RAPID RESOURCE ASSESSMENT AND MANAGEMENT PLAN ANDREA-POTATO HILL OPEN SPACE BOULDER COUNTY, COLORADO

Prepared for—

City of Boulder
Open Space and Mountain Parks
66 S. Cherryvale Road
Boulder, Colorado 80303

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188

ERO Project #4089

August 11, 2008

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SUMMARY

ANDREA-POTATO HILL PROPERTY		
APPROXIMATE SIZE	**ACQUISITION DATE**	**CURRENT ZONING**
48.5 acres + 0.5-acre conservation easement	June 24, 2005	Agricultural
MANAGEMENT DESIGNATION		**PUBLIC ACCESS**
Natural Area		Closed

GENERAL DESCRIPTION OF SITE RESOURCES

The property consists of two main areas separated by a private inholding. The north area is dominated by a steep bluff (Potato Hill) and sparse grassland vegetation. The south area consists mainly of irrigated horse pasture. A large wetland area dominates the west boundary. The Potato Hill area contains known populations of Bells twinpod (*Physaria bellii*), a rare plant species.

OPEN SPACE VALUES BASED ON RESOURCE ASSESSMENT

The property is important for open space because it maintains—

- The visual integrity of Potato Hill, a distinctive land formation
- Portions of a large wetland complex that is unusual in the area
- Known population of Bell's twinpod (*Physaria bellii*), a rare plant species

MANAGEMENT ISSUES BASED ON RESOURCE ASSESSMENT

Some management issues that could adversely affect the open space values on the property include—

- Noxious weeds including Mediterranean sage, a high priority weed species

INTRODUCTION

PURPOSE

The City of Boulder Open Space and Mountain Parks Department (OSMP) retained ERO Resources Corporation (ERO) to conduct a rapid resource assessment and develop a property management plan for the 48.5-acre and 0.5 acre conservation easement known as the Andrea-Potato Hill property ("property") near the city of Boulder in Boulder County, Colorado (Figure 1). The conditions on the property have generally been documented through photo points (Appendix A). The purpose of this rapid resource assessment and management plan for the property is to—

- Summarize the physical/ecological characteristics and conditions
- Document and record existing conditions and open space values
- Identify and prioritize management needs and opportunities
- Prescribe management actions
- Classify the property into a management area

The OSMP Visitor Master Plan directs that plans be completed for properties before they are opened and that visitor access be considered. Specific guidance for new properties is as follows:

> ***New Property Planning and Facilities.*** Complete planning and infrastructure improvements in a timely manner, prior to opening newly acquired properties to public access. However, as appropriate, preserve existing public access during the planning and improvement process. Open Space and Mountain Parks will complete a site management plan recommending appropriate locations, types of uses and visitor infrastructure, and how to provide adequate visitor infrastructure and services.

Property plans direct immediate planning and improvement needs, while Trails Study Areas (TSA) planning will be used to periodically update visitor access needs based on conditions at the time.

METHODS

OSMP supplied records, documents, and GIS data applicable to the property. On June 6, 2008, a team of natural resource planners and ecologists from ERO walked the extent of the property documenting ecological and physical characteristics and identifying management needs and opportunities.

ERO consulted several organizations, agencies, and databases including the Colorado Natural Heritage Program (CNHP), Colorado Office of Archeology and Historic Preservation (OAHP), the Colorado Natural Diversity Information Source (NDIS), and Boulder County pertaining to resources on the property. Published information, such as U.S. Geological Survey (USGS) and Natural Resources Conservation Service (NRCS) maps, also was used to prepare the inventory.

REPORT ORGANIZATION

This report presents a summary of the information gathered for the rapid resource assessment and describes the results of ERO's evaluation of the resources and open space values on the property. The report is organized into five narrative sections and three appendices. Following the *Summary* and *Introduction*, the *General Description* section provides information on the setting. The *Site Resources* section summarizes the ecological and cultural resources; existing trails and access; land use and management; and improvements and legal considerations on the property. The *Property Management Plan* describes short- and long-term management needs, management actions, and Management Area designation.

Appendix A contains photographs of the property with narrative descriptions and a corresponding photo point map. Appendix B presents plant and animal species identified during the site visit, and Appendix C includes report references.

GENERAL DESCRIPTION

The property is located near the western edge of the Great Plains physiographic province. The property encompasses about 49 acres dominated by a steep bluff (Potato Hill), portions of a large wetland area, and pasture used for horses.

LOCATION AND ACCESS

The property is located in central Boulder County about 10 miles north of downtown Boulder (Figure 1). Specifically, the property is located in Section 4 in Township 2 North, Range 70 West of the 6th P.M. (Figure 2).

Primary access is from north 49th street along the eastern edge of the property. From downtown Boulder, travel north on Highway 36, turning right onto Saint Vrain Road. Follow Saint Vrain Road east to north 49th Street. The property is located on the west side of 49th street about a 1/2 of mile south of Saint Vrain Road.

Gated and emergency access to the property is through the private inholding (Potato Hill Ranch) that is surrounded by the property. Access to the southern portion of the property is also available through a gate along 49th Street.

ACQUISITION

The City of Boulder acquired the Andrea-Potato Hill Property on July 21, 2005. The total price for 48.5 acres, plus the additional 0.5-acre conservation easement, was $321,000.

LAND USE

The property is currently and historically used for grazing and is currently managed through an agricultural lease associated with the adjacent private land owner (inholding).

LANDSCAPE CONTEXT

The property is located in rural Boulder County, and is surrounded primarily by agricultural lands and rural residential areas. It is immediately adjacent with OSMP's Jacob Property to the south and Ryan Property to the west. The Lykins Gulch corridor is located about ½ mile to the southeast of the property, while the U.S. 36 corridor is located about 1½ miles to the west.

NEIGHBORING PROPERTIES

NEIGHBORING AGRICULTURAL, RESIDENTIAL, AND COMMERCIAL PROPERTIES

Agricultural, Residential, or commercial properties and basic land uses identified near the property during the site visit and with a property record search available through the Boulder County Assessor's Office (Boulder County 2008a) are summarized below.

OWNER	LOCATION AND LAND USE
Culbertson, Lauren Sylvia & Ewell Robert 10771 N 49th St. Longmont, CO 80503 Parcel No. 131704000019	North of property Agriculture – farm/rural residence
Caw De Rado Llc. 10809 N. 49th St. (4560 St Vrain Rd.; Longmont, CO 80503) Parcel No. 131705000009	Northwest of property Agriculture – farm/rural residence
Lopez, Gilbert T & Kristin H. 10790 N 49th St. (Longmont, CO 80503-9012) Parcel No. 131704000027	Northeast of property Agriculture – farm/rural residence Proposed construction of a wedding reception hall/center
Johnson, Elizabeth Bakwin 10500 N 49th St. Longmont, CO 80503-9012 Parcel No. 131704000032	East of property Agriculture – farm/rural residence Proposed construction of an 11,520 Sf. indoor riding arena and 1,200 Sf. hay barn.
Haugland Family Farm Llc. 5047 Rogers Rd. (9569 Mountainridge Pl.; Boulder, CO 80302-9936 Parcel No. 131704000030	Southeast of property Single family rural residence Mediterranean sage reported on property – management plan in place
Liermann, Andrea 10491 N. 49th St. Longmont, CO 80503-9013 Parcel No. 131704000041	Center of property Agriculture – farm/rural residence *Potato Hill Ranch*

NEIGHBORING GOVERNMENT PROPERTIES

Government-owned properties and basic land uses identified near the property during the site visit and with a property record search available through the Boulder County Assessor's Office (Boulder County 2008a) are summarized below.

OWNER	LOCATION AND LAND USE
City of Boulder 10299 N. 49th St. (1777 Broadway; Boulder, CO 80302) Parcel No. 131704000021	South of property Open Space (Jacob Property)
City of Boulder St Vrain Rd. (1777 Broadway; Boulder, CO 80302) Parcel No. 131705000011	West of property Open Space (Ryan Property)

SITE RESOURCES

This section documents in more detail the basic physical and ecological characteristics and conditions that directly support the open space values of the property. Key features are shown on Figure 3.

