

GENERAL ECOLOGICAL RESOURCES SURVEY

**15.976 Acres in Section 8,
Township 2 North, Range 69 West
Boulder County, Colorado 80503**



PREPARED FOR:

Modern West Properties, LLC

1727 15th Street, Suite 100
Boulder, Colorado 80302

WESTERN ENVIRONMENT AND ECOLOGY, INC.

2217 West Powers Avenue
Littleton, Colorado 80120
(303) 730 3452 (phone)
(303) 730-3461 (fax)
www.westernenvironment.com

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**Western Environment and Ecology, Inc.
Project Number: 745-001-02**

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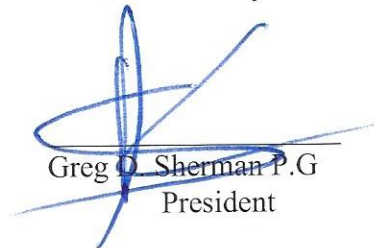
May 18th, 2017

Prepared by:



Brendan Calonge
Senior Staff Scientist

Reviewed by:



Greg O. Sherman P.G.
President

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1.0 INTRODUCTION

Western Environment and Ecology, Inc. (Western Environment) was retained by Mr. Todd Borger on behalf of Modern West Properties, LLC, the current owner of the property, to conduct a general survey of ecological resources, including threatened and endangered species, wetlands, and other significant habitats, on approximately 15.976 acres in Unincorporated Boulder County, Colorado. Mr. Borger indicated that this study was in response to the potential annexation to the City of Longmont and commercial redevelopment of the property.

The objectives of this study were to (1) establish presence/absence and potential habitat of any federal or state threatened and endangered species on the property, (2) identify any wetlands or other ecologically sensitive areas on and adjacent to the property, and (3) make practical recommendations based on the results of the study.



View of the property from the northwest

2.0 STUDY AREA

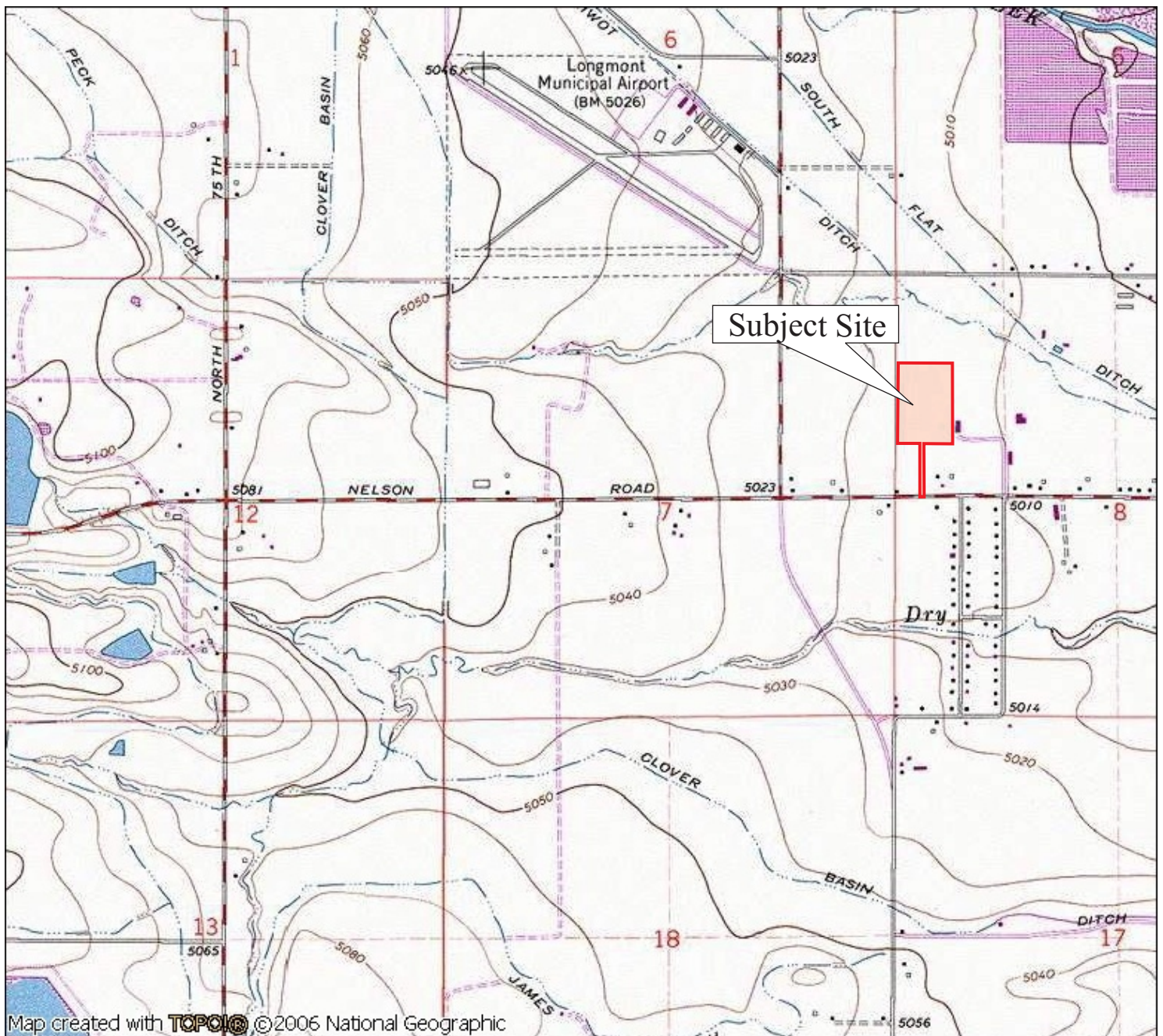
This Phase I Environmental Site Assessment was conducted for approximately 15.976 acres within Section 8, Township 2 North, Range 69 West, Boulder County, Colorado (Figure 1). The subject property is located northwest of the intersection of Schlagel Street and Nelson Road (Figure 2). The Boulder County Assessors Office identifies no current structures on the site.

