

ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN
for
Issuance of an Endangered Species Section 10(a)(1)(B) Permit
for the Incidental Take of the
Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)
For Construction of Two Single Family Residences on
Leonard Property, Boulder County, Colorado



Submitted to:
U.S. Fish and Wildlife Service
Colorado Field Office
PO Box 25486, DFC
Denver, CO 80225

Submitted by:
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Queen of the River Fisheries

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1.0 INTRODUCTION

The purpose of this document is to request the issuance of an Endangered Species Section 10(a)(1)(B) Permit for the incidental take of the Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*) for construction of two single family residences on the 28.5 acre Leonard Property, in Boulder County, Colorado. This property is located at 11666 Crane Hollow Road, 1/4 mile south of Hygiene Road in the Northeast 1/4 of Section 35, Township 3, Range 70 West of the Sixth Principal Meridian (Figure 1). Tracy and Lana Leonard have obtained a Non-Urban Planned Unit Development (NUPUD) permit from Boulder County for development of their property which includes preservation of their historic homestead and creation of two additional building sites for family members. The approved Leonard NUPUD Outlot Management Plan (Figure 2) shows that the Leonard property originally totaled 35 acres. This included 3 residential lots totaling 5.25 acres (one historic home site totaling 2.25 acres and 2 new home sites totaling 3.0 acres), and outlots totaling 29.75 acres. The 6.5 acre Outlot A was sold under the approved NUPUD. Outlots C, D and E (totaling 1.75 acres) were used for the realignment of Crane Hollow Road. The majority of the property (21.5 acres) is in Outlot B which include the St. Vrain Creek Riparian Preservation Area (6.0 acres), a Recreation/Landscape Zone (8.3 acres), and an Agriculture Zone (7.2 acres). The St. Vrain Creek and associated riparian corridor traverses the northern portion of the property. The Recreation/Landscape Zone includes a 7 acre pond in the central portion of the property, and a 2 acre pond east of the occupied residence. The Agriculture Zone is composed of 2 parcels, the largest is an irrigated pasture located on the southern extent of the property. The entire original 35 acres with the exception of the residential lots have been granted to Boulder County through a conservation easement which will protect the St. Vrain Creek, its associated riparian communities, the adjacent pastures, and the ponds into perpetuity. Photos of the property are shown in Appendix I.

Preble's Meadow Jumping Mouse, a federally-listed threatened species, has been documented to use portions of the St. Vrain Creek near the Leonard property. Upon consultation with the US Fish and Wildlife Service, Kathleen Linder (HCP Coordinator), provided a determination that the proposed development would result in an incidental take of this species. The applicant is submitting the necessary 3-200 form for a permit under section 10(a)(1)(B) of the Endangered Species Act for incidental taking (Figure 3).

This document provides the required National Environmental Policy Act (NEPA) documentation for a Federal action (section 10(a)(1)(B) permit issuance) and the components of a Habitat Conservation Plan (HCP) as mandated by section 10 of the Endangered Species Act.

The duration of this section 10(a)(1)(B) permit is for 50 years from the date of issuance. This allows the Applicant or their successors to "take" the Preble's Mouse within the geographic boundaries identified in the HCP over the 50 year period. After the expiration of this permit, any "take" within the geographic boundaries requires reauthorization. However, the terms and conditions contained in the HCP do not expire and would be covered by the enforcement authority of section 11(b) of the Endangered Species Act.

**Figure 1
location**

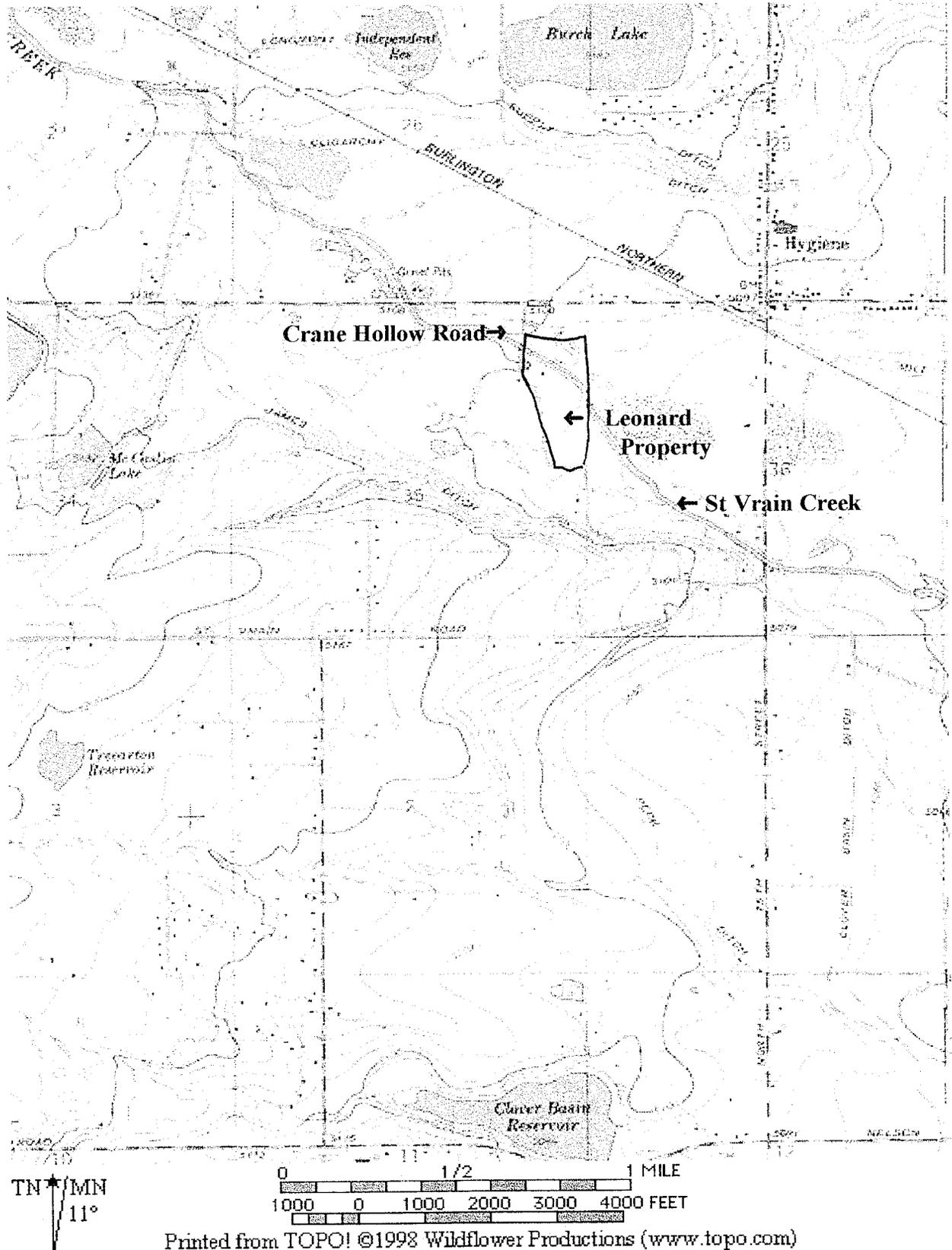
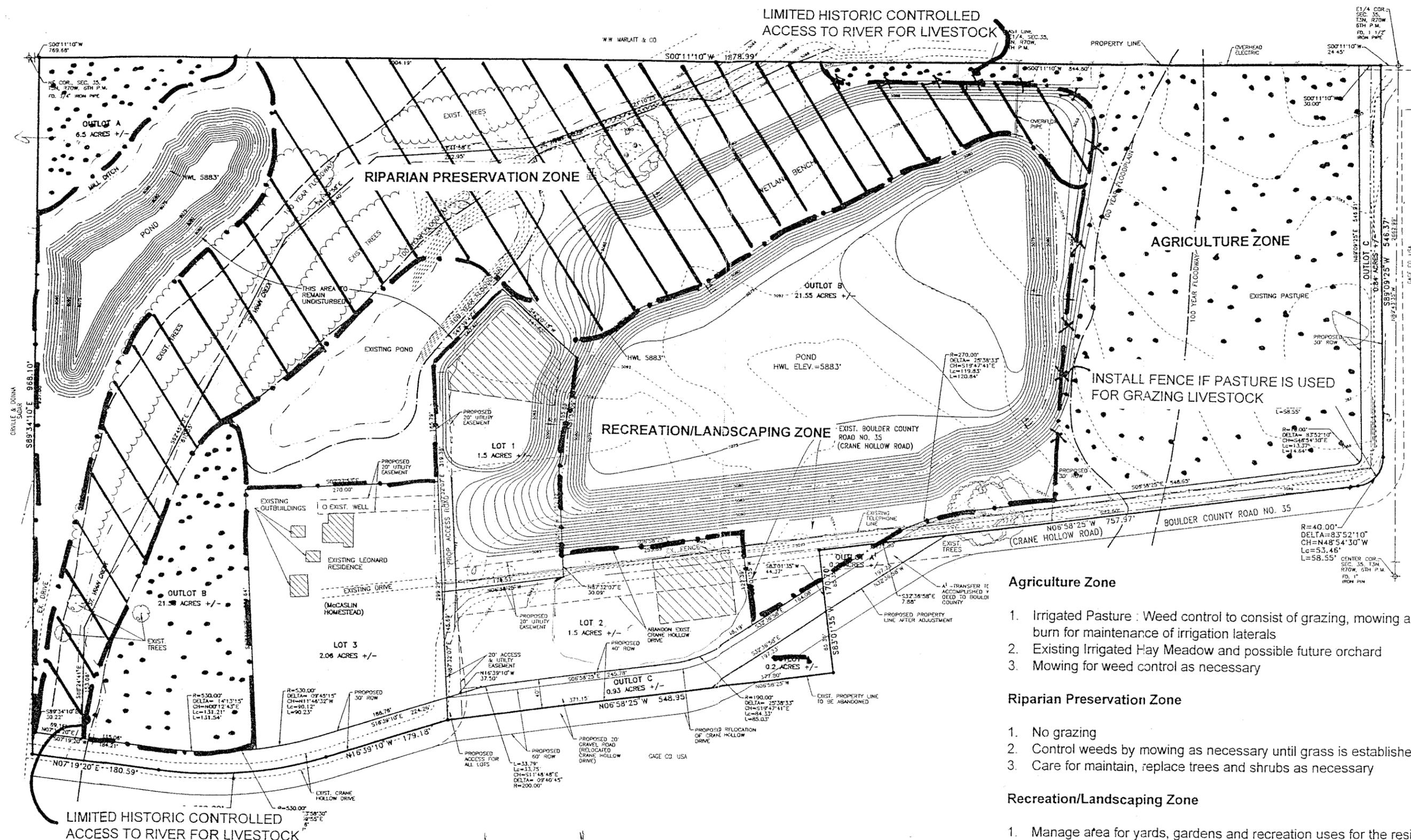