TOPOGRAPHY

Elevations on the property range from about 5,360 feet in the southwest corner to about 5,300 feet along the eastern boundary. The property encompasses most of Potato Hill, which reaches an elevation of 5,420 feet at its summit. The USGS Topographical map of the property is shown in Figure 2.

GEOLOGY

The property occurs along the western margin of the Denver Basin of northeastern Colorado, which contains sedimentary rocks of Cretaceous age. Generally the area includes the lower unit of Pierre Shale. Pierre Shale contains areas of sandstone (Tweto 1979).

SOILS

The Natural Resources Conservation Service (NRCS) has mapped three soil types on the property. Each mapping unit is described below and Figure 4 shows the NRCS soil mapping. All soil information was gathered from the NRCS soil survey (NRCS 1975).

Mapping Unit SeE. Samsil-shingle complex (5 to 25 percent slopes). This soil includes small areas of Renohill silty clay loam, Gaynor silty clay loam, and Kutch clay loam. Also included along some gullies are outcrops of shale or sandstone. Runoff is rapid and the erosion hazard is high. Native vegetation is mainly little bluestem, western wheatgrass, sideoats grama, blue grama, green needlegrass, sedges, and forbs.

Mapping Unit LoB. Longmont clay (0 to 3 percent slopes). This soil includes small areas of Colby silty clay loam and Heldt clay. Shale is typically found at a depth of less than 40 inches.

Runoff is slow, permeability is slow, and the erosion hazard is slight. Principal native vegetation is alkali sacation and saltgrass.

Mapping Unit Te. Terrace escarpments. These areas consist of undifferentiated shallow soils that have many cobbles and stones on the surface. In many places there is merely a thin layer of cobbles over sandstone or shale. Only limited moisture is available for plants because these undifferentiated soils are shallow. Runoff is rapid and the erosion hazard is high.

HYDROLOGY

SURFACE HYDROLOGY

Two unnamed ephemeral drainages occur on the property. The property is not located within a designated floodplain (Boulder County 2008a).

According to topographic information from the USGS 7.5 minute quadrangle map, surface waters on the property flow towards the unnamed, east running, drainage south of Potato Hill (USGS 1968, photorevised 1979). A large pond is located along the northern edge of the southern half of the property, directly adjacent to the inholding farmstead area.

SUBSURFACE HYDROLOGY

Based on a review of the USGS Hygiene quadrangle, shallow ground water would flow in a southeasterly direction towards the Dry Creek drainage (USGS 1968; photorevised 1979). There is one permitted water well on the property (CDWR 2008), which is described below under *Water Rights*. No seeps or springs were identified on the property.

WETLANDS

Wetlands were not delineated during the site visit but a large wetland was mapped in the western section of the property. Dominant wetland vegetation in the area is broadleaf cattail (*Typha latifolia)*, Baltic rush (*Juncus arcticus* ssp. *ater)*, clustered field sedge (*Carex praegracilis)*, and Nebraska sedge (*Carex nebrascensis).*

VEGETATION

GENERAL VEGETATION DESCRIPTION

The property consists of native upland areas, introduced grasslands, and low-lying wetland areas. The native areas are found along the slopes and high areas in the northwest and southern portion of the property. Native areas comprise a western wheatgrass herbaceous alliance (WWH), a fourwing saltbush herbaceous alliance (FSBH) a three-leaved sumac shrub savannah herbaceous alliance (TSUS), a three-leaved sumac shrub savannah herbaceous alliance (TSSH), soapweed yucca evergreen shrubland (SYS), and a snakeweed dwarf-shrubland alliance (SDS). The introduced grasslands are comprised of a smooth brome semi-natural herbaceous alliance (SBH). The low-lying wetlands areas are comprised of a cattail herbaceous semipermanently flooded alliance (CHSH), a sandbar willow temporarily flooded shrubland alliance (CWTS), a threesquare herbaceous alliance (TSA), and a Baltic rush seasonally flooded herbaceous alliance (BRSH). Vegetation communities are described below and shown in Figure 5. A list of plant species identified during the field visit appears in Appendix B.

WESTERN WHEATGRASS HERBACEOUS ALLIANCE (WWH)

The western wheatgrass herbaceous alliance is present in the southern portion of the property and the north Western wheatgrass (*Pascopyrum smithii)*, a native perennial cool season grass, is the dominant grass in this community but other native grass species such as needle-and-thread (*Hesperostipa comata)*, purple threeawn (*Aristida purpurea)*, and Indian ricegrass (*Achnatherum hymenoides)* are present. Introduced annual/biennial forbs such as small flower alyssum (*Alyssum parviflorum)*, redstem stork's bill (*Erodium cicutarium)*, and tall tumble mustard (*Sisymbrium altissimum)* are common. Native perennial forbs such as Kansas gayfeather (*Liatris punctata)*, prairie flax (*Adenolinum lewisii)*, scarlet globemallow (*Sphaeralcea coccinea)* are present.

FOURWING SALTBUSH HERBACEOUS ALLIANCE (FSBH)

On the eastern slopes of the hill in the northern portion of the property a fourwing saltbush herbaceous alliance is present. In this community fourwing saltbush (*Atriplex canescens)* is the dominant overstory species. Understory species include broom snakeweed (*Gutierrezia sarothrae)*, twistspine pricklypear (*Opuntia macrorhiza)*, needle-and –thread (*Hesperostipa comata)*, and fringed sage (*Artemisia frigida)*.

THREE-LEAVED SUMAC UPLAND SHRUBLAND ALLIANCE (TSUS)

On the western slopes of the hill in the northern portion of the property a three-leaved sumac upland shrubland alliance is present. The dominant overstory species in this alliance is skunkbrush sumac (*Rhus aromatica* ssp. *trilobata)*. Other dominant species include needle-and-thread, western wheatgrass, and black chokecherry (*Padus virginiana* ssp. *melanocarpa)*.

THREE-LEAVED SUMAC SHRUB SAVANNAH HERBACEOUS ALLIANCE (TSSH)

In the southwestern portion of the property a three-leaved sumac shrub savannah herbaceous alliance is present. The dominant overstory species is skunkbrush sumac. Understory species include green needlegrass (*Nassella viridula)*, needle-and-thread, and western wheatgrass.

SOAPWEED YUCCA EVERGREEN SHRUBLAND (SYS)

In the northeastern portion of the property a soapweed yucca evergreen shrubland is present. Soapweed yucca (*Yucca glauca)* is the dominant overstory species. Other dominants include western wheatgrass, needle-and-thread, broom snakeweed, and purple threeawn.

SNAKEWEED DWARF-SHRUBLAND ALLIANCE (SDS)

In the northeastern portion of the property a snakeweed dwarf-shrubland alliance is present. This community type is dominated by broom snakeweed, a native subshrub, and a mixture of native perennial cool and warm season grasses such as western wheatgrass, Indian ricegrass, blue grama grass, and purple threeawn. Native perennial forbs such as Howard's evening-primrose (*Oenothera howardii)*, hairy false goldenaster (*Heterotheca villosa)*, and shaggy dwarf morning-glory (*Evolvulus nuttallianus)* are also present.

SMOOTH BROME HERBACEOUS ALLIANCE (SBH)

The smooth brome herbaceous alliance is present in the southern section of the property. This alliance is dominated by smooth brome (*Bromopsis inermis)*. Other dominant species include broom snakeweed, western wheatgrass, and alfalfa (*Medicago sativa).*

CATTAIL HERBACEOUS SEMI-PERMANENTLY FLOODED ALLIANCE (CHSH)

The northeastern section of the property is dominated by a cattail herbaceous semi-permanelty flooded alliance. This community is dominated buy narrow and broadleaf cattail (*Typhia angustifolia* and *T. latifolia)*.