Agricultural property surrounds the site to the north south and east, with single family residences present to the southwest and southeast. A self storage and recreational vehicle storage lot is located adjacent to the east. The Niwot Ditch is present approximately 400 feet north of the property. The Longmont Vance Brand Municipal Airport is located approximately 2,000 feet to the northwest.

At the time of this assessment, the majority of the property was dominated by short grazed grasses. Cottonwood trees and woody sapling vegetation were present along the access road that extends south of the property to Nelson Road and along the eastern boundary.

The site occurs at an elevation of approximately 5,015 feet above sea level (USGS Hygiene 7.5 Minute Quadrangle, 1979). The topography is generally flat, with a gradual slope to the northeast, towards the Saint Vrain Creek 3/4 of an mile to the northeast. Review of the Federal Emergency Management Agency (FEMA) Flood Insurance Maps (attached) indicated that the site is outside of the 100 year flood zone. The US Resource Conservation Service classifies the majority of the site soils as a Nunn-Kim complex overlaying the Cretaceous Age Pierre Shale Formation (Tweto, Ogden 1979).

Review of the Colorado Division of Water Resources records identified a domestic well adjacent to the southeast corner of the site. The lithologic log prepared for the well (attached) indicated that site geology includes sand and gravel from the surface to 29 feet where weathered claystone was encountered. The Cretaceous Age Pierre Shale formation occurred at 43 feet. Static groundwater was encountered at 17.0 feet below grade.



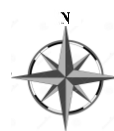
0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km

TN MN
8 1/2°
07/01/15

USGS Hygiene, Quadrangle, 1979

WESTERN ENVIRONMENT
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Figure 1 - Site Location Map
15.976 Acres within Section 8,
Township 2 North, Range 69 West,
Boulder County, Colorado 80503



Approximate Scale in feet
 0 500

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Figure 2 - Site Map
 15.976 Acres within Section 8,
 Township 2 North, Range 69 West,
 Boulder County, Colorado 80503

3.0 METHODS

Species that are federally or state listed as threatened or endangered, including federally proposed and candidate species, occurring or having historically occurred in Boulder County were considered for this study (Table 1). The County classification was determined by following the Colorado Field Office of the U.S. Fish and Wildlife Service's county checklist (USFWS, 2011). The list was narrowed based on habitat requirements of the species relative to existing habitats on the project.

The property was surveyed on April 26th, 2017. Information was collected on topography, ecosystems, and species of flora and fauna found on and adjacent to the property. Photographs were taken, and emphasis was placed on potential habitat of threatened and endangered species, and the presence of wetlands.



View of irrigation ditch terminus on the property

Table 1. Common name, scientific name, and status of federal and state threatened and endangered species that could occur or historically occurred in the Colorado Piedmont (CDOW, 2008; USFWS, 2008).

Common Name	Scientific Name	Status ¹
Birds		
Bald eagle	<i>Haliaeetus leucocephalus</i>	ST
Whooping crane	<i>Grus americana tabida</i>	FE, SE
Least Tern	<i>Sterna antillarum</i>	FE, SE
Mountain plover	<i>Charadrius montanus</i>	FPT, SC
Piping plover	<i>Charadrius melodus</i>	FT, ST
Mexican spotted owl	<i>Strix occidentalis lucida</i>	FT, ST
Plains Sharp-Tailed Grouse	<i>Tympanuchus phasianellus jamesii</i>	SE
Western burrowing owl	<i>Athene cunicularia</i>	ST
Lesser Prairie Chicken	<i>Tympanuchus pallidicinctus</i>	ST
Ferruginous Hawk	<i>Buteo regalis</i>	SC
Mammals		
Black-footed ferret	<i>Mustela nigripes</i>	FE, SE
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	FT, ST
Canada Lynx	<i>Lynx canadensis</i>	FT, SE
Kit Fox	<i>Vulpes macrotis</i>	SE
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	SC
Amphibians		
Boreal Toad	<i>Bufo boreas boreas</i>	SE
Northern Leopard Frog	<i>Rana pipiens</i>	SC
Plants		
Ute ladies'-tresses	<i>Spiranthes diluvialis</i>	FT
Colorado butterfly plant	<i>Gaura neomexicana coloradensis</i>	FT
Insects		
Pawnee montane skipper	<i>Hesperia leonardus montana</i>	FT

¹**Status Codes:** FE = Federally Endangered, FT = Federally Threatened, FPT = Federally Proposed as Threatened, FC = Federal Candidate, SE = State Endangered, ST = State Threatened, SC = State Concerned

4.0 RESULTS AND DISCUSSION

4.1 Wetlands

No perennial waters were observed on or directly adjacent to the project. However, an irrigation ditch system bordered the property to the north and west, and bisected the center of the site from the west to the east, terminating in the eastern portion of the property. Several head gates were observed within the ditch. Additionally, Niwot Ditch is located approximately 500 feet northeast of the property (Figure 2). Niwot Ditch does contain wetland type vegetation, including Eastern Cottonwood (*Populus deltoides*) and Nebraska Sedge (*Carex nebrascensis*). At the time of the inspection, the Niwot Ditch was dry.