Figure 1. Vicinity Map - Leonard Property (Hygiene, CO, Quadrangle, 1:24,000)

Figure 2
outlot management plan

LIMITED HISTORIC CONTROLLED
ACCESS TO RIVER FOR LIVESTOCK



Agriculture Zone

1. Irrigated Pasture : Weed control to consist of grazing, mowing and controlled burn for maintenance of irrigation laterals
2. Existing Irrigated Hay Meadow and possible future orchard
3. Mowing for weed control as necessary

Riparian Preservation Zone

1. No grazing
2. Control weeds by mowing as necessary until grass is established
3. Care for maintain, replace trees and shrubs as necessary

Recreation/Landscaping Zone

1. Manage area for yards, gardens and recreation uses for the residents.
2. Control weeds by mowing as necessary until grass is established
3. Care for maintain, replace trees and shrubs as necessary
4. Ponds will be managed to provide wildlife habitat and recreation opportunities for the residents.

**LEONARD NUPUD
OUTLOT MANAGEMENT PLAN**

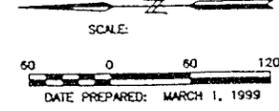


Figure 3
permit application



FEDERAL FISH AND WILDLIFE LICENSE/PERMIT APPLICATION FORM

RETURN TO:

Type of Activity:

3-200-56 NATIVE ENDANGERED AND THREATENED
SPECIES - INCIDENTAL TAKE

A. COMPLETE IF APPLYING AS AN INDIVIDUAL			
1. Name: Tracy Leonard			
2. Street address: 11666 Crane Hollow Road, PO Box 190			3. County: Boulder
4. City, State, Zip code: Hygiene, CO 80533			
5. Date of birth: 7/25/45	6. Social Security No.: 524-62-4664	7. Occupation: Self Employed	
8. List any business, agency, organizational, or institutional affiliation associated with the wildlife to be covered by this license or permit: None			
9. Home telephone number: 303-772-5788	10. Work telephone number: Same	11. Fax number: 303-443-7452	12. E-mail address:

B. COMPLETE IF APPLYING AS A BUSINESS, CORPORATION, PUBLIC AGENCY OR INSTITUTION			
1. Name of business, agency or institution:			2. Tax identification no.:
3. Street address:			4. County:
5. City, State, Zip code:			
6. Describe the type of business, agency, or institution:			
7. Name and title of person responsible for permit (president, principal officer, director, etc.):			
8. Home telephone number:	9. Work telephone number:	10. Fax number:	11. E-mail address:

C. ALL APPLICANTS COMPLETE	
1. Do you currently have or have you had any Federal Fish and Wildlife License or Permit? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, list license or permit numbers	
2. Have you obtained any required state or foreign government approval to conduct the activity you propose? Yes <input type="checkbox"/> No <input type="checkbox"/> Not required <input checked="" type="checkbox"/> If yes, provide a copy of the license or permit	
3. Enclose check or money order payable to the U.S. FISH AND WILDLIFE SERVICE in the amount of \$25. Institutions which qualify under 50 CFR 13.11(d)(3) may be exempt from fees	
4. ATTACHMENTS Complete the additional pages of this application. Application will not be considered complete without these pages Incomplete applications may be returned.	
5. CERTIFICATION: I hereby certify that I have read and am familiar with the regulations contained in Title 50, Part 13, of the Code of Federal Regulations and the other applicable parts in subchapter B of Chapter I of Title 50, and I further certify that the information submitted in this application for a license or permit is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. 1001	
6. Signature (in ink) of applicant or person responsible for permit in Block A or B	7. Date

1. Location: This property is located at 11666 Crane Hollow Road, 1/4 mile south of Hygiene Road in the Northeast 1/4 of Section 35, Township 3, Range 70 West of the Sixth Principal Meridian (Figure 1).
2. Description: The proposed action is the issuance of a permit under section 10(a)(1)(B) of the Endangered Species Act to authorize the incidental take of the threatened Preble's Meadow Jumping Mouse during the development of two single family residences totaling 3.0 acres on the 28.5 acres property located at 11666 Crane Hollow road, (NE 1/4 of Sec 35, T3N, R70W) Boulder County, Colorado. The intent of the applicant is to allow the family farm to remain in the family. The two residential sites are future home sites for his sons.
3. Species: Preble's Meadow Jumping Mouse (*Zapus hudsonius preblei*)
4. HCP: The attached Habitat Conservation Plan specifies the impact likely resulting from the incidental taking, steps taken to minimize and mitigate impacts, and alternatives considered.
5. Term: The term of this permit is 50 years.
6. Certification: The landowner agrees that he owns the lands indicated in this application, has authority to implement the measures of the HCP. The applicant agrees to carry out the activities as specified in the HCP.

2.0 PURPOSE AND NEED FOR ACTION

The purpose of this Environmental Assessment/Habitat Conservation Plan (EA/HCP) is to evaluate the environmental impacts of the proposed action and alternatives of the project. The assessment is required because of the proposed issuance of a section 10(a)(1)(B) incidental take permit by the U.S. Fish and Wildlife Service pursuant to the Endangered Species Act of 1973, as amended.

The applicant has submitted an application for a permit to allow the incidental take of the federally-listed Preble's Meadow Jumping Mouse which has been documented to occur in the surrounding area. The implementation regulations for section 10(a)(1)(B) of the Act, as provided by 50 CFR 17.22, specify the criteria by which a permit allowing the incidental take of listed species pursuant to otherwise lawful activities may be obtained. The purpose and need for the section 10(a)(1)(B) permit is to ensure that incidental taking resulting from the proposed development will be minimized and mitigated to the maximum extent practicable and will not appreciably reduce the likelihood of the survival and recovery of this listed species in the wild.

The submission of the 10(a)(1)(B) permit application requires the development of an HCP which is designed to ensure the continued existence and aid in the recovery of the listed species while allowing for the limited, incidental take of the species during construction and occupation of the proposed residential sites.

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 VEGETATION

The Leonard property has a variety of plant communities associated with different portions of their agricultural land. The St. Vrain Creek Corridor (Riparian Preservation Zone) exhibits a well developed riparian community dominated by a tree canopy of plains cottonwood (*Populus deltoides*), narrow-leaved cottonwood (*Populus angustifolia*), and crack willow (*Salix fragilis*), a shrub component composed of coyote willow (*Salix exigua*) and a grass understory dominated by smooth brome (*Bromopsis inermis*), reed canary grass (*Phalaris arundinacea*), and a variety of weedy species. Other species found in the riparian zone include black locust (*Robinia pseudoacacia*), current (*Ribes spp*), teasel (*Dipsacus fullonum*), Canada wildrye, (*Elymus canadensis*), English plantain (*Plantago lanceolata*), blue vervain (*Verbena hastata*), cloaked bulrush, (*Scirpus pallidus*), and arctic rush (*Juncus arcticus*). The pastures (Agricultural Zones) are vegetated by a variety of planted pasture grasses and weedy species including smooth brome (*Bromopsis inermis*), Kentucky bluegrass (*Poa pratensis*), alfalfa (*Medicago sativa*), and red clover (*Trifolium pratense*). The perimeter of the ponds (Recreation/Landscaping Zones) are densely vegetated by wetland species including cattail (*Typha latifolia*), curly dock (*Rumex crispus*), Nuttall sunflower, (*Helianthus nuttallii*), barnyard grass (*Echinochloa crus-galli*), American manna grass (*Glyceria grandis*), and common smartweed (*Persicaria hydropiper*). The

existing (occupied) residential lot has landscaped bluegrass lawn and landscaped trees, shrubs and flowers. The two new lots are the only areas to be affected by the proposed residential construction. The area proposed for residential lots were part of the approved gravel mining operation (Appendix II) and were elevated to comply with floodplain regulations. They are currently vegetated by weedy species including knapweed (*Centaurea spp*), lamps quarter (*Chenopodium album*), bindweed (*Convolvulus arvensis*), and green goosefoot (*Chenopodium atrovirens*). Table 1 lists the dominant vegetation occurring on the Leonard property.

