grasslands.	No habitat onsite. No known gray wolf on the eastern slope.	No Effect
Preble's Meadow Jumping Mouse	T	Lush vegetation along watercourses or herbaceous understories in wooded areas near water.	The project is located within a potential habitat area for this species. This species is unlikely to occur in the area based on extensive trapping nearby.	No Effect
Birds				
Eastern Black Rail	T	Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy "swamps."	This project would not require water depletions and would not impact this species.	No Effect
Piping Plover	T	Sandy beaches, sandflats, dredge islands, and drained river floodplains.	No potential habitat onsite. This project would not require water depletions and would not impact this species.	No Effect
Whooping Crane	E	Wetlands, inland marshes, lakes, ponds, wet meadows and rivers, and agricultural fields.	A very rare migrant in the region. This project would not require water depletions and would not impact this species.	No Effect
Fishes				
Greenback Cutthroat Trout	T	This species inhabits cold water streams and lakes with adequate stream spawning habitat during spring.	Cache la Poudre River in area is too warm to support a trout fishery. No potential habitat present.	No Effect
Pallid Sturgeon	E	Large, free-flowing, warm-water, and turbid rivers with a diverse assemblage of physical habitats.	Project would not require water depletions and would not impact this species.	No Effect
Insects				
Monarch Butterfly	C	No critical habitat has been designated for this species. Known to inhabit open fields and meadows with milkweed in the spring and summer months.	Milkweed is likely present onsite.	Minimal Effect
Flowering Plants				
Ute Ladies'-tresses	T	Seasonally moist soils and wet meadows of drainages below 7,000 ft. of elevation.	Marginal potential habitat on site, but there are no known locations of this plant species in the area.	No Effect
Western Prairie Fringed Orchid	T	Tall grass prairie on unplowed, calcareous soils, and sedge meadows.	No tall grass prairie onsite and there are no known occurrences in Colorado	No Effect

¹E = Endangered, T = Threatened, C = Candidate

HABITAT FEATURES INFLUENCING DEVELOPMENT

This section provides determination of important habitat features and proffers protection measures to limit impacting ecological function and wildlife use of these habitats. The following features were considered as important habitat features. There is also an analysis of the potential for development impacts.

- **Cache la Poudre River**

- Determination – This is an important habitat feature which provides opportunities for wildlife use and movement. CPW designated the river as Aquatic Native Species Conservation Waters.
- Potential for Development Impacts – The proximity of anthropogenic activity to the high-quality habitat of the river could diminish wildlife use and ecological function. However, the potential for development impacts is limited due to the fact that County Road 5 intervenes between the proposed development and the Cache la Poudre River.
- Protection Measures – To the north of the proposed development parcel, a 200-foot natural habitat buffer should be applied from the top of bank of the Cache la Poudre River to protect existing ecological function and wildlife use. Ecological restoration of the natural habitat buffer could provide improved habitat. To the east of the proposed development parcel, no buffer is warranted due to the habitat fragmentation created by County Road 5.

- **Onsite Reservoirs**

- Determination – These onsite reservoirs provide habitat value for wildlife, but they are permitted to be backfilled at the conclusion of mining activities.
- Potential for Development Impacts – Proximity of anthropogenic disturbance could limit wildlife use and diminish ecological function.
- Protection Measures – If the reservoirs are not backfilled, a 50-foot natural habitat buffer should be applied from the top of bank of the reservoirs to protect existing ecological function and wildlife use. Ecological restoration of the natural habitat buffer could provide improved habitat.

- **Offsite Reservoirs**

- Determination – The larger reservoirs to the south and west of the proposed development proffer better habitat value and ecological function than the onsite reservoirs.
- Potential for Development Impacts – Proximity of anthropogenic disturbance could limit wildlife use and diminish ecological function. Intervening parcels containing Interstate 25 and Kechter Road create habitat fragmentation and limit connectivity.
- Protection Measures – No natural habitat buffers are warranted.

- **Presence of Milkweed (a host plant for Monarch Butterfly)**

- Determination – Showy milkweed is common in mesic areas throughout northern Colorado and can serve as a host plant for the Monarch Butterfly.
- Potential for Development Impacts – Development will likely remove some showy milkweed individuals.
- Protection Measures – Showy milkweed should be included in seed mixes used within stormwater detention, wetlands, around waterbodies, and any other locations onsite.

with suitable habitat.

- **Old Prairie Dog Colony**

- Determination – Old burrows within an abandoned prairie dog colony can provide potential nesting habitat for burrowing owls.
- Potential for Development Impacts – Ground disturbing activities during the burrowing owl nesting season could impact an active nest, which would violate the Migratory Bird Treaty Act.
- Protection Measures – Prior to ground disturbing activities during the nesting season, a qualified biologist should implement presence surveys in accordance with CPW guidelines.