The U.S. Army Corps of Engineers (Corps) regulates the discharge of dredged or fill materials into Waters of the U.S. or within the 100-year flood plain, under the authority of Section 404 of the Clean Water Act. Waters of the U.S. include ephemeral, intermittent and perennial streams, their surface connected wetlands and adjacent wetlands, certain lakes, ponds, drainage ditches and irrigation ditches that have a nexus to interstate commerce.

Western Environment evaluated, to the best of our ability based upon site conditions at the time of the survey, the three components of a jurisdictional wetland as defined in the US Army Corp of Engineers, (ACOE) Wetland Delineation Manual (1987). These components are: 1) Vegetation, 2) Soil and 3) Hydrology. The ACOE Manual defines *Nonwetlands* as “including upland areas that are neither deepwater aquatic habitats, wetlands, nor other special aquatic sites. They are seldom or never inundated, or if frequently inundated, they have saturated soils for only brief periods during the growing season, and, if vegetated, they normally support a prevalence of vegetation typically adapted for life only in aerobic soil conditions.”

It is the opinion of Western Environment that the property does not contain “Waters of the U.S.” and therefore is not subject to Corps regulations under Section 404 of the Clean Water Act.

4.2 Wildlife Species Eliminated from Consideration as Occurring on the Project

The following threatened and endangered species that have historically been thought to occur in Boulder County were immediately ruled out of serious consideration for this project based on available habitat: Mexican spotted owl, whooping crane, least tern, Canada lynx, kit fox, black-footed ferret, boreal toad, Pawnee montane skipper, and Colorado butterfly plant.

The Mexican spotted owl was eliminated because it requires forests that are not present on the project. The whooping crane was also eliminated due to rarity in Colorado, and no known nesting or feeding habitat exists on or adjacent to the property. Less than 20 sightings of whooping cranes along the eastern plains and mountainous regions of Colorado have been recorded since 1931 (Andrews and Righter, 1992). The least tern inhabits sandy shorelines of reservoirs, lakes, and rivers with bare sandy shorelines. This shore bird is a casual to very rare spring and fall migrant on the northeastern plains of Colorado, and is unlikely to occur on the subject project.

The Canada lynx is a rare forest-dwelling species of northern latitudes that feeds primarily on snowshoe hares. No lynx habitat or its prey exist on the subject site. The kit fox is only known to occur on Colorado's desert slopes ranging from Montrose to Grand Junction. The black-footed ferret, which was eradicated from the Colorado Piedmont, has only been recently reintroduced in small numbers in northern Larimer and Weld Counties. These are experimental populations under study by the US Fish and Wildlife Service (USFWS).

Colorado's only alpine species of toad, the boreal toad, has been found in spruce-fir forests and alpine meadows at elevations between 7,000 and 12,000 feet. The toad also requires lakes, marshes, ponds, or bogs with shallow water for breeding. These habitats do not exist on the property.

The Colorado butterfly plant has only been found in northern Larimer County in recent years and is generally associated with streams that do not exist onsite (Colorado Native Plant Society 1997).

The Pawnee montane skipper occurs in dry, open Ponderosa pine woodlands at an elevation range of 6,000 to 7,000 feet within the Pikes Peak Granite formation. Assessment of the skipper indicates that the insect's habitat is centered near Deckers, Colorado, with their range estimated to be 37.9 square miles (USFWS, 1998).

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4.3 Species Included in Survey

Western Burrowing Owl (*Athene cunicularia*)

State Threatened

The burrowing owl is found primarily in eastern Colorado as a summer resident. Two aspects of the biology of the western burrowing owl appear to influence both its regional and local abundance: 1) it prefers areas of short vegetation, and 2) it rarely, if ever, digs its own burrows. Historically, burrowing owls were common wherever there were prairie dog colonies in northeastern Colorado. No prairie dog colonies were observed on or adjacent to the project. This migratory species is most often seen in Colorado during the summer months. No burrowing owl habitat was seen in proximity to the project.



Western burrowing owl, photo acquired on www.corbis.com.

Bald Eagle (*Haliaeetus leucocephalus*)

State Threatened

The bald eagle was removed from the Federal Endangered and Threatened Species List on July 9th, 2007. Western Environment reviewed data maintained by the Colorado Division of Parks and Wildlife (CPW 2015) and identified an active bald eagle nest approximately 4.60 miles to the east and roosting sites 3/4 of a mile to the northeast along the Saint Vrain Creek. The CPW recommends seasonal restrictions of a 1/2 mile for development adjacent to roosting sites.