3.2 WILDLIFE

The Front Range of Colorado supports a great variety of wildlife species in large part due to the convergence of two major biotic regions - the Great Plains to the east and the Rocky Mountains to the west. The Front Range is a major migratory flyway for waterfowl, shorebirds, raptors, and songbirds. St. Vrain Creek provides important habitat for many species of birds, mammals and reptiles.

Common wildlife species occurring along St. Vrain Creek within northeast Boulder County include: eastern cottontail, black-tailed jackrabbit, beaver, deer mouse, house mouse, prairie vole, meadow vole, muskrat, coyote, red fox, racoon, striped skunk, and mule deer. Common bird species include: great blue heron, black-crowned night heron, Canada goose, mallard, Northern pintail, blue-wing teal, American widgeon, bufflehead, turkey vulture, northern harrier, Swainson's hawk, red-tailed hawk, golden eagle, American kestrel, ring-necked pheasant, American coot, killdeer, spotted sandpiper, common snipe, rock dove, mourning dove, barn owl, great horned owl, common nighthawk, belted kingfisher, Northern flicker, Western kingbird, cliff swallow, barn swallow, blue jay, black-billed magpie, common raven, black-capped chickadee, house wren, American robin, European starling, yellow warbler, common yellowthroat, American tree sparrow, song sparrow, dark-eyed junco, red-winged blackbird, Western meadowlark, yellow headed blackbird, common grackle, brown-headed cowbird, Northern oriole, house finch, American goldfinch, and house sparrow. Common amphibians and reptiles include: tiger salamander, Woodhouse's toad, bull frog, snapping turtle, smooth green snake, Western terrestrial garter snake, Western rattlesnake, and bullsnake. Fish that inhabit the St. Vrain include: Johnny darter, plains topminnow, longnose dace, stonecat, stoneroller, creek chub, fathead minnow, brassy minnow, common shiner, bigmouth shiner, sand shiner, whiter sucker, longnose sucker, green sunfish, channel catfish, brown trout and rainbow trout.

3.3 THREATENED OR ENDANGERED SPECIES

Preble's Meadow Jumping Mouse, listed as threatened by the U.S. Fish and Wildlife Service in 1998, is a rare subspecies of the meadow jumping mouse native only to southeastern Wyoming and southeastern Colorado. Populations of Preble's are known to occur along the St. Vrain 0.3 miles east of the Leonard property (Meaney, 1996). Although no trapping was conducted to determine absence or presence on the Leonard property, Preble's are assumed to occur along St. Vrain Creek due to the proximity of known Preble's populations and high quality habitat that has

been maintained by the landowners. Suitable Preble's habitat is described as "well-developed plains riparian vegetation with relatively undisturbed grassland and a water source in close proximity" (Armstrong, 1997). St. Vrain Creek through the Leonard property is densely vegetated by a cottonwood and grass plant association and the channel has been maintained in relatively undisturbed condition. Over the past 20 years, the Leonard's have protected the riparian corridor from degradation by preventing channel dredging, overgrazing, channelization, and other such activities. In recognition of their many years of stewardship, the Colorado Riparian Association awarded the Leonard's the 1999 Excellence in Riparian Management Award. (Appendix III)

No other federally-listed threatened or endangered species occur on the property. Threatened or endangered species that potentially occur on the site include: Bald Eagle, Peregrine Falcon, and Ute's Ladies Tresses Orchid. Suitable habitat potentially exists on the site for Ute's Ladies Tresses Orchid. However, no orchids were found on the site. Blue vervain was the only associated species found. Bald eagles may use the large cottonwood trees along the creek as roosting/perching areas in the winter. Peregrine Falcons may use the St. Vrain corridor for hunting during spring and fall migration. Both bald eagle and peregrine falcon were recently delisted.

not yet!

Ferruginous Hawk has been listed as a species of special concern by the Colorado Division of Wildlife. Other special concern species that may occur in the area include: Swift Fox, Greater Sandhill Crane, Long-billed Curlew, Northern Leopard Frog, Stonecat, and Plains Topminnow. The Common Shiner and Brassy Minnow which also have been identified in St. Vrain Creek, are listed as state threatened species.

3.4 WETLANDS

Approximately 3.1 acres of jurisdictional wetlands occur along the perimeter of the newly created 7 acre pond. These wetlands were intentionally created to provide habitat for the Preble's Meadow Jumping Mouse, waterfowl, shorebirds, and other wetland dependant species. The riparian zone along the St. Vrain Creek does not qualify as jurisdictional wetlands. However, the channel is considered waters of the U.S. and would be subject to Section 404 of the Clean Water Act. No wetlands occur within the areas for proposed development (new residential lots). Both sites have been raised out of the 100 year floodplain through grading.

3.5 GEOLOGY/SOILS

Regional geologic mapping (Colton, 1978) label this area as Piney creek alluvium. The bedrock underlying the site is likely Upper Shale Member of the Pierre Shale.

Soils are classified as Niwot soils (Moreland, 1975). The Niwot series are deep, somewhat poorly drained, shallow soils with moderate permeability. They are formed on low terraces and bottom lands in loamy alluvium occurring over sand and gravel. Niwot soils have surface layers ranging

from sandy clay loam, to light clay loam, or loam. These soils are frequently flooded, runoff is slow and they experience a seasonal high water table.

3.6 LAND USE

The Leonard property is located in a rural agricultural area near Hygiene, Colorado. It is zoned as agricultural land within northeastern Boulder County, Colorado. Although much of the area is rapidly becoming developed, the property is adjacent to Boulder County Open Space.

3.7 AIR QUALITY

This portion of rural Boulder County currently meets all air quality criteria of the Environmental Protection Agency.

3.8 WATER RESOURCES AND WATER QUALITY

St. Vrain Creek traverses the Leonard property entering from the northwest flowing approximately 750' and exits to the east onto Boulder County Open Space. The property lies partially within the 100-year floodplain of St. Vrain Creek. Mill Irrigation Ditch traverses the northeast corner of the property. Three ponds are located on the property. A newly created 7 acre lake in the central portion of the property, and a 2 acre pond east of the occupied residence and the newly created 1 acre pond north of St. Vrain Creek. The 1 acre pond was sold as part of outlot A. However, all the terms of the Conservation easement still apply to that parcel.

The applicant owns water rights in the Webster McCaslin Ditch which are diverted from St. Vrain Creek. The domestic water supply for the homestead and new lots will continue to come from the applicants private permitted well. Water quality of the well is considered to be good.

3.9 CULTURAL RESOURCES

The Leonard property residence is the site of the historic McCaslin homestead. This historic landmark consists of a 2.25 acre parcel identified as lot 3 on the Leonard NUPUD outlot management plan.

The Boulder County Comprehensive Plan designated this portion of the St. Vrain as a travel corridor for Native Americans.

This plan will have no effect on cultural resources because the historic homestead site will not be altered and the St. Vrain corridor will be protected through a conservation easement.

4.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section presents details of the proposed action and the reasonably practicable alternatives that have been considered. The alternatives include: 1) proposed action, 2) selection of an alternate site, 3) modification of site design and layout, 4) waiting on approval of a regional section 10(a)(1)(B) permit, and 5) no action. The environmental consequences of these various alternatives are presented in section 5.0.

4.1 ALTERNATIVE 1 - PROPOSED ACTION

The proposed action is the issuance of a permit under section 10(a)(1)(B) of the Endangered Species Act to authorize the incidental take of the threatened Preble's Meadow Jumping Mouse during the development of two single family residences totaling 1.7 acres and creation of a 1.5 acre orchard on the 28.5 acres property located at 11666 Crane Hollow road, (NE 1/4 of Sec 35, T3N, R70W) Boulder County, Colorado. The intent of the applicant is to allow the family farm to remain in the family. The two residential sites are future home sites for his sons. The anticipated onsite and off-site impacts of the proposed action are addressed in section 5.1.

An HCP has been developed as part of the proposed alternative as mitigation for the incidental taking of the mouse. Many of these measures were implemented over the past several years to protect Preble's Meadow Jumping Mouse and wildlife in general as confirmed by Colorado Division of Wildlife (Appendix IV). Many of these protection measures were initiated prior to the listing of mouse and were completed as proactive wildlife conservation. These measures include:

- Protection of the St. Vrain Creek Corridor through a conservation easement in perpetuity.
- Gravel mining operations were conducted with sensitivity for Preble's Jumping Mouse and its habitat.
- The shoreline of the 7 acre pond has been designed to create 3.1 acres of new palustrine emergent, scrub/shrub, and forested wetlands (Cowardin, 1979).
- Livestock grazing will be managed within the Riparian Protection Zone and Recreation/Landscape Zones as to protect Preble's Meadow Jumping Mouse habitat.
- Relocate Crane Hollow Road farther away from mouse habitat than originally planned
- The proposed building sites (residential lots) are clustered and located farther away from preferred mouse habitat.
- The loss of 3.0 acres of mouse habitat will be compensated through the protection of St. Vrain Creek, restoration of native grasses and development of riparian shrubs and wetlands.