BALTIC RUSH SEASONALLY FLOODED HERBACEOUS ALLIANCE (BRSH)

Bordering the unnamed drainage that flows from west to east through the property a Baltic rush seasonally flooded herbaceous alliance is present (BRSH). Baltic rush (*Juncus articus)* is an obligate wetland plant is dominant within this community type. Tall fescue (*Festuca arundinacea)*, an introduced perennial cool season grass, is common within this community type.

THREESQUARE HERBACEOUS ALLIANCE (THA)

North of the BRSH community, a threesquare herbaceous alliance is present. This community is dominated by common threesquare (*Schoenoplectus pungens)*, other species such as Nebraska sedge (*Carex nebrascensis)*, Baltic rush, and clustered field sedge (*Carex praegracilis)* is present.

SANDBAR WILLOW TEMPORARILY FLOODED SHRUBLAND ALLIANCE (CWTS)

In the northwestern corner of the property a sandbar willow temporarily flooded shrubland alliance is present (CWTS). This alliance is dominated by sandbar willow (*Salix exigua)*. Other species include Baltic rush, common threesquare, and clustered field sedge.

RARE PLANTS AND PLANT COMMUNITIES

A Bell's twinpod (*Physaria bellii*) population was found in the northeastern corner of the property on the dark shale barrens (Figure 3, Photo 28). Bell's twinpod is an endemic species that is believed to be imperiled globally or in the state of Colorado (G2/S2).

STATE NOXIOUS WEEDS

Based on the site visits, one List A species, Mediterranean sage (*Salvia aethiopsis)*, four List B, and five list C noxious weed species occur on the property. Mediterranean sage was located in the northern portion of the property and locations are displayed on Figure 3.

Table 1. Noxious weeds present on the property.

Common Name	Scientific Name	OSMP Priority	Boulder County Weed List	State of Colorado Noxious Weed List
Canada thistle	*Breea arvensis*	Moderate	x	B
cheatgrass (downy brome)	*Anisantha tectorum*	Moderate	not listed	C
chicory	*Cichorium intybus*	None	not listed	C
common burdock	*Arctium minus*	None	not listed	C
common mullein	*Verbascum thapsus*	None	not listed	C
field bindweed	*Convolvulus arvensis*	None	not listed	C
Mediterranean sage	*Salvia aethiopis*	High	not listed	A
Musk thistle	*Carduus nutans*	Low	x	B
redstem stork's bill	*Erodium cicutarium*	none	not listed	B
Russian olive	*Elaeagnus angustifolia*	High	not listed	B
smooth brome	*Bromopsis inermis*	Moderate	not listed	not listed

The Colorado Noxious Weed Act §§ 35-5.5-101 through 119, C.R.S. (2003) states that "List A species are species for which the Commissioner of Agriculture has designated for eradication. List B noxious weed species are species for which the Commissioner of Agriculture, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, develops and implements state noxious weed management plans designed to stop the continued spread of these species. List C weed species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species."

WILDLIFE

GENERAL DESCRIPTION

The property provides habitat for a variety of wildlife species associated with shortgrass prairie, wetlands, and agricultural lands in Boulder County. The trees and shrubs adjacent to the wetland area potential nesting and perch sites for raptors, as well as denning sites for mid-sized mammals such as raccoon (*Procyon lotor*). Typical grassland bird species likely include song sparrow (*Melospiza melodia*), vesper sparrow (*Pooecetes gramineus)*, and western meadowlark (*Sturnella neglecta*), and potentially grasshopper sparrow (*Ammodramus savannarum*), savannah sparrow (*Passerculus sandwichensis*), and lark sparrow (*Chondestes grammacus*), while red-winged blackbird (*Agelaius phoeniceus*) is found in wetland areas.

Small rodents that probably occur along the ditches and wetland area include deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), and western harvest mouse

(*Reithrodontomys megalotis*). Other mammals that occur or are likely to occur on the property include mule deer, (*Odocoileus hemionus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), and raccoon. All of these species probably frequent the areas near the ditches and wetlands, although mule deer and coyote may be more common in open areas. The wetland area also provides potential habitat for amphibians including Northern leopard frog (*Rana pipiens*).

THREATENED, ENDANGERED, OR CANDIDATE WILDLIFE SPECIES

According to the Colorado Division of Wildlife Natural Diversity Information Source (NDIS) and CNHP databases for the area, there are no threatened or endangered species on the property (NDIS 2008). The northern portion of the property has been identified as the Potato Hill Potential Conservation Area by the CNHP, and is considered to have high biodiversity significance (B3) (CNHP 2007).

COLORADO DIVISION OF WILDLIFE DESIGNATIONS

According to the NDIS database, the property is considered to be within both winter range and a winter concentration area for elk (*Cervus canadensis*), winter range for mule deer, and a human conflict area for mountain lion (*Puma concolor*). The property is also adjacent to a fall concentration area for black bear (*Ursus americanus*) (NDIS 2008).

BOULDER COUNTY COMPREHENSIVE PLAN DESIGNATIONS

The property does not contain any county-designated Critical Wildlife Habitats or other designations related to wildlife.

CULTURAL RESOURCES

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION FILE SEARCH

The Colorado Historical Society Office of Archaeology and Historic Preservation conducted a search of the Colorado Inventory of Cultural Resources database for the property (OAHP 2008). This database contains information on documented federal or state studies or findings regarding any cultural resources. According to the search, no sites or surveys have occurred on the property (OAHP 2008). Other potential unidentified cultural resources may exist within the property boundaries.

OTHER RESOURCES AND DESIGNATIONS

The property is not located within any areas designated for cultural resources in the Boulder County Comprehensive Plan (Boulder County 2008b).

AGRICULTURE

AGRICULTURAL USE

Most of the property is actively used for agriculture, primarily horse grazing. Most grazing activity appears to be focused on the southern half of the property, which consists of irrigated horse pasture with several internal fences. The northern half of the property consists of open rangeland.

INFRASTRUCTURE

The property is bounded by barbed-wire fences, except for the west boundary which consists of a large wetland area. Several interior fences separate various pasture areas. All of the fences are in good condition. In the southern portion of the property, along the east boundary, there are two fences about 10 feet apart.

BOULDER COUNTY COMPREHENSIVE PLAN DESIGNATIONS

The Boulder County Comprehensive Plan has identified portions of the property to be Significant Agricultural Land – Lands of Local Importance (Boulder County 2008c).

RECREATION

Public access is not permitted on the property. Prior to public ownership, the property was privately owned and was not open to public access. No recreational access or use was evident on the property during the site visit.

PROPERTY INFRASTRUCTURE

STRUCTURES

No structures exist on the property.

INFRASTRUCTURE AND UTILITIES

Fencing on the property is described above under Agriculture. The southern half of the property has gated access (sparsely used) from 49th Street – there are several other gates onto the property from the adjacent private inholding (agricultural lessee).

An electrical line along 49th Street crosses the north section of the property in an area where 49th Street bends to the east. A second electrical line crosses the north section of the property, bending around Potato Hill to the north to serve the private inholding area. No other utilities were observed on the property.

ROADWAYS AND TRAILS

Several light horse paths cross the property in several areas. No other distinctive roads or trails were observed on the property.

LEGAL CONSIDERATIONS

WATER RIGHTS

Purchase of the property did not include any water rights.

According to the Colorado Division of Water Resources (CDWR 2008), there was one permitted water well on the property:

- Permitted domestic well, permit #106339 (permit canceled)

MINERAL RIGHTS

Purchase of the 48.5 acres (2005) included all mineral rights including sand, gravel, coal, and oil and gas owned by seller.

EASEMENTS AND RIGHTS-OF-WAY INFORMATION

The northern portion of the pond (0.5 acres) is covered by a conservation easement granted to the City. See OSMP property file.

LOCAL PLANNING DESIGNATIONS

The entire property is currently zoned Agriculture (Boulder County 2008d).