Mountain Plover (*Charadrius montanus*)

State Concerned Species

Typical habitat characteristics of the mountain plover are a mixture of short vegetation, bare ground, and a flat topography at both breeding and wintering locations. This small

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shorebird breeds in Colorado, and in parts of its breeding range the species commonly shows a preference for prairie dog towns and sites that are heavily grazed by domestic livestock. Prairie dog grazing promotes the short grasses that the plover prefers, and their digging creates areas of bare soil important for plover nesting. Mountain plovers were proposed for federal listing as threatened on February 16th, 1999 (USFWS, 1999), however the U.S. Fish and Wildlife Service withdrew the proposal on September 8th, 2003. Mountain plovers breed in Eastern Colorado from approximately April 1st through August 1st. No habitat conducive to Mountain Plovers was observed on the project.

Piping Plover (*Charadrius melodus*)

Federally Threatened, State Threatened

This small shorebird can be found on very sparsely vegetated beaches, mudflats and sandy areas near water on shores and islands. Piping Plovers usually arrive in Colorado in late April or early May, and leave when the nesting cycle is completed, or by late August. Nesting populations have been documented in eastern Colorado along the South Platte and Arkansas River drainages. Food sources for Piping Plovers include insects, crustaceans and other small aquatic animals. Plovers feed along beaches, especially in areas where waves have washed up debris (CDOW, 1994). Due to the lack of sandbars or mud-flats in the vicinity of the project, Piping Plover are unlikely to occur.

Plains Sharp-Tailed Grouse (*Tympanuchus phasianellus jamesii*)

State Endangered

The Plains Sharp-Tailed Grouse historically occurred on Colorado's eastern grasslands. Grouse habitat is characterized by rolling hills with Gambles oak, sage brush, service berries and grassy glades. This grouse is a resident from Alaska east to the Hudson Bay, and south to northern New Mexico. Currently, Colorado populations occur in Douglas County, northern and eastern Weld County, and Logan County east of Sterling. No known populations of the Plains Sharp-Tailed Grouse are known to occur in proximity to the subject project (CDOW, 2015).

Lesser Prairie Chicken (*Tympanuchus pallidicinctus*)*State Threatened*

Historically, this bird occupied the grasslands of Texas, Oklahoma, New Mexico, Kansas and southeastern Colorado. It prefers sandy grassland areas abundant in midgrasses, sandsage and yucca. The majority of Colorado breeding pairs occur in the southeastern portion of the state in Baca, Prowers, Kiowa and Cheyenne Counties, and for the most part, on the Comanche National Grasslands near Campo. No populations of the Plains Sharp-Tailed Grouse are known to occur in proximity to the subject project (CDOW, 2015).

Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)*Federally Threatened, State Threatened*

Typical Preble's habitat has been described as "well-developed plains riparian vegetation with relatively undisturbed grassland and a water source in close proximity," and "dense herbaceous vegetation consisting of a variety of grasses, forbs and thick shrubs" (Armstrong et al., 1997). Although any vegetation could offer cover and hibernacula for Preble's, the species is mostly known from habitat containing shrub cover, such as willow or narrow-leaf cottonwood.



Preble's meadow jumping mouse

Preble's are known to regularly range outward into adjacent uplands to feed and hibernate. For this reason, the U.S. Fish and Wildlife Service generally requires a 300 foot development buffer from the edge of the 100 year flood plain. The subject property is located in proximity to Niwot Ditch, but occurs outside the 300 foot of the 100 year flood plain. Although Niwot Ditch contains marginal Preble's habitat, it is the opinion of Western Environment that due to significant fragmentation from development, both east and west of the site, **it is unlikely that Preble's occur on the site.**

Ferruginous Hawk (*Buteo regalis*)*State Concerned*

This hawk is known to occur throughout eastern Colorado and in northwestern Colorado. In Colorado, the species is a common winter resident, but is considered an uncommon summer resident on the eastern plains (Andrews and Righter, 1992). Areas that could be potential nesting sites include large trees, rock outcrops, manmade structures such as windmills and power poles, or the ground. These birds often can be seen associated with prairie dog colonies, which they utilize for foraging. This hawk, as are all birds of prey, is federally protected under the Migratory Bird Species Act. No Ferruginous Hawk habitat was observed on or near the site.

Black-tailed Prairie Dog (*Cynomys ludovicianus*)*Former Candidate for Federal Listing, State Concerned*

The U.S. Fish and Wildlife Service was petitioned to list the black-tailed prairie dog as a threatened species in July of 1998. The agency determined on February 3rd, 2000, that listing the species was warranted, but it is precluded by other species in greater need of protection (USFWS, 2000). The black-tailed prairie dog was added to the candidate list, and the species' status was reviewed annually. On August 12th, 2004 the USFWS determined that the black-tailed prairie dog no longer meets the Endangered Species Act definition as threatened, and was removed as a candidate for federal listing. No prairie dogs were observed on or adjacent to the property.