This alternative was selected as the proposed action as it will allow development of the property (as approved by Boulder County through the NUPUD process) and provide a conservation plan to minimize and offset the potential impact to the mouse by providing for onsite conservation measures which will promote recovery of the species.

4.2 ALTERNATIVE 2 - ALTERNATE SITE LOCATION

This alternative assumes that the Applicant could equitably divest his family owned property and construct the additional family residences elsewhere that would not result in the take of the mouse.

4.3 ALTERNATIVE 3 - ALTERNATE SITE DESIGN

This alternative assumes that alteration of the site layout is possible and that relocation of the residential lots would eliminate take of the mouse.

4.4 ALTERNATIVE 4. - WAIT ON A REGIONAL 10(A)(1)(B) PERMIT

This alternative assumes that the Applicant could wait for the completion and implementation of a regional section 10(a)(1)(B) permit for continuation of development plans.

4.5 ALTERNATIVE 5 - NO ACTION ALTERNATIVE

This alternative assumes that all proposed development does not occur and that no application for incidental take is processed.

5.0 ENVIRONMENTAL CONSEQUENCES

5.1 ALTERNATIVE 1 - PROPOSED (PREFERRED) ALTERNATIVE

5.1.1. Onsite Impacts

5.1.1.1 Vegetation

The proposed action of permit issuance will result in the surface and/or vegetational alternation of approximately 3.2 acres. The current vegetation that will be altered during construction of the family residences and subsequent landscaping consists mainly of weedy species. The area identified as a future orchard is vegetated by pasture grasses and weedy species. Vegetation within the remaining farm will not be altered by the proposed development.

5.1.1.2 Wildlife

The proposed residential sites were relocated away from St. Vrain Creek in order to minimize impacts on wildlife. The original proposal was to have the sites located on the east side of the 7 acres pond (between the pond and St. Vrain Creek). The lots have been moved to the north and west side of the pond and a wetland bench was created to enhance wildlife habitat.

The limited use of wildlife on the residential lots would largely be displaced to adjacent areas on the property. Some increased competition for nesting, foraging, breeding, and feeding areas could occur. However, most species would find better habitat along the river, ponds and adjacent wetlands. Landscape vegetation will provide habitat for those species of wildlife accustomed to urban development. The majority (90%) of the remaining property will remain in its natural state and in fact, is expected to provide increased wildlife habitat values through the comprehensive protection measures that have been implemented.

5.1.1.3 Endangered Species

Suitable habitat for Preble's Meadow Jumping Mouse is present along the riparian corridor of St. Vrain Creek. Based upon known mouse movements, the U.S. Fish and Wildlife Service originally considered the use of a 300 foot buffer from the center of the stream as a protection measure (USFWS, Proposed Rule, 1998). Preliminary research findings indicate that Preble's may move farther into uplands than previously believed (Schenk, 1999). Protection measures now being considered would include as usable Preble's Meadow Jumping Mouse habitat the areas adjacent to perennial streams up to 300' from the 100 year floodplain (U.S. Fish and Wildlife Service Interim Survey Guidelines, May 1999). A habitat assessment by the Colorado Division of Wildlife in 1996 found the area proposed for gravel mining (pastures which now make up the pond and residential lots) did not have suitable mouse habitat due to heavy grazing and noxious weeds (Appendix V). None of the proposed impacts occur within the riparian corridor. All of the proposed impacts are in upland areas outside of the 100 year floodplain. Of the 3 acres proposed for residential development, 1.7 acres falls within 300 *linear feet* of the 100 year floodplain (the building sites have been raised out of the floodplain). Utilizing the most extensive mouse protection habitat definition, the proposed development could impact up to 1.7 acres of potential mouse habitat for the residential lots. In addition, the proposed orchard next to the St. Vrain could potentially impact up to 1.5 acres of mouse habitat. The total maximum impact is anticipated to be 3.2 acres.

No other federally-listed threatened or endangered species are known to occur on the property. Of the three federally-listed threatened or endangered species that potentially occur on the site (bald eagle, ~~Peregrine falcon~~ and Ute's ladies tresses orchid), none will be impacted by the proposed project. Since no alterations are proposed for the riparian zone, no state listed species will be impacted by the proposed project. These include Ferruginous hawk, swift fox, greater sandhill crane, long-billed curlew, Northern leopard frog, stonecat, plains topminnow, common shiner, and brassy minnow.

no longer listed.

5.1.1.4 Assessment of Take

Approximately 3.2 acres of potential Preble's Meadow Jumping Mouse habitat are anticipated to be impacted by the proposed project.

5.1.1.5 Wetlands

Areas subject to section 404 of the Clean Water Act jurisdiction are limited to St. Vrain Creek and the ponds on the property. Since the proposed development will not impact any of the outlots, no wetlands or waters of the U.S. will be affected. Runoff into these areas is to be treated according to local regulations and EPA standards for nonpoint-source pollution and sediment prevention. No impacts are expected.

5.1.1.6 Geology/Soils

No significant geologic alterations are anticipated from the proposed project.

5.1.1.7 Land Use

This area of Boulder County is zoned agricultural, normally allowing one residential site per 35 acres. However, Boulder County has issued approval for the NUPUD to allow 2 new residential lots in addition to the historic homestead.

5.1.1.8 Water Resources

Surface and groundwater resources will be slightly altered by the construction of impervious cover in the form of roadways and building foundations. There could be a slight increase in sediment loading and other pollutants in surface water runoff. However, these increases are not believed to be significant due to the small size of the proposed development.

Water for agricultural use will continue to be supplied by applicant's rights in the Webster McCaslin Ditch. The source of the domestic water supply will be from the applicant's private well. Based upon the yield and quality of water, a well permit was issued by Colorado Division of Water Resources. No impacts are anticipated on the ground water supply. There are no changes in water rights or flow depletions with the proposed development.

5.1.1.9 Air and Water Quality Impacts

The proposed development may contribute to increased local traffic noise and exhaust emissions through the increased number of gasoline-powered vehicles in the immediate vicinity. The addition of two residences with fireplaces could contribute to a slight decrease in air quality in the local area. A temporary increase in dust and noise will be expected during construction activities.

The substantial existing trees planted by the applicant, future tree plantings on the new residential lots, and the proposed orchard are expected to ameliorate the impacts of decreased air quality. In addition, trees along the St. Vrain Creek corridor are protected in perpetuity through the conservation easement.

Site plan review has already been approved by Boulder County for the Leonard NUPUD. No significant impacts to water quality are expected to occur from runoff of the developed lots. All Boulder County land development codes will be complied with during all phases of development.

5.1.1.10 Cultural Resources

Since the residential sites are well away from the St. Vrain Corridor and the conservation easement provides protection from further development, no impacts are anticipated to the designated Native American travel corridor. The historic McCaslin homestead has been land marked by the applicant and there are no alterations proposed to the homestead.

5.1.2 Offsite Impacts

5.1.2.1 Vegetation

No offsite impacts to vegetation are expected to occur.

5.1.2.2 Wildlife

Because the development is a small portion of the entire property and wildlife habitat has been enhanced nearby, wildlife utilizing the residential lots is expected to be displaced to other portions of the property.

5.1.2.3 Endangered Species

Offsite impacts pertaining to threatened or endangered species may include displacement of some feeding areas for Preble's Meadow Jumping Mouse. The displaced animals are expected to be drawn to the newly created habitat along the nearby pond and to the protected riparian corridor of St. Vrain Creek.

Implementation of conservation measures described in section 6.0 illustrates the measures intended to minimize and mitigate potential offsite impacts.

5.1.2.4 Wetlands

On-site sedimentation controls will minimize the amount of sediment and other pollutants introduced into jurisdictional areas. No offsite impacts to jurisdictional areas are expected to occur.

5.1.2.5 Geology/Soils

No offsite impacts to geologic or soil resources are expected to occur.

5.1.2.6 Land Use

No significant alterations to existing or proposed land uses are expected to occur as a result of the proposed action.

5.1.2.7 Water Resources

Offsite surface and groundwater resources are not expected to be impacted by the proposed development. No drainage issues, water rights, or evaporative losses are anticipated due to the development.

5.1.2.8 Air and Water Quality Impacts

As described in section 5.1.1.9., no significant air or water quality impacts are expected to occur offsite.

5.1.2.9 Cultural Resources

No offsite impacts to cultural resources are expected.

5.1.3 Cumulative Impacts Analysis

This section considers the past, present, and future projects authorized or under review, that are considered to contribute to the cumulative loss of species of concern.

5.1.3.1 Vegetation

As the proposed action would result in disturbance of a maximum of 3.2 acres currently dominated by noxious weeds (previously irrigated pasture), there would be little cumulative loss of valuable vegetation in Boulder County.