Boulder County Comprehensive Plan designations on the property include—

- Rare Plant Area – Bells Twinpod (*Physaria bellii*)
- Environmental Conservation Area – South St. Vrain/Foothills
- Significant Agricultural Land – Lands of Statewide Importance

The property is also considered to have moderate geologic constraints due to expansive soils or the potential for landslides, mudslides, mudfalls, or debris fans.

PROPERTY MANAGEMENT PLAN

MANAGEMENT AREA DESIGNATION

Recommended management area designation: Natural Area.

The location and features of the property are generally consistent with the characteristics, goals, and strategies outlined for Natural Areas in the OSMP Visitor Master Plan, including variable condition of natural ecosystems, varying levels of visitor use opportunities, and compatibility with adjacent land uses (OSMP 2005). This management area designation is consistent with the historic and current uses of the property and its primary open space values, and with the management designation of other nearby OSMP properties.

PUBLIC ACCESS

Recommended status: Closed

The property is managed for agricultural use and contains occurrences of Bells twinpod, a rare plant species.

The property will remain closed because it is isolated and not connected to a larger open space area, there is no visitor infrastructure, and property infrastructure is not complete. Public access and facilities on this property will be evaluated further in a future Trail Study Area or other planning processes.

MANAGEMENT ISSUES

The following management issues were identified on the property based on observations during the site visit, existing documentation, and input from OSMP staff.

Noxious weeds. The property contains one List A noxious weeds species (Mediterranean sage) and four List B species, and five List C species. While most of the noxious weed species are typical of agricultural and open space properties in the region, Mediterranean sage is a high priority species for both OSMP and the State of Colorado, and should be aggressively managed to prevent its spread.

MANAGEMENT STRATEGIES

Management objectives and recommended management actions for various resources on the property are outlined below. In general, management objectives are a concise statement of what OSMP wants to achieve in protecting open space values, addressing management issues related to a particular resource type. Management actions are the specific tasks or tools that can be used to fulfill the objective and address the issue.

VEGETATION

Objective 1: Target and control Mediterranean sage on the property, with the goal of eradication.

Action: Implement efforts to aggressively control Mediterranean sage.

Action: Conduct follow-up monitoring and treatments to ensure effectiveness.

Objective 2: Prevent the spread of other noxious weeds from current conditions documented in the resource assessment.

Action: Continue control efforts for Canada thistle, musk thistle, Russian olive, and any other noxious weeds identified on the property.

Action: Provide follow-up monitoring and weed control.

Objective 3: Identify and protect any occurrences of Bell's twinpod (*Physaria bellii*) or other rare plant species on the property.

Action: Conduct targeted surveys to confirm extent of Bell's twinpod populations (or other species) on the property.

Action: Consider additional measures (e.g., additional use restrictions/enforcement, habitat management/restoration) as needed to protect the population.

Objective 4: Coordinate long-term management with sensitive breeding periods for wildlife.

Action: Minimize disturbance (burning, mowing, grazing, and chemical spraying) during the nesting season for grassland birds.

FENCING AND SIGNING

Objective 1: Identify property as OSMP land through clear and defined fencing and signing of the property boundary.

Action: Install OSMP signs along property boundary.

Action: Evaluate boundary fence to ensure that it meets OSMP standards for resource management and wildlife passage.

AGRICULTURAL MANAGEMENT

Objective 1: Continue to lease the property after current lease arrangement expires.

Action: Work with current lessee to develop a subsequent agricultural lease.

CONSERVATION AND COORDINATION

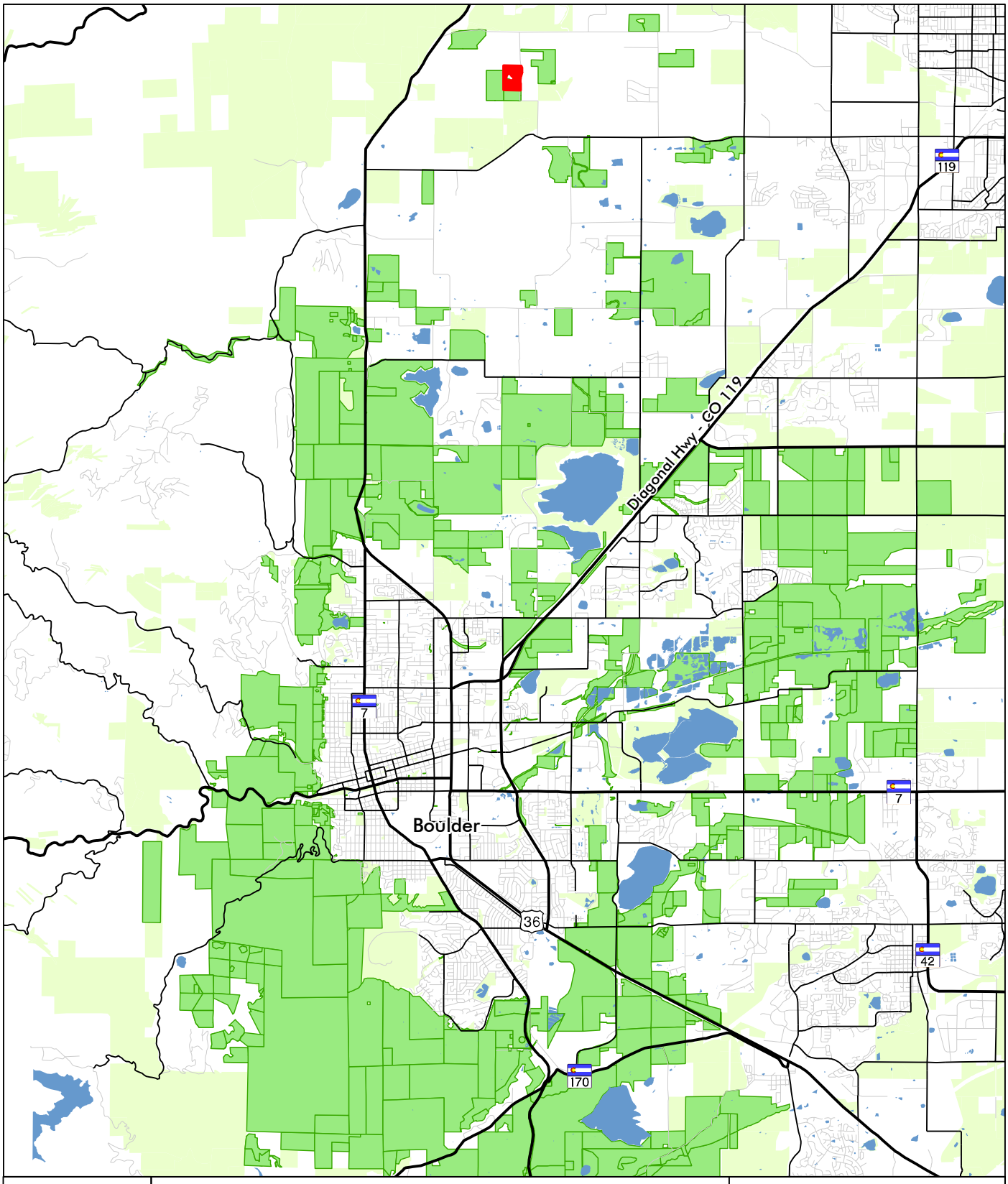
Objective 1: Work with adjacent landowners to provide consistent, sustainable management to the greater Potato Hill/Lykins Gulch area.

Action: Establish and maintain lines of communication with adjacent landowners.

Action: Monitor resource conditions (e.g., weeds, prairie dogs) on adjacent properties and identify potential issues or opportunities.

Action: Allow OSMP to become a resource for landowners seeking knowledge or advice on various land management topics.