Ute Ladies'-Tresses Orchid (*Spiranthes diluvialis*)*Federally Threatened*

This orchid usually occurs in "...old stream channels, alluvial terraces, wet meadows, and other sites where the soil is saturated to within 18" of the surface at least temporarily during the growing seasons" (USFWS, 1992). The eastern Colorado populations of species are located in mesic riparian meadows in relict tall grass prairie areas near Boulder Creek, South Boulder Creek, and Saint Vrain Creek in Boulder County, Colorado, and in mesic meadows in the riparian woodland under story along Clear Creek in Jefferson County, Colorado (USFWS 50 CFR Part 17). One population was historically identified in Weld County east of Greeley near

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Crow Creek in 1856, but is now considered extirpated. Soil conditions and vegetation composition of known *Spiranthes* sites suggest that wetlands regulated by the Corps under the Clean Water Act qualify as potential *Spiranthes* habitat. Orchid surveys are required in Boulder and Jefferson Counties, and in the 100-year flood plains and perennial tributaries of the South Platte River, Fountain Creek, and the Yampa Rivers if construction is expected to impact these areas (USFWS 1992). Generally, these surveys must be completed during blooming season (July 20th to August 31st). It should be noted that the survey is only required in areas where proposed construction activities are to occur in potential *Spiranthes* habitat, and only when a **Federal**



Ute Ladies'-Tresses Orchid

permit (for instance a permit to place fill materials into a Waters of the U.S. under Section 404 of the Clean Water Act) or **Federal** funding is utilized for an activity in those habitats. If a Federal permit or funding is needed for an activity on the project, the agency responsible for issuing the permit or providing the funds would consult the Service to determine how the action may affect the species or its designated critical habitat. The Service would then work with the agency and/or landowner to modify the project and minimize impacts. No perennial waters occur on the property, and no known populations of *Spiranthes* occur near the subject site. **It is the opinion of Western Environment that *Spiranthes* does not inhabit the project.**

Other Wildlife

No other wildlife was observed during the site inspection.

5.0 CONCLUSIONS AND RECOMMENDATIONS

At the time of the survey, no threatened or endangered species or their obvious habitat were seen on the subject site. Additionally, no wetlands or Waters of the U.S. subject to regulation under Section 404 of the Clean Water Act occur on the project.

6.0 LITERATURE CITED

- Andrews, R. and R. Righter. 1992. Colorado birds: a reference to their distribution and habitat. Denver Museum of Natural History. Denver. 442 pp.
- Armstrong, D.M., M.E. Bakeman, A. Deans, C.A. Meaney, and T.R. Ryon. 1997. Conclusions and recommendations *in*: Report on habitat findings on the Preble's meadow jumping mouse. Edited by M. E. Bakeman. Report to USFWS and Colorado Division of Wildlife.
- Bechard, M.J., Knight, D.G., Smith, and R.E. Fitzner. 1990. Nest sites and habitats of sympatric hawks (*Buteo spp.*) Washington Journal of Field Ornithology 61:159-170.
- Colorado Division of Wildlife. 1999. Endangered, Threatened, and Special Concern Wildlife Colorado Division of Wildlife. November 2003. Conservation Plan for Grassland Species in Colorado. Colorado Grassland Species Working Group. November 2003. Denver, Co.
- Colorado Division of Wildlife. 2015. Natural Diversity Information Source Maps. Last Updated September, 2015.
- Colorado Native Plant Society. 1997. Rare plants of Colorado, 2nd edition. Falcon Press® Publishing Co., Inc. and Rocky Mountain Nature Association in cooperation with Colorado Native Plant Society. Helena, Montana and Estes Park, Colorado. 105 pp.
- Colorado Natural Heritage Program. January 2005. Pawnee Montane Skipper Post-fire Habitat Assessment Survey, September 2004.
- Fitzgerald, J.P., C.A. Meaney, and D.M. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History and University Press of Colorado. Niwot, Colorado. 467 pp.
- Graul, W.D. 1975. Breeding biology of the mountain plover. Wilson Bulletin 87:6-31.
- Hoogland, John L. 1995. The Black-tailed Prairie Dog. The University of Chicago Press, Chicago and London.
- Jennings, W.F. 1989. Final report. Species studied: *Eustoma grandiflorum*, *Spiranthes diluvialis*, *Malaxis brachypoda*, *Hypoxis hirsuta*, *Physaria bellii*, *Aletes humilis*. Unpublished report prepared for the Nature Conservancy under the Colorado Natural History Small Grants

- Program. The Nature Conservancy, Boulder, Colorado. 48 pp.
- Jennings, W.F. 1990. Final report. Species studied: *Spiranthes diluvialis*, *Sisyrinchium pallidum*. Unpublished report prepared for The Nature Conservancy under the Colorado Natural History Small Grants Program. The Nature Conservancy, Boulder, Colorado. 29 pp.
- Jones, S.R. 1998. Burrowing owl. Pages 220-221 in H.E. Kingery, ed. Colorado breeding bird atlas. Colorado Bird Atlas Partnership. Denver.
- Kingery, H.E. 1998. Colorado breeding bird Atlas. Colorado Bird Atlas Partnership. Denver.
- Long, Kim. Prairie Dogs, A Wildlife Handbook, Johnson Books, Boulder, 2002.
- National List of Plant Species That Occur in Wetlands, Region 4, 5, and 8, Resource Management Group, Inc., Michigan, 1994.
- Nichols, F.E. and J.A. Daley. 1995. 1995 Prairie Dog Counts on the Cathy Fromme Prairie. Professional report submitted to the Fort Collins Natural Resources Department. 8p.
- Remote Sensing Research. 1996. 1996 Coyote Ridge Prairie Dog Study. Professional report submitted to the City of Fort Collins Natural Resources Department.
- Sibley, David Allen. 2000. The Sibley Guide to Birds. Alfred A. Knopf, Inc. New York.
- Tileston, J.V., and R.R. Lechleitner. 1966. Some Comparisons of the Black-tailed and White-tailed Prairie Dogs in North-central Colorado. American Midland Naturalist 75:292-316.
- U.S. Department of Agriculture, Natural Resources Conservation Service, Soil Survey of Adams County, Colorado. Historical Replica, October 1974.
- U.S. Department of Agriculture, NRCS. 2001. The PLANTS Database, Version 3.1 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA
- U.S. Department of Agriculture. No date. Midwestern wetland flora: Field office guide to plant species. USDA Soil Conservation Service, Midwest National Technical Center, Lincoln, Nebraska. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page <http://www.npwrc.usgs.gov/resource/othrdata/plntguid/plntguid.htm> (Version 16JUL97).
- U.S. Fish and Wildlife Service, Region 6, Pawnee Montane Skipper Butterfly Recovery Plan. September, 1998