5.1.3.2 Wildlife

The proposed action may contribute to a slight cumulative reduction of habitat for some wildlife species when added to impacts resulting from other development, road construction, and other similar lands uses. No significant cumulative impacts to wildlife species currently occurring in Boulder County would be anticipated. Because much of the adjacent area has been protected from development through Boulder County Open Space, the overall cumulative effect is more likely positive for wildlife.

5.1.3.3 Endangered Species

The proposed action will contribute to “take” of Preble’s Meadow Jumping Mouse and/or their potential habitat in the region when added to other section 10(a)(1)(B) incidental take permits that have been or will be issued by the U.S. Fish and Wildlife Service. To date, 1 incidental take permits covering 0.9 acres has been issued in the Boulder/Longmont area for take of Preble’s Meadow Jumping Mouse. Cumulatively, the known activities would not result in a significant impact to the mouse because each activity is being approved only after appropriate compensation measures have been developed.

5.1.3.4 Wetlands

There are no impacts to wetlands as a result of this project. Therefore, no cumulative impacts are anticipated.

5.1.3.5 Geology/Soils

There are no impacts to Geology or soils as a result of this project. Therefore, no cumulative impacts are anticipated.

5.1.3.6 Land Use

The proposed action contributes to the conversion of undeveloped land to developed land in Boulder County. Past, present, and future developments must comply with all Boulder County development codes. Since the adjacent area is protected from development by Boulder County Open Space, no significant cumulative impacts on land use are anticipated.

5.1.3.7 Water Resources

There are no impacts to water resources as a result of this project. Therefore, no cumulative impacts are anticipated.

5.1.3.8 Air and Water Quality Impacts

The proposed action may contribute to a minor decrease of air quality in Boulder County. The significance of the impact will depend upon air quality requirements for construction activities, fireplaces, and automobiles. Since the adjacent area is protected from development by Boulder County Open Space, no significant cumulative impacts on air quality are anticipated.

No significant impacts to water quality are expected to occur from runoff of the developed lots. All Boulder County land development codes will be complied with during all phases of development. Therefore, no cumulative impacts are anticipated.

5.1.3.9 Cultural Resources

There are no impacts to cultural resources as a result of this project. Therefore, no cumulative impacts are anticipated.

5.2 ALTERNATIVE 2 - ALTERNATE SITE LOCATIONS

The intent of the applicant is to allow the family farm to remain in the family. The two residential sites are future home sites for his sons. While it is possible to construct single family residences on property other than this particular property, it is not economically practicable for the Applicant to divest his property at a non-development market price and then purchase another site at or above development market price. Therefore, this alternative was considered non-practicable. Additionally, the two residential sites have been raised out of the 100 year floodplain. Alternative sites would not be feasible due to floodplain concerns. These sites have been approved by Boulder County through the NUPUD process and any alternative site would require a lengthy approval process.

5.3 ALTERNATIVE 3 - ALTERNATE SITE DESIGN

The original sites for the residential homes were already moved farther away from the St. Vrain to reduce wildlife impacts. Utilizing the most extensive definition of Preble's Meadow Jumping Mouse habitat which includes 300' from the 100 year floodplain, alternative site layout design would not eliminate the incidental take anticipated to occur. With this habitat definition, the only building location that does not result in incidental take is lot 2. Therefore, this alternative was considered non-practicable.

5.4 ALTERNATIVE 4 - WAIT ON A REGIONAL 10(A)(1)(B) PERMIT

Due to uncertainties as to when a regional HCP might become available, this alternative was considered non-practicable.

5.5 ALTERNATIVE 5 - NO ACTION ALTERNATIVE

This scenario would not result in the near-term disturbance of portions of the site proposed for development, nor the potential take of the mouse. However, without the proposed development, no conservation easement to protect the St. Vrain Riparian Corridor would have been made.

6.0 HABITAT CONSERVATION PLAN

As part of the proposed action, an HCP has been proposed to minimize the potential take described in section 5.1.1.4 above and assure that this action does not reduce the potential for survival and recovery of the mouse in the wild, as mandated by requirements of 50 CFR Part 17.22(b)(1)(iii). The HCP includes the following measures:

- Protection of the St. Vrain Creek Corridor through a conservation easement in perpetuity.

Tracy and Lana Leonard have entered into a conservation easement on August 20, 1999 with Boulder County to preserve 21.5 acres in outlots B (Appendix VI). Under the terms of the easement, the outlots are to be managed for agriculture, wildlife and recreation. No structures (with the exception of dock/deck connections and a loafing shed) are allowed to be built. No further subdividing of the property is permitted. Since all of this area with the exception of the surface area of the pond (7 acres total) is considered Preble's Meadow Jumping Mouse habitat, 14.5 acres of useable mouse habitat will be preserved.

- Gravel mining operations were conducted with sensitivity for wildlife, particularly Preble's Jumping Mouse and its habitat.

In 1996, the Leonard's completed a mining plan with Golden Andesite Mining Company to allow the extraction of aggregate from their property. The environmental goals of the mining reclamation plan included: *Create and preserve a diversity of plant communities and wildlife habitat and to Create and enhance diverse, functional wetland communities.* The gravel mining resulted in the completion of a 7 acres pond in the central portion of the property. Disturbed areas have been replanted according to the specifications of the revegetation plan (Appendix VII). Protection measures for Preble's Meadow Jumping Mouse included allowing mining only during the mouse hibernation period. Existing mature cottonwood trees were protected through watering during the mining operation to prevent the loss of ground water.

- The shoreline of the 7 acre pond has been designed to create 3.1 acres of new palustrine emergent, scrub/shrub, and forested wetlands (Cowardin, 1979).

The perimeter of the ponds will be vegetated primarily by a willow/ cottonwood community typical of the St. Vrain Corridor in this area (Appendix VII). Trees and shrubs to be planted along the wetland bench include: American Plum (*Prunus americana*), Plains Cottonwood (*Populus deltoides*), Peachleaf Willow (*Salix amygdaloides*), Common Chokecherry (*Prunus virginiana*), Common Snowberry (*Symphoricarpos albus*), Three-leaf Sumac (*Rhus trilobata*), and Sandbar Willow (*Salix exigua*).

- Livestock grazing will be managed within the Riparian Protection Zone and Recreation/Landscape Zones as to protect Preble's Meadow Jumping Mouse habitat (See Outlot Management Plan, figure 2).

As outlined in the Outlot Management Plan (figure 2), no livestock grazing will be permitted in the Riparian-Protection Zone with the exception of limited controlled access to the river.

- Relocate Crane Hollow Road farther away from mouse habitat than originally planned.

Crane Hollow Road was moved approximately 150' to the west to help consolidate the applicants property, remove a dangerous curve, and to enhance wildlife habitat. The affect of this action will allow more feeding habitat for the mouse adjacent to the river without the threat of the road.

- The proposed building sites (residential lots) are clustered and located farther away from preferred mouse habitat.

The proposed residential lots were originally located between St. Vrain Creek and the 7 acre pond. After discussions with Colorado Division of Wildlife, it was decided to relocate the residential lots to the north and west shores of the pond in order to better protect habitat for Preble's Meadow Jumping Mouse and other wildlife species.

- Approximately 3.0 acres of upland adjacent to St. Vrain Creek will be replanted with native grasses. Revegetation of 1.5 acres of the upland area between the riparian area and the ponds will be completed within five years. The orchard (1.5 acres) will be revegetated at the time of orchard planting.
- The loss of 3.0 acres of mouse habitat will be compensated through the protection of St. Vrain Creek, restoration of native grasses and development of riparian shrubs and wetlands.

The creation of 3.1 acres of wetland and riparian zone at a 3:1 ratio will provide 1.03 acres of compensation. The enhancement of 3.0 acres through native grass planting at a 2:1 mitigation will provide 1.5 acres of compensation. The St. Vrain corridor and its associated riparian areas, irrigated pastures, and grasslands will be protected from all future development through the conservation easement with Boulder County. This action protects 14.5 acres of mouse habitat (the 21.5 acre outlot B minus the surface area of the 7 acre pond). Since a portion of this 14.5 acres will be mitigated with methods described above, 8.4 acres will be applied to the conservation mitigation ratio which at a 10:1 mitigation ratio provides 0.84 acres of compensation. Total mitigation for the 3.2 acres impacted is conservation of 8.4 acres of usable mouse habitat, 3.1 acres of created wetlands, and 1.5 acres of enhanced habitat.

6.1 AMENDMENT PROCEDURE

It is necessary to establish a procedure whereby the section 10(a)(1)(B) permit can be amended. However, it is important that the cumulative effect of amendments will not jeopardize any endangered species or other species of concern. Amendments must be evaluated based on their effect on the habitat as a whole. The Service must be consulted on all proposed amendments.

6.2 AMENDMENTS TO THE DEVELOPMENT PLANS

It is acknowledged that upon the written request of Tracy Leonard, the local agency having land use regulatory jurisdiction, is authorized in accordance with applicable law to approve amendments to development plans for the subject property which do not encroach on any endangered species habitat that is not presently contemplated to be taken as a consequence of the development, and which does not alter the conditions set forth in this HCP.