FIGURES



ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199

Andrea Property RRA and Management Plan

- Andrea Property
- City of Boulder Open Space
- Other Open Space

0 2 4 Miles

1 inch = 2 miles

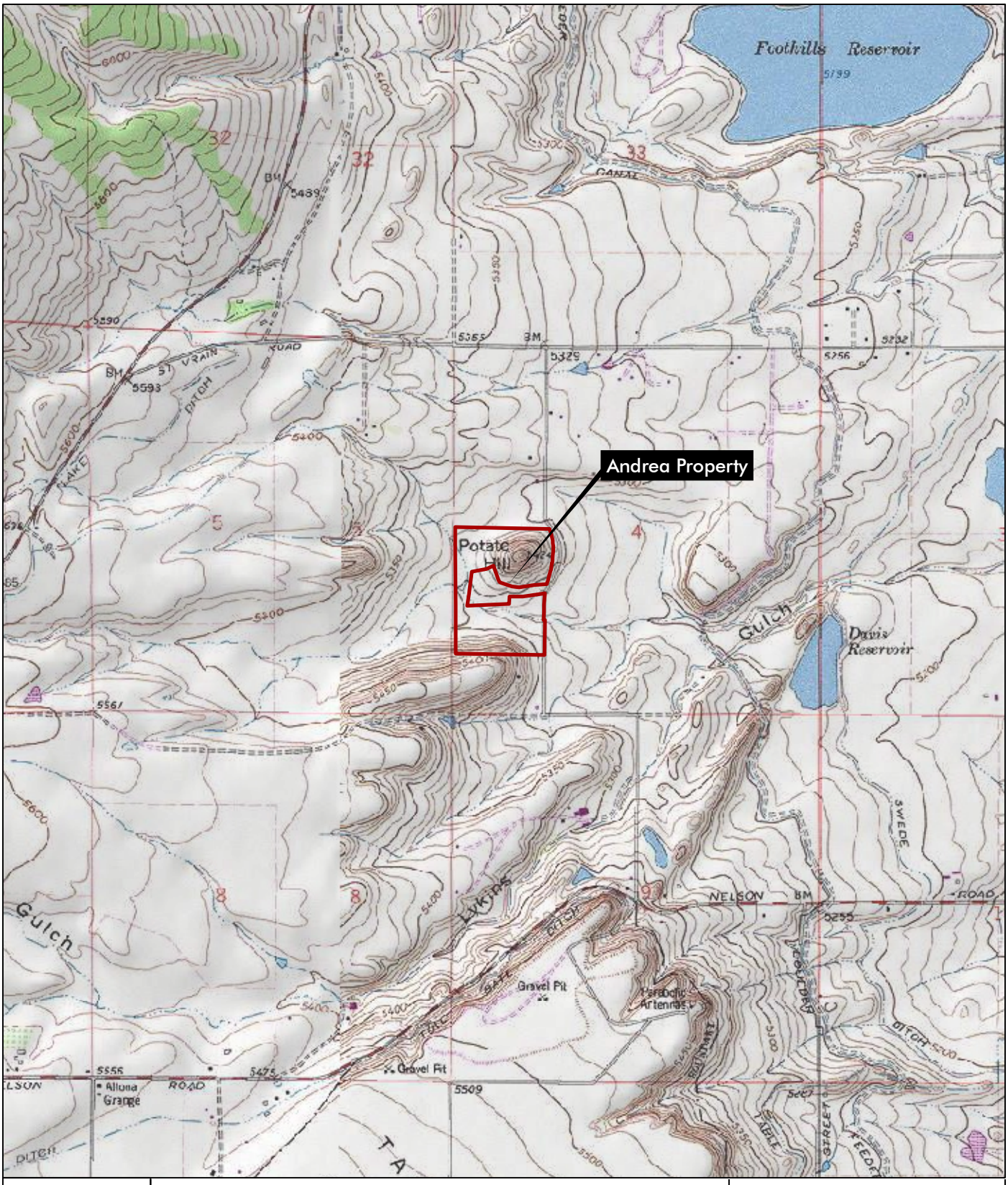
N

Figure 1
Vicinity Map

Prepared for: City of Boulder Open Space and Mountain Parks

File: 4089 Figure1.mxd

March 2008



ERO

ERO Resources Corp.
1842 Clarkson Street
Denver, CO 80218
(303) 830-1188
Fax: (303) 830-1199

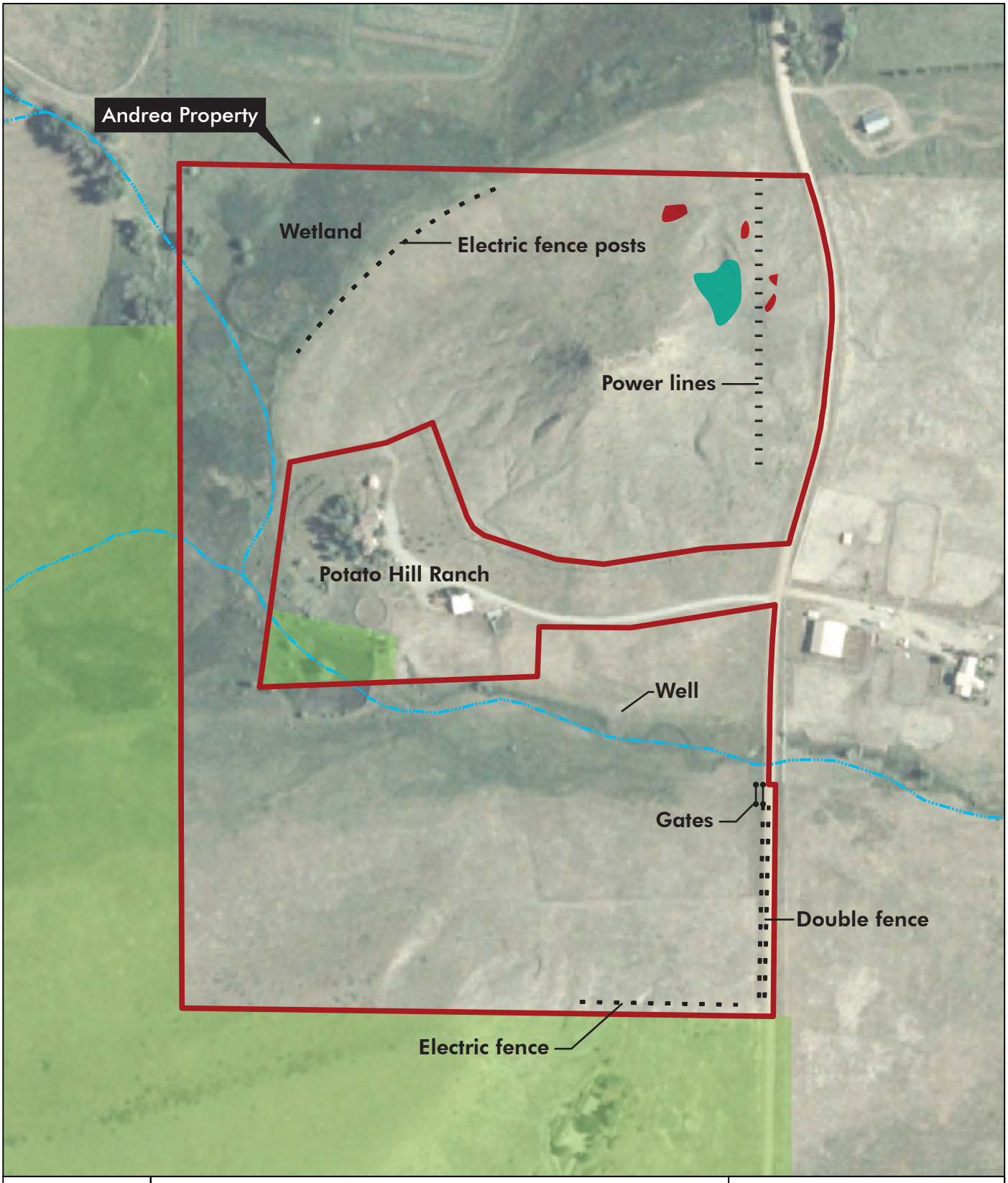
Andrea Property RRA and Management Plan
Section 4, T2N, R70W
UTM NAD83 Coordinate Zone 13N; 479383mE, 4446053mN
USGS Hygiene CO, Quadrangle
Boulder County, Colorado