U.S. Fish and Wildlife Service Ecological Services Colorado Field Office, Federally Listed and Candidate Species and Their Status in Colorado, August 21, 2001.

U.S. Fish and Wildlife Service. 1999. Interim Survey Guidelines for Preble's Meadow Jumping Mouse.

U.S. Fish and Wildlife Service. 1992. Interim Survey Requirements for *Spiranthes Diluvialis*.

U.S. Fish and Wildlife Service. 1999b. Services proposes to list mountain plover as threatened. News Release 99-02.

U.S. Fish and Wildlife Service. Fish and Wildlife Service Proposes to Remove the Preble's Meadow Jumping Mouse from the Endangered Species List, News Release. Jan. 28, 2005.

Whitson, Tom, et al. 2000. Weeds of the West. Western Society of Weed Science, Newark, CA.

BOULDER COUNTY
Unincorporated Areas
080023

3100000 FT

JOINS PANEL 02

CITY OF LONGMONT
 BOULDER COUNTY

WOOD DRIVE

SCHLAGEL STREET

89TH STREET

BLUEGRASS DRIVE

NELSON PARK DRIVE
 NELSON PARK CIRCLE

TIMOTHY DRIVE

NELSON PARK LANE

CREG ROAD

ZONE AE

5005

5014

5013

5012

5011

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5007

5016

5015

5017

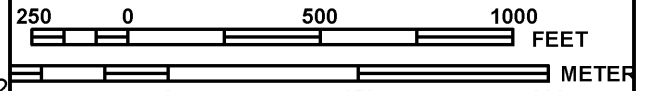
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MAP SCALE 1" = 500'



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0269J

FIRM

FLOOD INSURANCE RATE MAP
BOULDER COUNTY,
COLORADO
AND INCORPORATED AREAS

PANEL 269 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER COUNTY	080023	0269	J
LONGMONT, CITY OF	080027	0269	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