- **Blue Heron Rookery**

- Determination – A blue heron rookery is known to occur along the reservoir to the west of the proposed development. Blue heron rookeries are uncommon and important resources for the life stages of the bird. Herons build large coarse stick nests of in dead trees directly over the water or overlooking wetlands and over time the dead trees naturally fall down. The host trees for the blue heron rookery on the west side of Interstate 25 were felled from natural causes in 2022.
- Potential for Development Impacts – Proximity of anthropogenic disturbance could adversely impact blue heron. However, the distance from the proposed development and the uncertainty around the status of the rookery along with the intervening parcel from Interstate 25 indicate that there are limited potential impacts from the proposed development.
- Protection Measures – No protection measures are warranted until further studies relating to the status of the blue heron rookery can be completed.

- **Potential Bald Eagle Roost Site**

- Determination – The mature trees adjacent to the Cache la Poudre River provide prime potential raptor nesting.
- Potential for Development Impacts – Proximity of anthropogenic disturbance could adversely impact roosting bald eagles.
- Protection Measures – CPW provides guidelines for spatial and temporal buffers for development within close proximity to roost. A determination on the roost site activity should be completed prior to development activities.

- **Potential Raptor Nests in The Mature Trees Along the Cache la Poudre River**

- Determination – The mature trees adjacent to the Cache la Poudre River provide prime potential raptor nesting.
- Potential for Development Impacts – Proximity of anthropogenic disturbance could adversely impact roosting bald eagles.
- Protection Measures – CPW provides guidelines for spatial and temporal buffers for development within close proximity to active raptor nesting. A raptor nest survey should be implemented prior to development activities.

PROPOSED HABITAT UPLIFT IN DEVELOPMENT

As part of the proposed development, the applicant proposes to create two reservoirs, which will create new habitat onsite for fisheries, foraging and migrating birds, and urban adapted wildlife. Ecological restoration will be implemented on designated open space areas. In these spaces, concepts to improve ecological function and native vegetation comprising lifeform and species diversity will be planted / seeded to improve habitat value.



REFERENCES



Colorado Parks and Wildlife. High Priority Habitat Database (SB181 Data). Accessed ArcGIS January 2023.

United States Army Corps of Engineers. Approved Jurisdictional Determination. NWO-2021-00616-DEN. May 14, 2021.

United States Fish and Wildlife Service. Informational Planning and Consultation Tool. <https://ipac.ecosphere.fws.gov>. Accessed January 2023.

Wildland Consultants, Inc. Connell Development CLOMR Habitat Assessment Report. June 2021.



Project Name: Ladera	Location: Larimer Co., Colorado	
Date: January 5, 2023		
Description: Onsite reservoir with willow on the fringe.	<p> ☉ 326°NW (M) ☉ 40°30'30"N, 104°59'0"W ±13ft ▲ 4834ft </p>  <p> Pond Ladera 05 Jan 2023, 09:01:26 </p>	

Project Name: Ladera	Location: Larimer Co., Colorado	
Date: January 5, 2023		
Description: Onsite reservoir with cattails on the fringe.	<p> ☉ 316°NW (M) ☉ 40°30'31"N, 104°59'16"W ±19ft ▲ 4835ft </p>  <p> Pond Ladera 05 Jan 2023, 09:02:51 </p>	

Project Name: Ladera	Location: Larimer Co., Colorado	
Date: January 5, 2023		
Description: Onsite portion of the Cache la Poudre River.	<p> 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720 750 780 810 840 870 900 E NE N NW W SW S SE S 34°NE (M) ● 40°30'58"N, 104°58'56"W ±32ft ▲ 4836ft Poudre-River Ladera 05-Jan-2023, 09:25:02 </p>	

Project Name: Ladera	Location: Larimer Co., Colorado	
Date: January 5, 2023		
Description: Channelized Boxelder Ditch	<p> 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720 750 780 810 840 870 900 NE N NW W SW S SE S 350°N (M) ● 40°30'45"N, 104°58'55"W ±22ft ▲ 4836ft Channelized Ditch Ladera 05-Jan-2023, 09:05:46 </p>	

Project Name: Ladera	Location: Larimer Co., Colorado	
Date: January 5, 2023		
Description: Mining facilities	<p> \odot 346°N (M) \bullet 40°30'53"N, 104°59'13"W \pm16ft \blacktriangle 4839ft </p>  <p> Mine Facilities Ladera 05 Jan 2023, 09:10:09 </p>	

Project Name: Ladera	Location: Larimer Co., Colorado	
Date: January 5, 2023		
Description: Agricultural area	<p> \odot 234°SW (M) \bullet 40°31'11"N, 104°59'24"W \pm26ft \blacktriangle 4845ft </p>  <p> Agricultural Area Ladera 05 Jan 2023, 09:17:20 </p>	