Feet
0 2,000 4,000
1 inch = 2,000 feet

N

Figure 2
Location

Prepared for: City of Boulder Open Space and Mountain Parks
File: 4089 Figure 2.mxd
February 2008



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Andrea Property RRA and Management Plan

- City of Boulder Open Space
- Other Open Space
- Bell's twinpod
- Mediterranean sage

0 300 600 Feet

1 inch = 300 Feet

N

Figure 3
Property Features

Prepared for: City of Boulder Open Space and Mountain Parks

File: 4089 Figure 3 Andrea.pdf

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0 300 600 Feet

1 inch = 300 Feet

N

Figure 4
Soils

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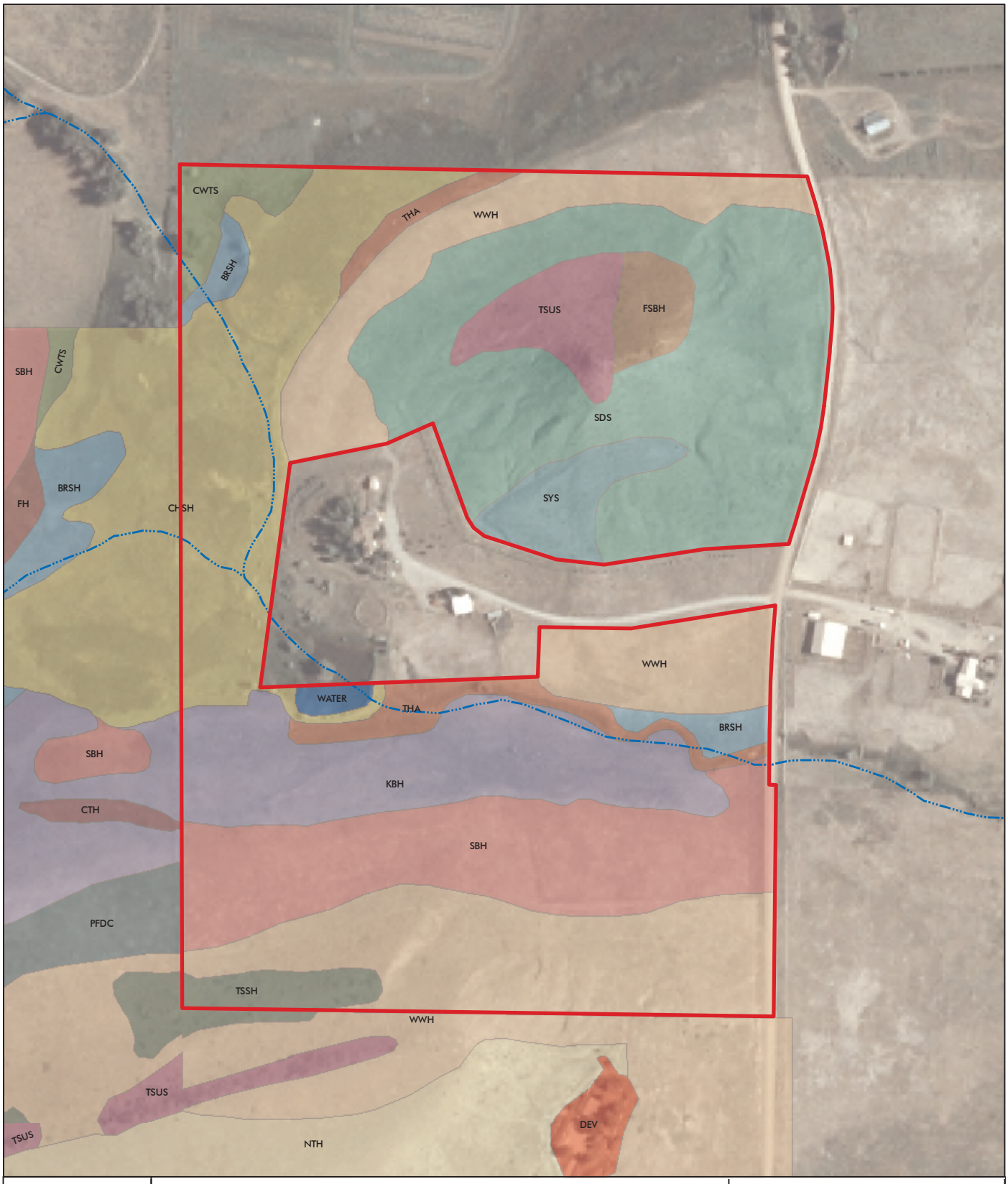
File: 4089 Figure 4.mxd

February 2008



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Abbott Property RRA and Management Plan

(See following page for for vegetation community names)