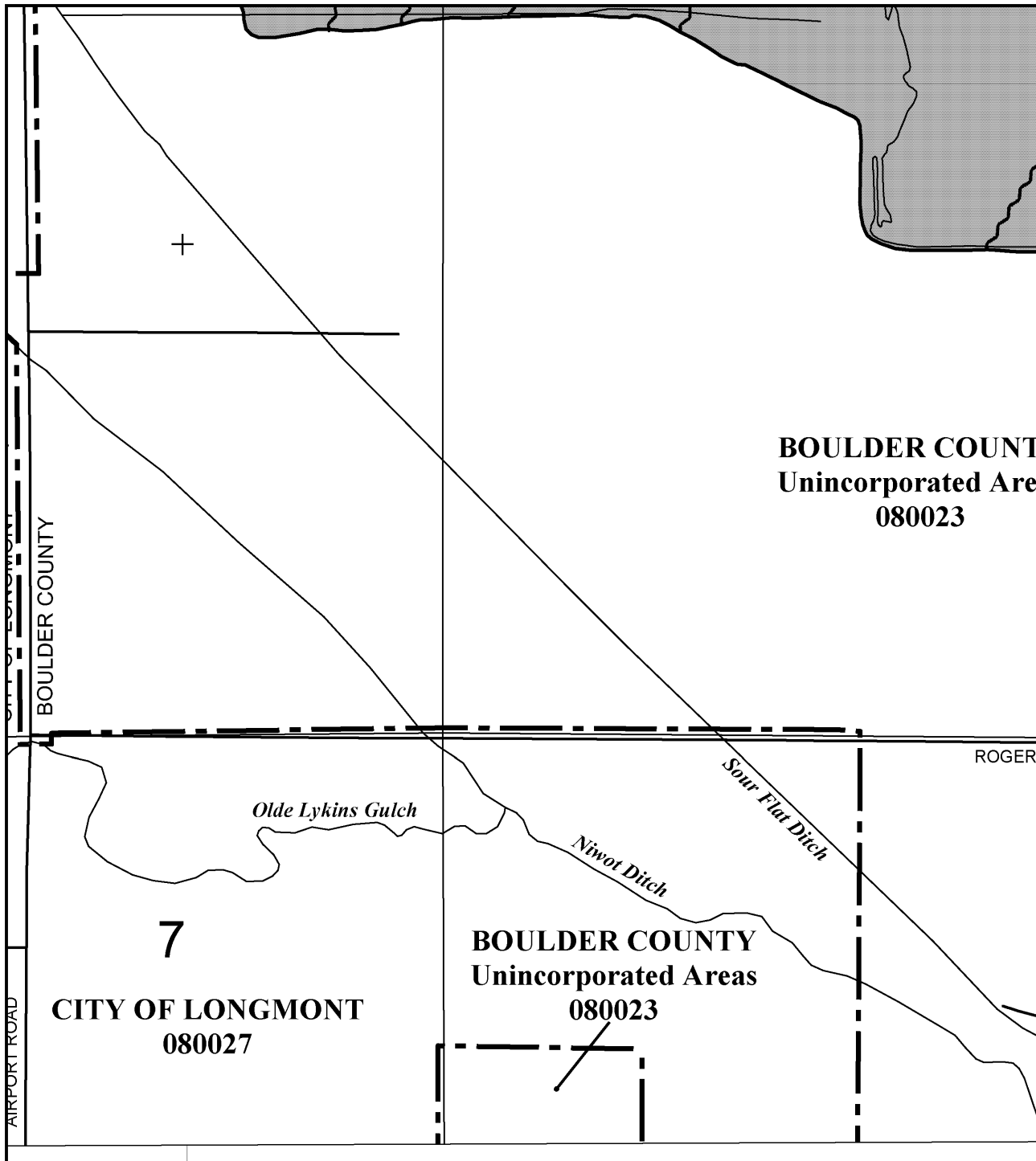


MAP NUMBER
08013C0269J

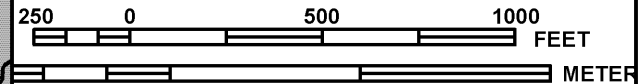
MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



MAP SCALE 1" = 500'



NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0267J

FIRM

FLOOD INSURANCE RATE MAP
BOULDER COUNTY,
COLORADO
AND INCORPORATED AREAS

PANEL 267 OF 615

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER COUNTY	080023	0267	J
LONGMONT, CITY OF	080027	0267	J

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MAP NUMBER
08013C0267J

MAP REVISED
DECEMBER 18, 2012

Federal Emergency Management Agency

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Form C, Rev.
9-62/10M

STATE OF COLORADO

APPLICATION FOR: ☐ A PERMIT TO USE GROUND WATER
☒ A PERMIT TO CONSTRUCT A WELL

RECEIVED

MAY 4 1966

GROUND WATER SECT.

COLORADO

STATE ENGINEER

Applicant Leroy Christopher

P. O. Address Rt 2 Box 139M, Longmont, CO 80501

Quantity applied for 25 gpm or
AF Storage

Used for Domestic Purposes

on/at _____
(legal description of land site)

Total acreage irrigated and other rts.

ESTIMATED DATA OF WELL

Hole size: 9 in. to _____ ft.
_____ in. to _____ ft.

Casing Plain 5 in. from 0 to 10 ft.
_____ in. from _____ to _____ ft.

Open or Perf. 5 in. from 10 to 40 ft.
_____ in. from _____ to _____ ft.

PUMP _____ Outlet
DATA: Type _____ HP _____ Size _____

Use initiation date _____ 19____
(Use Supplemental pages for additional data)

Driller to furnish Log and History (Form E)
within 30 days after completion of well.

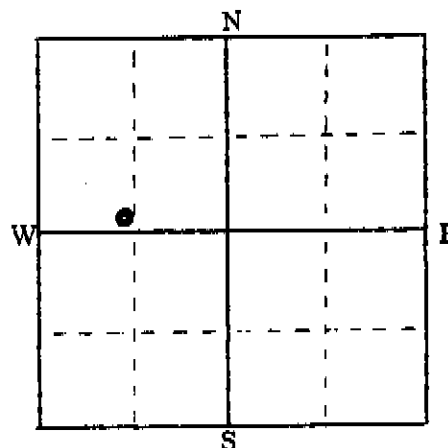
LOCATION OF WELL
County Boulder

SW $\frac{1}{4}$ of NW $\frac{1}{4}$ of Sect. 8, Twp. 2N,

Rge. 6W, 6 P. M. OR

Street Address or Lot & Block No.

Town or Subdivision



Locate
well in
40 acre
(small)
square
as near
as possible.

Large square
is one section.

\$25.00 fee required for uses other
than Domestic or Livestock.

Applicant Leroy Christopher
Agent or
Driller Marshall Drilling No. 84

Address Longmont

THIS APPLICATION APPROVED

PERMIT NO. 27109
ISSUED:
DATE MAY 4 1966 19____

NOTE — SATISFACTORY COMPLETION REQUIRED FOR APPROVAL OF APPLICATION

JUL 5 1966

WRJ-25-66
20-M-45

Index No. 537
IDWD 1-5
Use 1
Registered 5-31-66

STATE OF COLORADO
DIVISION OF WATER RESOURCES
OFFICE OF THE STATE ENGINEER

RECEIVED

MAY 31 1966
GROUND WATER SECT.
COLORADO
STATE ENGINEER

MAP AND STATEMENT FOR WATER WELL FILING

PERMIT NUMBER 27109

Know all men by these presents: That the undersigned Laray Christopher, claimant(s), whose address is Rt 2 Box 139 M, City of Englewood, Colo, states: Claimant(s) is (are) the owner(s) of well No. Q 27109 located as shown on the map below; the total number of acres of land owned by him (them) to be irrigated from this well is _____; work was commenced on this well by actual construction 14 day of May, 1966; the tested capacity of said well is 30 (gpm) (cfs), for which claim is hereby made for Domestic purposes; that the average annual amount of water to be diverted is _____ acre-ft.; and that the aforementioned statements are made and this map and statement are filed in compliance with the law.