6.3 MINOR AMENDMENTS TO THE HCP

Minor amendments involve routine administrative revisions or changes to the operation and management program and do not diminish the level or means of mitigation. Such minor amendments do not alter the terms of the section 10(a)(1)(B) permit.

Upon the written request of Tracy Leonard, the U.S. Fish and Wildlife Service is authorized to approve minor amendments to this HCP, if the amendment does not conflict with the primary purpose of this HCP as stated in section 2.0.

6.4 ALL OTHER AMENDMENTS

All other amendments will be considered an amendment to the section 10(a)(1)(B) permit, subject to any other procedural requirements of federal law or regulation which may be applicable to amendment of such a permit.

7.0 REFERENCES

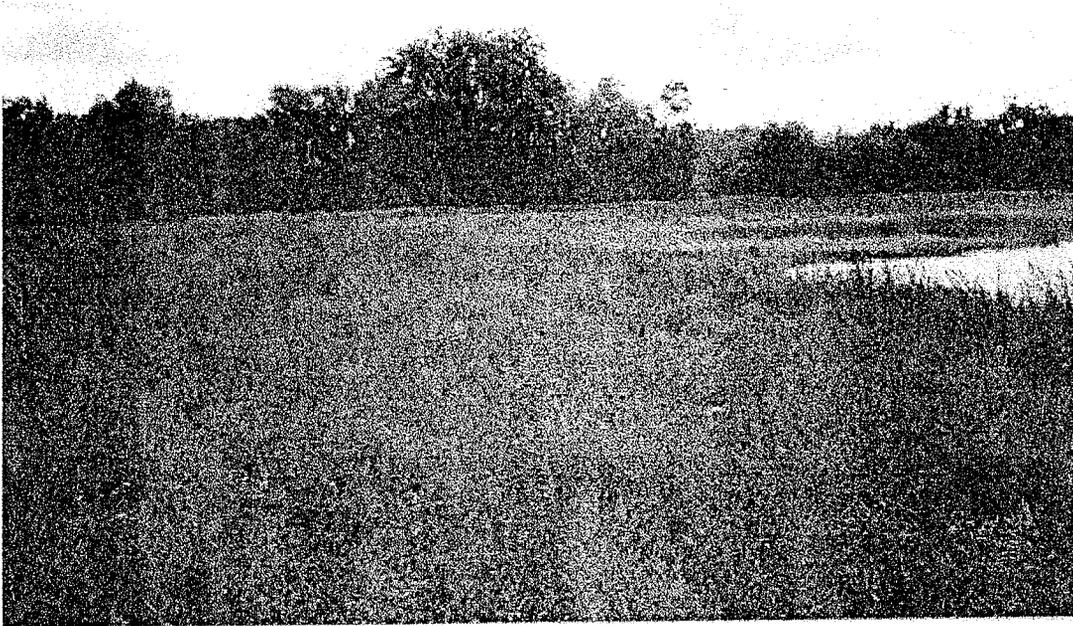
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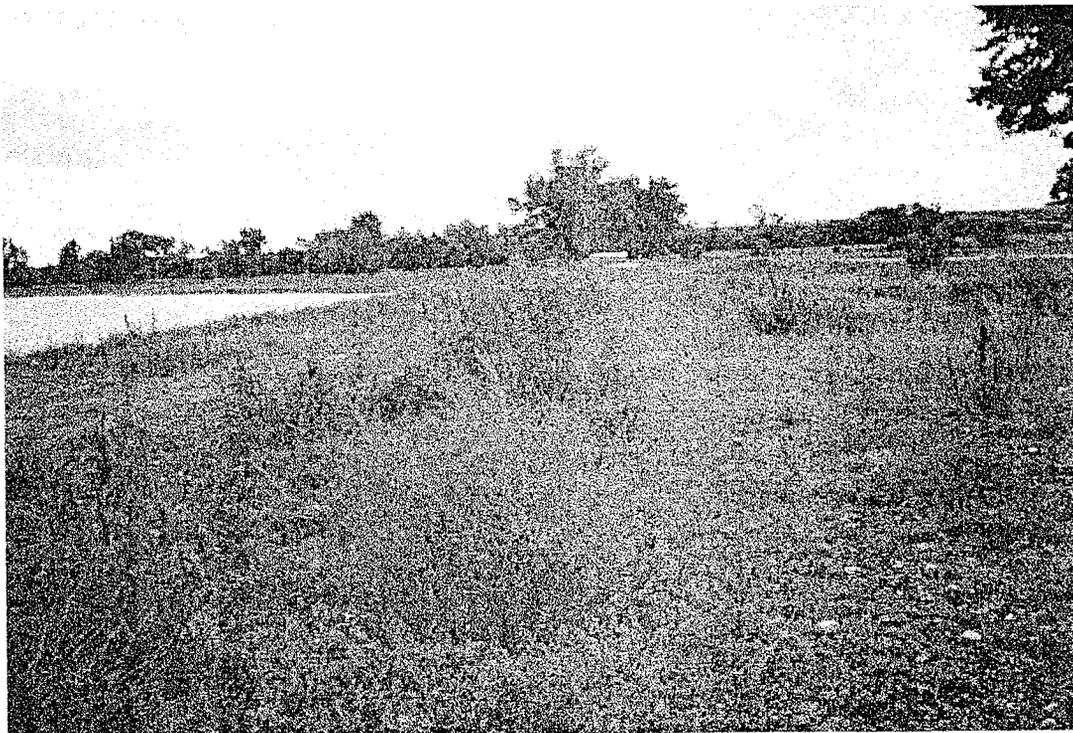
APPENDIX I

LEONARD PROPERTY PHOTOS

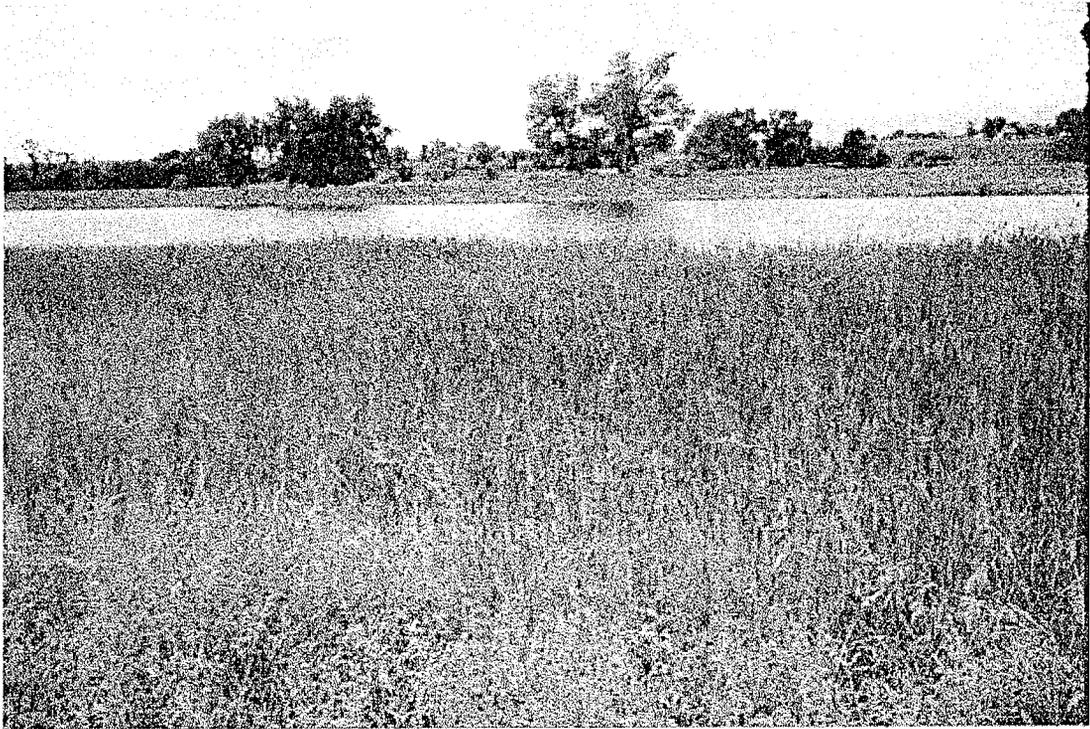
LEONARD ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN



Residential lot 1 - Leonard property



Residential lot 2 - Leonard property

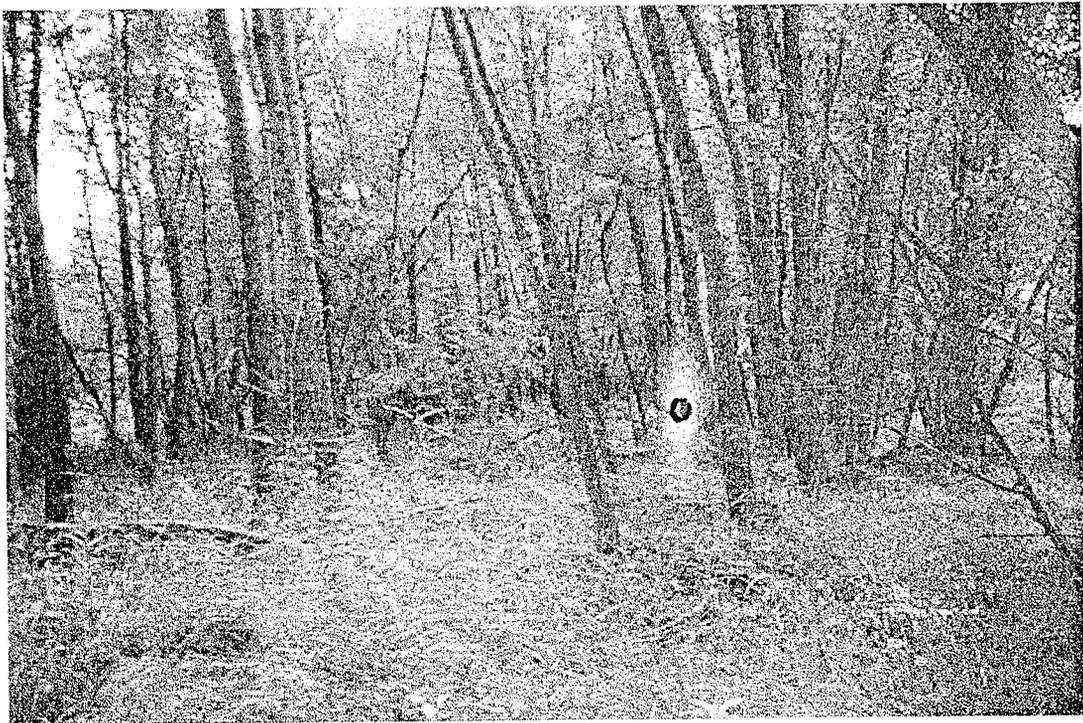


Wetland bench - Leonard property





St. Vrain riparian corridor - Leonard property





St. Vrain Creek - Leonard property



APPENDIX II

MINING AND RECLAMATION PERMIT

LEONARD ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN

STATE OF COLORADO

DIVISION OF MINERALS AND GEOLOGY
Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3567
FAX: (303) 832-8106



DEPARTMENT OF
NATURAL
RESOURCES

Roy Romer
Governor

James S. Lochhead
Executive Director

Michael B. Long
Division Director

February 18, 1997

Mr. Reggie Golden
Golden's Andesite Mining Co.
21 S. Sunset St.
Longmont, CO 80501

Re: Leonard Site, M-96-041, Permit Issuance - 112 Construction Material Operation

Dear Mr. Golden:

On February 14, 1997 the Division of Minerals and Geology found Golden's Andesite Mining Co to have satisfied the applicable requirements of C.R.S. 34-32.5-101 et seq. for obtaining a mining and reclamation permit. Therefore, a permit is being issued. Two signed originals of the permit have been executed. We have kept one copy for our files and are enclosing one copy for your use. It is your responsibility to comply with all of the terms of the permit.

1 All of the original application materials, as amended and supplemented, are an integral part of your permit. They have been incorporated into the permit by reference. We presume that you have a copy of all of these materials; therefore, none have been enclosed with this mailing. We suggest that you keep a copy of the permit and the permit application at the mining operation as a reference for operating personnel, to help ensure compliance with the terms of the permit.

2 Changes in the mining and reclamation operations that differ from those described in the permit may require a modification to the permit. We suggest consulting the Construction Materials Rules and Regulations and/or contacting us to determine if a revision to the permit is necessary. Rule 1.10 pertains to Amendments, Rule 1.9 to Technical Revisions, and Rule 1.11 to Conversions.

3 On your permit anniversary date each year, February 14, you must submit an annual fee and an annual report to us. The annual fee for this permit is \$550.00. Please consult the Act, Rules and Regulations, and your permit for specific annual report requirements applicable to your mine.

If you have any questions, please contact the Division.

Sincerely,

MICHAEL B. LONG
Division Director

MBL/AJW/BDC

Enclosure

cc: Barbara Brunk, Rocky Mountain Consultants Inc.

STATE OF COLORADO

DIVISION OF MINERALS AND GEOLOGY
Department of Natural Resources

1313 Sherman St., Room 215
Denver, Colorado 80203
Phone: (303) 866-3507
FAX: (303) 832-8106



DEPARTMENT OF
NATURAL
RESOURCES

Roy Romer
Governor

James S. Lochhead
Executive Director

Michael B. Long
Division Director

MINING AND RECLAMATION PERMIT CONSTRUCTION MATERIAL MINING OPERATIONS

Permit Number: M-96-041
Type of Permit: 112

Permit Date: February 14, 1997
(Anniversary date for
annual report and fees
purposes)

THIS PERMIT is issued by the Mined Land Reclamation Board, Department of Natural Resources, State of Colorado.

RECITALS

A. The Permittee, Golden's Andesite Mining Co. desires to conduct a mining operation known as Leonard Site, for the purpose of extracting sand and gravel. The Permittee will not mine any secondary commodities at this site.

B. On November 13, 1996 the Mined Land Reclamation Board (the "Board") approved the Permittee's application for this permit, fixed the amount of the financial warranty and directed that this permit be issued upon the filing with the Division of Minerals and Geology (the "Division") of performance warranty and financial warranty (or warranties) in the amount so fixed in form and substance approved by the Division. Said warranties have been filed with the Division.

C. If the Permittee desires to extract materials other than those listed in (A), a separate permit may be required.

D. On November 13, 1996 the Board made the following findings:

1. The application for this permit complies with the requirements of the Colorado Mined Land Reclamation Act, C.R.S. 34-32.5-101 et seq, as amended, and with all applicable local, state and federal laws;

2. The operation will not adversely affect the stability of any significant, valuable, and permanent man-made structure located within two hundred feet of the Affected

Land, except where there is an agreement between the Operator and the persons having an interest in the structure that damage to the structure is to be compensated for by the Permittee; and;

3. The proposed mining and reclamation operations can be carried out in conformance with the requirements of the Act, and the Construction Material Rules and Regulations.

E. The Permittee has made a showing satisfactory to the Board: 1) that it will employ, during and after its underground mining and/or surface operations, procedures designed to minimize environmental disturbance from such operation; 2) that it will provide for reclamation of the Affected Lands appropriate to the subsequent beneficial use of such lands, and 3) that, in the event of the failure of its proposed reclamation plan, it will take whatever measures may be necessary to assure the success of reclamation of the lands affected by such operations in accordance with the Act.

F. A copy of the Permittee's application, as amended and supplemented, has been approved by the Board and is, by this reference, incorporated herein.

G. The issuance of this permit does not relieve you from having to comply with all applicable Federal, State and County statutes, including State water law.

GRANTS, CONDITIONS AND AGREEMENTS

The Board, in reliance upon the representations and promises made in the permit application, as amended and supplemented, and the performance warranty, hereby issues a life of the mine permit to the Permittee, to engage in the operations described in the application on certain lands lying in the County of Boulder, State of Colorado. These lands are described in the permit application, as amended and supplemented, and are referred to herein as the "Affected Lands".

This permit is issued subject to the following conditions and agreements:

1) The Permittee will be bound by all applicable requirements of the Act, and all applicable rules and regulations of the Board, as amended from time to time, the terms of the permit application, the terms of the performance warranty, and the terms of the financial warranty filed with the Division.

2) The Permittee will file with the Division its annual report and fees on each anniversary date of this permit.

3) If analyses of the mining and reclamation operation and the data collected through monitoring and experimentation by the Permittee or monitoring by the Division indicate that the operation will not be able to comply with the requirements of the Act and applicable rules and regulations of the Board, the Permittee hereby agrees to exercise its best efforts, after consulting

with the Division, to modify the plans to correct such deficiencies in the future. Such modifications may require technical revisions or amendments to the permit.

4) The Board, or its authorized representative may enter upon the lands of the permitted operation at all reasonable times for the purpose of inspection to determine whether the provisions of the Act, Rules and Regulations, and permit have been complied with pursuant to C.R.S. 34-32.5-121.

5) This permit may be revoked or suspended for non-compliance with the Act or applicable rules or regulations promulgated by the Board, the permit, or by violation of a Board Order.

6) a) Pursuant to 34-32.5-118(5) of the Act, the Board has a right of entry to reclaim the lands affected by the operation, or to respond to an emergency as defined by C.R.S. 34-32.5-121(2)

b) The Board will enter the lands to perform reclamation only if the Board has determined:

i. that reclamation required by law to have been performed upon such lands has not been performed, and

ii. that financial warranty forfeiture proceedings described in the Act or similar provisions of subsequent laws, if any, have been initiated.

c) The Division, acting for the Board, will enter lands to respond to an emergency only where the Division determines that any of the conditions of Construction Material Rule 8.4.2. exist.

7) The additional conditions set forth in the attached rider, if any, are incorporated herein by reference.

a) Rider is attached.

b) No rider is attached.