0 500 1000 Feet

1 inch = 300 Feet

N

Figure 5
Vegetation Communities

Prepared for: City of Boulder Open Space and Mountain Parks

File: 4089 Figure 5.mxd

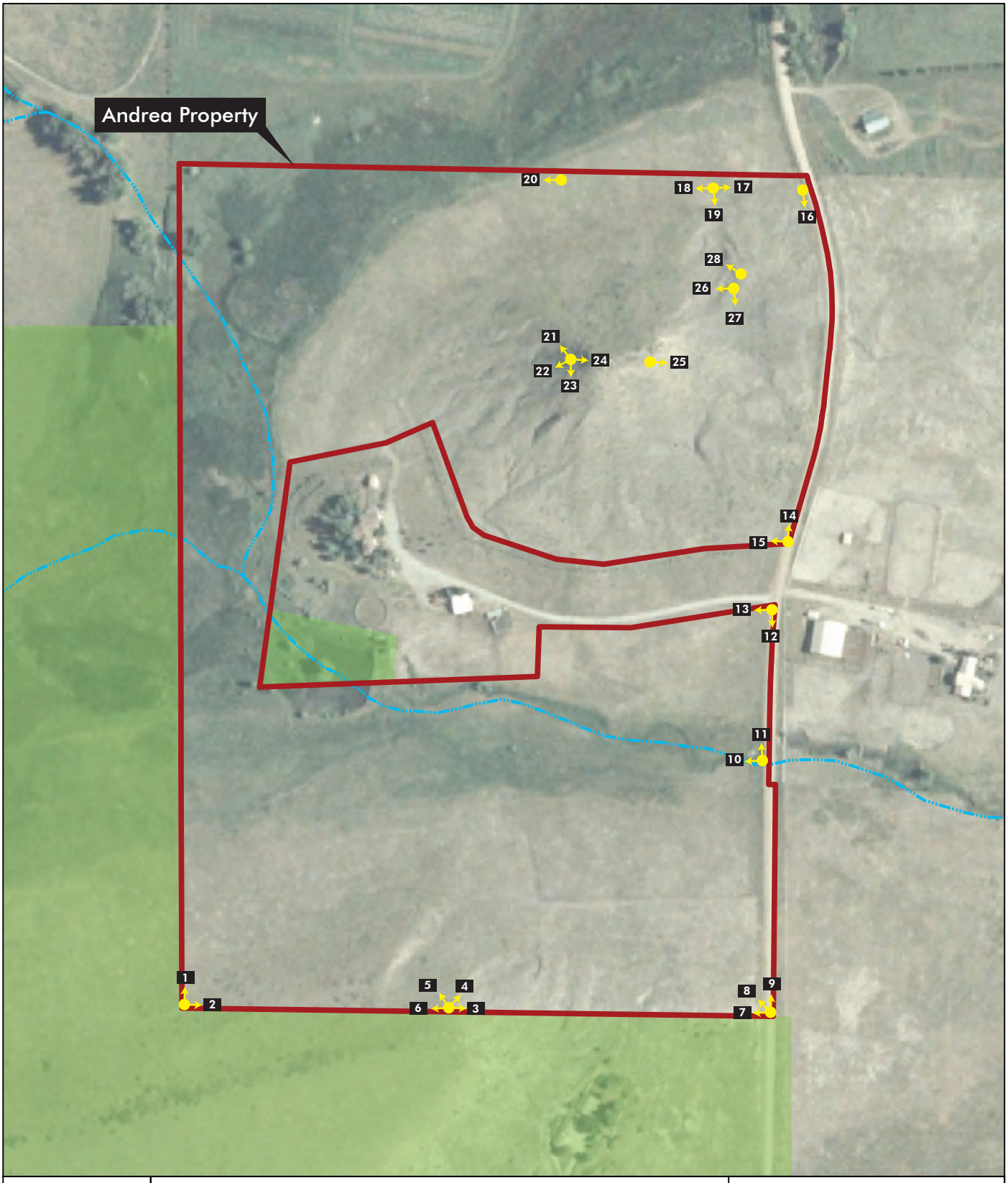
June 2008

Vegetation Communities

Acronym, CmnName

- ADUD, Annual-domintated Upland Disturbance
- APS, American Plum Shrubland Alliance
- BBYH, Big Bluestem - (Yellow Indiangrass) Herbaceous Alliance
- BRSH, Baltic Rush Seasonally Flooded Herbaceous Alliance
- CFSH, Clustered Field Sedge Seasonally Flooded Herbaceous Alliance
- CHSH, Cattail Herbaceous Semipermanently Flooded Alliance
- CTH, Canada Thistle Weedy Forb Great Plains Herbaceous Vegetation [Provisional]
- CWH, Crested Wheatgrass Semi-Natural Herbaceous Alliance
- CWTS, (Coyote Willow, Sandbar Willow) Temporarily Flooded Shrubland Alliance
- CWW, Crack Willow (introduced) Temporarily Flooded Woodland Alliance
- DCAP, Disturbed Cultivated Agricultural Pasture
- DEV, Developed
- DFF, Douglas Fir Forest Alliance
- DFW, Douglas-fir Woodland Alliance
- ECTW, Eastern Cottonwood Temporarily Flooded Woodland Alliance
- ESSH, Emory Sedge Seasonally Flooded Herbaceous Alliance
- ETCW, Eastern Cottonwood Temporarily Flooded Woodland Alliance
- FBH, Foxtail Barley Temporarily Flooded Herbaceous Alliance
- FH, (Tall Fescue, Meadow Fescue) Herbaceous Alliance
- FSBH, Fourwing Saltbush Herbaceous Alliance
- GAH, Cultivated Alfalfa / Smoothe Brome Hay
- GH, Cultivated Grass Hay
- IC, Irrigated Cropland
- ISAP, Introduced Species Agricultural Pasture
- KBH, Kentucky Bluegrass Semi-Natural Herbaceous Alliance
- NNH, New Mexico Needlegrass Herbaceous Alliance
- NSH, Nebraska Sedge Seasonally Flooded Herbaceous Alliance
- NTH, Needle-and-Thread - Blue Grama Herbaceous Alliance
- OT, Ornamental Trees
- PDFF, Ponderosa Pine - Douglas-fir Forest Alliance
- PDFW, Ponderosa Pine - Douglas-fir Woodland Alliance
- PFDC, Perennial Forb Disturbance Community
- PMTH, Ponderosa Pine Wooded Mixed Herbaceous Alliance (Savannah)
- PPF, Ponderosa Pine Forest Alliance
- PPW, Ponderosa Pine Woodland Alliance
- PTSH, Ponderosa Pine Tallgrass Savannah Herbaceous Alliance
- PTW, Ponderosa Pine Temporarily Flooded Woodland Alliance
- QADF, Quaking Aspen - Douglas-fir Forest Alliance
- ROW, Russian Olive Semi-Natural Woodland Alliance
- SBH, Smooth Brome Semi-Natural Herbaceous Alliance
- SDS, Snakeweed Dwarf-shrubland Alliance
- SKBH, Sun Sedge-Agassiz Kentucky Bluegrass Herbaceous
- SYS, Soapweed Yucca Evergreen Shrubland
- SYSH, Soapweed Yucca Shrub Savannah Herbaceous Alliance
- THA, Threesquare Herbaceous Alliance
- TSIS, Ill-scented Sumac Intermittently Flooded Shrubland Alliance
- TSSH, Three-leaved Sumac Shrub Savannah Herbaceous Alliance
- TSUS, Three-leaved Sumac Upland Shrubland Alliance
- WATER, Water
- WBSS, Water Birch Seasonally Flooded Shrubland Alliance
- WTFH, Western Wheatgrass Temporarily Flooded Herbaceous Alliance
- WWH, Western Wheatgrass Herbaceous Alliance

APPENDIX A
PHOTO POINT MAP AND DOCUMENTATION



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Andrea Property RRA and Management Plan

1 Photo Point

0 300 600 Feet

1 inch = 300 Feet

N

Appendix A
Photo Points

Prepared for: City of Boulder Open Space and Mountain Parks

File: 4089 Andrea photo points.pdf

July 2008

Appendix B
Plant Species

APPENDIX B
PLANT SPECIES

Species Name	Synonym	Common Name	Fourwing Saltbush Shrubland Alliance (FSBH)	Three-Leaved Sumac Upland Shrubland Alliance (TSUS)	Snakeweed Dwarf-Shrubland Alliance (SDS)	Western Wheatgrass Herbaceous Alliance (WWH)	Soapweed Yucca Evergreen Shrubland (SYS)	Three-Leaved Sumac Shrub Savannah Herbaceous Allinace (TSSH)	Baltic Rush Seasonally Flooded Herbaceous Alliance (BRSH)	Coyote Willow Temporary Flooded Shrubland Alliance (CWTS)	Cattail Herbaceous Semi-permanently Flooded Alliance (CHSH)	Smooth Brome Semi-Natural Herbaceous Alliance (SBH)	Threesquare Herbaceous Alliance (THA)
Native Annual/Biennial Forbs													
Cirsium undulatum		wavyleaf thistle	■	■	■	■							
Erigeron divergens		spreading fleabane	■		■	■							
Erysimum asperum		western wallflower			■								
Grindelia squarrosa		curlycup gumweed	■			■							
Pterogonum alatum	Eriogonum alatum	winged buckwheat	■	■		■							
Introduced Annual/Biennial Forbs													
Arctium minus		common burdock							■	■		■	■
Carduus nutans ssp. macrolepis		nodding plumeless thistle, musk thistle					■		■	■		■	■
Erodium cicutarium		redstem stork's bill	■		■	■							
Melilotus officinalis		yellow sweetclover					■		■				
Salvia aethiopis		Mediterranean sage	■		■	■							
Sisymbrium altissimum		tall tumblemustard	■	■	■	■							

Species Name	Synonym	Common Name	Fourwing Saltbush Shrubland Alliance (FSBH)	Three-Leaved Sumac Upland Shrubland Alliance (TSUS)	Snakeweed Dwarf-Shrubland Alliance (SDS)	Western Wheatgrass Herbaceous Alliance (WWH)	Soapweed Yucca Evergreen Shrubland (SYS)	Three-Leaved Sumac Shrub Savannah Herbaceous Allinace (TSSH)	Baltic Rush Seasonally Flooded Herbaceous Alliance (BRSH)	Coyote Willow Temporary Flooded Shrubland Alliance (CWTS)	Cattail Herbaceous Semi-permanently Flooded Alliance (CHSH)	Smooth Brome Semi-Natural Herbaceous Alliance (SBH)	Threesquare Herbaceous Alliance (THA)
Tragopogon dubius ssp. major		yellow salsify	■				■						
Verbascum thapsus		common mullein	■	■	■	■	■						
Introduced Annual Grasses													
Anisantha tectorum	Bromus tectorum	cheatgrass	■	■	■	■	■						
Native Perennial Forbs													
Achillea lanulosa	Achillea millefolium	western yarrow								■		■	
Adenolinum lewisii	Linum lewisii	prairie flax	■										
Ambrosia psilostachya var. coronopifolia		Cuman ragweed		■			■						
Argemone polyanthemos		crested pricklypoppy	■	■									
Asclepias speciosa		showy milkweed	■	■	■	■					■		■
Erigeron flagellaris		trailing fleabane			■	■		■					
Eriogonum umbellatum		sulphur-flower buckwheat											
Erysimum capitatum		sanddune wallflower	■	■		■							
Evolvulus nuttallianus		shaggy dwarf morning-glory		■			■						
Gaura coccinea		scarlet beeblossom				■							
Helianthus		little sunflower	■	■			■						