State of Colorado)
County of _____) ss

Claimant(s)

Subscribed and sworn before me this _____ day of _____, 19____.

My Commission expires _____

Notary Public

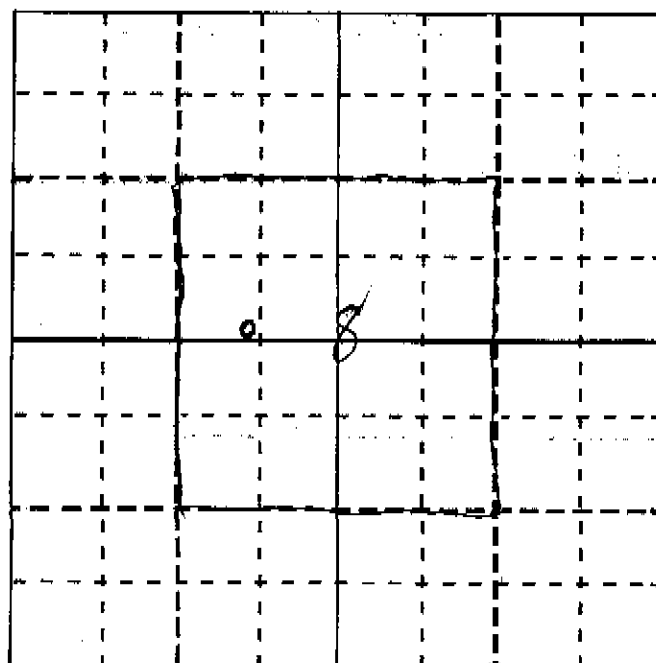
MAP

THE WELL SHALL BE LOCATED WITH REFERENCE TO GOVERNMENT SURVEY CORNERS OR MONUMENTS, OR SECTION LINES BY DISTANCE AND BEARING.

_____ feet from _____ (North or South) section line
_____ feet from _____ (East or West) section line

IF WELL IS FOR IRRIGATION, THE AREA TO BE IRRIGATED MUST BE SHADED OR CROSS-HATCHED.

The square below will be used to indicate the location of the well and the irrigated land.



WELL LOCATION

Boulder 07 County

SW 1/4 NW 1/4, sec. 8

T. 2N, R. 69W, 6th P. M.

Ground Water Basin _____

Water Management _____

District _____

Domestic wells may be located by the following: LOT _____, BLOCK _____

_____ SUBDIVISION

ACCEPTED FOR FILING IN THE OFFICE OF THE STATE ENGINEER OF COLORADO ON THIS _____ DAY OF _____, 19____.

State Engineer

LOG AND HISTORY

WELL LOG

WELL DATA

Ground Elevation _____

Date Started 5-14-66

Type Drilling _____

Date Completed 5-14-66

From	To	Type of Material	Water Loc.	Perf.
0	11	Surface		
11	17	Fine sand		
17	29	Gravel	✓	✓
29	40	Sandy slate	✓	✓
40	43	Shale		

Hole Diameter:

9 in. from 0 ft. to 43 ft.
 _____ in. from _____ ft. to _____ ft.
 _____ in. from _____ ft. to _____ ft.

CASING RECORD

Cemented from _____

Plain Casing

Size 5", kind Plastic from 0 ft. to 17 ft.

Size _____, kind _____ from _____ ft. to _____ ft.

Size _____, kind _____ from _____ ft. to _____ ft.

Perforated Casing

Size 5", kind Plastic from 17 ft. to 43 ft.

Size _____, kind _____ from _____ ft. to _____ ft.

Size _____, kind _____ from _____ ft. to _____ ft.

TEST DATA

Date Tested 5-14-66Type of Pump CentrifugalLength of Test 4 hrsConstant Yield 30Drawdown 2'

PUMP DATA (To be filled in)

Type of Pump Not yet installed

Outlet Size _____

Driven by _____

Horsepower _____

DEPTH TO WATER 170 ✓WELL DRILLERS STATEMENT Total Depth 43 ✓

Use additional paper if necessary to complete log and attach.

State of Colorado)
 County of _____) ss

_____ being duly sworn, deposes and says: he is the driller of the above described well; he has read the above map and statement, knows the content thereof, and the same is true of his own knowledge.

James C. Marshall

License No. 84

Subscribed and sworn to before me this _____ day of _____, 19____.

My Commission expires _____, 19____.

Notary Public

FORM TO BE MADE OUT IN QUADRUPLICATE:

Original WHITE (both sides) & Triplicate GREEN Copy must be filed with the State Engineer within 30-days after well is completed. Duplicate PINK copy is for the Owner & YELLOW copy for the Driller. WHITE FORM MUST BE AN ORIGINAL COPY ON BOTH SIDES AND SIGNED.