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pumilus													
Heterotheca villosa		hairy false goldenaster	■	■	■	■	■	■					
Leucelene ericoides	Chaetopappa ericoides	rose heath			■	■		■					
Leucocrinum montanum		common starlily			■		■						
Liatris punctata		Kansas gayfeather	■	■	■	■		■					
Lithospermum spp.		puccoon		■			■						
Mentha arvensis		wild mint							■	■	■	■	■
Oenothera villosa	Oenothera strigosa	hairy evening-primrose	■	■			■						
Paronychia jamesii		James' nailwort	■	■		■							
Psoralidium tenuiflorum	Psoralea tenuiflora	slimflower scurfpea			■	■		■					
Ratibida columnifera		upright prairie coneflower			■		■	■					
Sphaeralcea coccinea		scarlet globemallow	■	■	■	■	■	■					
Introduced Perennial Forbs													
Breea arvensis	Cirsium arvense	Canada thistle							■	■		■	
Cichorium intybus		chicory							■			■	
Convolvulus arvensis		field bindweed	■		■	■		■	■			■	
Rumex acetosella	Acetosella vulgaris	common sheep sorrel	■						■			■	

Species Name	Synonym	Common Name	Fourwing Saltbush Shrubland Alliance (FSBH)	Three-Leaved Sumac Upland Shrubland Alliance (TSUS)	Snakeweed Dwarf-Shrubland Alliance (SDS)	Western Wheatgrass Herbaceous Alliance (WWH)	Soapweed Yucca Evergreen Shrubland (SYS)	Three-Leaved Sumac Shrub Savannah Herbaceous Allinace (TSSH)	Baltic Rush Seasonally Flooded Herbaceous Alliance (BRSH)	Coyote Willow Temporary Flooded Shrubland Alliance (CWTS)	Cattail Herbaceous Semi-permanently Flooded Alliance (CHSH)	Smooth Brome Semi-Natural Herbaceous Alliance (SBH)	Threesquare Herbaceous Alliance (THA)
Taraxacum officinale		common dandelion							■	■		■	
Native Perennial Cool Season Grasses and Grass Like													
Achnatherum hymenoides	Oryzopsis hymenoides, Stipa hym.	Indian ricegrass	■	■	■								
Elymus trachycaulus	Agropyron trachycaulum	slender wheatgrass								■	■		
Hesperostipa comata	Stipa comata	needle and thread	■	■	■	■	■	■					
Hesperostipa neomexicana	Stipa neomexicana	New Mexico feathergrass		■									
Juncus arcticus ssp. ater	Juncus balticus	Baltic rush							■	■	■	■	■
Koeleria macrantha	Koeleria gracilis	prairie Junegrass	■	■	■		■						
Nassella viridula	Stipa viridula	green needlegrass	■	■									
Pascopyrum smithii	Agropyron smithii	western wheatgrass	■	■	■	■	■	■					
Schoenoplectus lacustris ssp. creber	Scirpus validus, Schoenoplectus tabernaemontani	softstem bulrush									■		
Schoenoplectus pungens	Scirpus pungens, S. americanus	common threesquare								■	■	■	■
Typha angustifolia		narrowleaf cattail									■		

Species Name	Synonym	Common Name	Fourwing Saltbush Shrubland Alliance (FSBH)	Three-Leaved Sumac Upland Shrubland Alliance (TSUS)	Snakeweed Dwarf-Shrubland Alliance (SDS)	Western Wheatgrass Herbaceous Alliance (WWH)	Soapweed Yucca Evergreen Shrubland (SYS)	Three-Leaved Sumac Shrub Savannah Herbaceous Allinace (TSSH)	Baltic Rush Seasonally Flooded Herbaceous Alliance (BRSH)	Coyote Willow Temporary Flooded Shrubland Alliance (CWTS)	Cattail Herbaceous Semi-permanently Flooded Alliance (CHSH)	Smooth Brome Semi-Natural Herbaceous Alliance (SBH)	Threesquare Herbaceous Alliance (THA)
Typha latifolia		broadleaf cattail									■		
Introduced Perennial Cool Season Grasses													
Bromopsis inermis	Bromus inermis	smooth brome										■	
Dactylis glomerata		orchardgrass	■				■					■	■
Phleum pratense		timothy	■				■					■	■
Native Perennial Warm Season Grasses													
Andropogon gerardii		big bluestem	■	■			■	■					
Aristida purpurea		purple threeawn	■	■			■						
Bouteloua curtipendula		sideoats grama	■	■	■	■	■	■					
Buchloe dactyloides	Bouteloua dactyloides	buffalograss	■	■	■	■	■						
Chondrosum gracile	Bouteloua gracilis	blue grama grass	■	■	■	■	■	■					
Native Shrubs and Subshrubs													
Artemisia frigida		prairie sagewort	■	■		■						■	
Atriplex canescens		fourwing saltbush	■	■									
Chrysothamnus nauseosus	Ericameria nauseosa	rubber rabbitbrush						■					
Gutierrezia sarothrae		broom snakeweed	■	■	■	■		■					
Krascheninnikovia lanata	Ceratoides lanata	winterfat	■	■				■					
Padus virginiana ssp. melanocarpa	Prunus virginiana ssp. melanocarpa	black chokecherry			■			■					

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Prunus americana		American plum						■					
Rhus aromatica ssp. trilobata	Rhus trilobata	skunkbush sumac						■					
Native Succulents and Agavoids													
Echinocereus viridiflorus		nylon hedgehog cactus		■		■		■					
Opuntia macrorhiza		twistspine pricklypear	■	■	■	■		■					
Yucca glauca		soapweed yucca	■	■	■	■	■	■				■	
Introduced Trees													
Elaeagnus angustifolia		Russian olive							■	■	■	■	■

Appendix C
References

APPENDIX C
REFERENCES

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Photo 1 - View north from southwest corner.

Photo 2 - View east from southwest corner.

Photo 3 - View east along south boundary fence.

Photo 4 - View of property from south boundary, looking north.

Photo 5 - View of property from south boundary, looking northwest.

Photo 6 - View west along south boundary fence.

Photo 7 - View west from southeast corner.

Photo 8 - View northwest from southeast corner.

Photo 9 - View north from southeast corner.

Photo 10 - View west along drainage from east boundary.

Photo 11 - Old conveyance structure along east boundary.

Photo 12 - View south along east boundary in southern portion of property.

Photo 13 - View west along in-holding entry road, from east boundary.

Photo 14 - View north along east boundary in northern portion of property.

Photo 15 - View west along in-holding fenceline, from east boundary.

Photo 16 - View south from northeast corner.

Photo 17 - View of northeast corner area.

Photo 18 - Northern portion of property, looking west.

Photo 19 - Potato Hill, looking southwest.

Photo 20 - Wetlands complex in northwest corner, looking west.

Photo 21 - View from top of Potato Hill, looking northwest.

Photo 22 - View from top of Potato Hill, looking southwest.

Photo 23 - View from top of Potato Hill, looking south.

Photo 24 - View along top of Potato Hill, looking east.

Photo 25 - View from top of Potato Hill, looking east.

Photo 26 - Shale slopes along east side of Potato Hill.

Photo 27 - East slopes of Potato Hill, looking south.

Photo 28 - Bell's twinpod identified on slopes of Potato Hill.

Photo 29 - Shale slopes supporting Bell's twinpod population.