MINED LAND RECLAMATION BOARD
COLORADO DEPARTMENT OF NATURAL RESOURCES


MICHAEL B. LONG
Division Director

RIDER TO MINING PERMIT

Permit Date: February 14, 1997

Permit No: M-96-041

The following additional stipulations and conditions form an integral part of the foregoing permit:

Stipulation No. 1

Description

1. If groundwater is exposed while mining, the operator must first: a) Obtain, and forward to this Office, the required well permit from the State Engineer's Office which addresses evaporative loss and the substitute supply and replacement plan; or b) Submit a financial warranty to the Division of Minerals and Geology commensurate with the cost to backfill the pit so that no groundwater is exposed upon completion of final reclamation, along with an amendment to the permit detailing the revised reclamation plan. The amount of financial warranty required if part b of this stipulation is implemented is \$1,911,700.00.

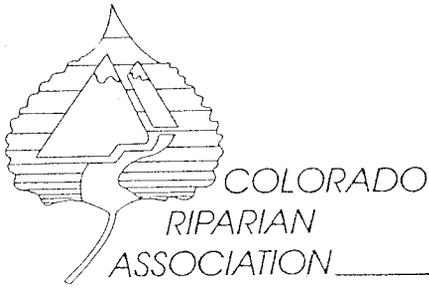
MINED LAND RECLAMATION BOARD
COLORADO DEPARTMENT OF NATURAL RESOURCES


MICHAEL B. LONG
Division Director

APPENDIX III

COLORADO RIPARIAN ASSOCIATION AWARD

LEONARD ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN



Working to keep the green line green"

Tracy Leonard
Crane Hollow Farm
11666 Crane Hollow Road
PO Box 190
Hygiene, CO 80533

September 22, 1999

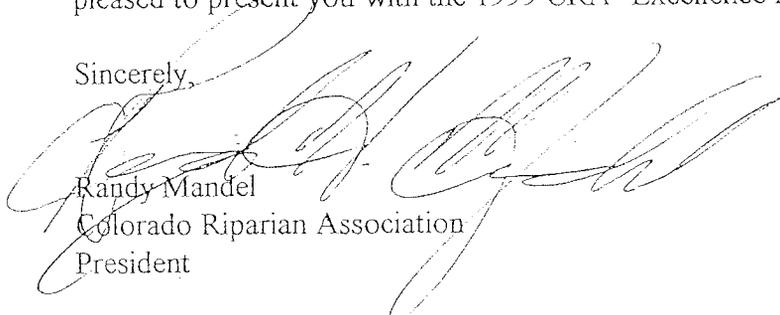
Dear Tracy and Lana:

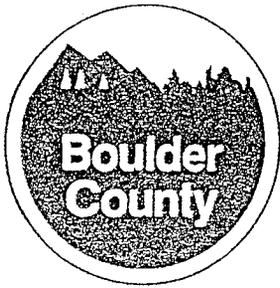
As a private landowner along Saint Vrain Creek, you have demonstrated commendable stewardship of riparian and wetland resources on your 35 acre farm in Boulder County, Colorado. Over the past 20 years, you have protected the riparian corridor from degradation by preventing channel dredging, overgrazing, channelization and other such activities. As a result, St Vrain Creek through your property is in excellent condition and provides homes for a variety of fish and wildlife species, including threatened species such as the Preble's meadow jumping mouse.

Tracy, you and Lana have acted as good stewards of the St Vrain for many years. The measures you have taken recently to protect the Saint Vrain are especially noteworthy. This year, you entered into a conservation easement with Boulder County Open Space for the protection of 21.5 acres of the St. Vrain Creek Corridor into perpetuity. During recent gravel mining operations, the St. Vrain was protected by conducting those operations outside of the riparian corridor and utilizing a number of techniques to protect riparian values and wildlife habitat. For example, mining was allowed only during the mouse hibernation period. Existing mature cottonwood trees were protected through watering during the mining operation to prevent the loss of ground water. As part of the design for the new pond created during the gravel mining operations, you created 3.1 acres of new wetlands strategically placed between the pond and the riparian corridor. This wetland which is already providing habitat for waterfowl, will be planted with a number of riparian species including cottonwood, willow, plum and chokecherry. In addition, you are managing livestock grazing with fencing to protect the wetlands and riparian zone.

For your dedicated and ongoing efforts along the St. Vrain, the Colorado Riparian Association is pleased to present you with the 1999 CRA "Excellence in Riparian Management" award.

Sincerely,


Randy Mandel
Colorado Riparian Association
President



Board of County Commissioners

13th & Pearl Streets • Boulder County Courthouse • Boulder, Colorado 80302 • (303) 441-3500

September 30, 1999

Randy Mandel
President
Colorado Riparian Association

Dear Mr. Mandel:

It is with great pleasure that we support the nomination of Tracy and Lana Leonard and Crane Hollow Farm for the 1999 CRA "Excellence in Riparian Management" award.

The St. Vrain Creek runs through the Leonard property and as private landowners, Tracy and Lana have shown great efforts to protect this riparian corridor by preventing channel dredging, overgrazing, channelization and other activities. The waterway through this 35-acre property is in excellent condition and supports a variety of fish and wildlife, including the Preble's Meadow Jumping Mouse, a threatened species.

As stewards of this property, the Leonards have taken great measures to protect the creek. They entered into a conservation easement with Boulder County Parks and Open Space to protect 21.5 acres of the St. Vrain Creek Corridor. Recent gravel mining operations were performed outside the riparian corridor and techniques were utilized to protect riparian values and wildlife habitat. 3.1 acres of wetlands were created and strategically placed between the pond and riparian corridor and they continue to foster the wetlands and intend to plant cottonwood, willow, plum and chokecherry to enhance the habitat. Livestock grazing is managed with fences to protect the wetlands and riparian zone.

For their many efforts, they are deserving recipients of the "Excellence in Riparian Management" award.

Sincerely,

Ron Stewart, Chair
Boulder County Commissioners

Jana Mendez, Vice Chair
Boulder County Commissioners

Paul D. Danish
Boulder County Commissioner

APPENDIX IV

COLORADO DIVISION OF WILDLIFE COUSIN'S LETTER

LEONARD ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN

STATE OF COLORADO
Bill Owens, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE

AN EQUAL OPPORTUNITY EMPLOYER

John W. Mumma, Director
8080 Broadway
Denver, Colorado 80218
Telephone: (303) 297-1192



*For Wildlife-
For People*

July 16, 1999

Chris Toebe, Staff Planner
Boulder County Land Use Department
2045 13th Street
Boulder, CO 80302

Chris Toebe,

This letter is in regard to the Leonard NUPUD, SD-970-03, located on Crane Hollow Road near Hygiene. I have reviewed the outlot management plan and visited the property. I also visited with Mr. Leonard concerning the future plans for their property. The property has come a long ways since the plan was first proposed. At that time the property was mostly covered with knapweed which provided very little, if any, wildlife habitat. The property now includes a lake with banks already showing vegetation including cattails. The cattails indicate that the bank slope is gradual enough that ducks and other water birds may be able to use the lake for brood habitat. The building envelopes have been kept away from the riparian areas on the property, which is beneficial for the wildlife species present. There is a wide variety of wildlife using the property including numerous bird species; small and medium sized mammals, and even large mammals such as white-tailed deer. It is obvious that wildlife was taken into consideration during the planning and development of this property. The outlot management plan looks very good.

Thank you for the opportunity to comment,

A handwritten signature in black ink, appearing to read "Mark A. Cousins".

Mark A. Cousins, District Wildlife Manager, Longmont West

APPENDIX V

COLORADO DIVISION OF WILDLIFE WEBER LETTER

LEONARD ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN

STATE OF COLORADO
Roy Romer, Governor
DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WILDLIFE
AN EQUAL OPPORTUNITY EMPLOYER

John W. Mumma, Director
6060 Broadway
Denver, Colorado 80216
Telephone: (303) 297-1192

RECEIVED

AUG 23 1996

HMC

REFER TO



For Wildlife -
For People

August 21, 1996

Jeff Moline
Boulder County Parks & Open Space
P. O. Box 471
Boulder, CO 80306

RE: Golden's Andesite Mining Company - Leonard Special Use

Dear Jeff:

I am following up on our field visit to this site for the purpose of summarizing my observations regarding the necessity of trapping for Preble's meadow jumping mice in the mining vicinity.

We do not suggest that trapping to determine the presence/absence of the mouse in this area is necessary for the following reasons:

- the proposed mine sites are either heavily grazed (south site), or overrun with noxious weeds (north site). In neither case does the habitat present appear to be conducive to use by the mice;
- the south site has been regularly flood irrigated, which would further serve to discourage mouse use of the area, and;
- intensive trapping in more promising habitat has already occurred just 50 yards away and was unsuccessful in finding the mouse.

We would suggest the following conditions to mitigate any possible impacts if the mouse was present in the vicinity:

South Site:

- begin excavation along the eastern edge during the period when the mice would be hibernating (November 1 through March 30).
- exclude livestock grazing in the narrow zone east of the pit between the excavation and the tall grass area.

- place the proposed vegetated "shelf" planned for one side of the new lake on the east side of the lake rather than the west side as planned. This would group the better habitats together to make a larger unit of high quality vegetation. Note: this one is not a mouse mitigation suggestion, rather a general habitat suggestion.

North Site:

- do the excavation during the hibernation period as is currently planned.
- revegetate the pond margins with appropriate native grasses/sedges/rushes.

I believe that all these mitigation ideas were discussed in the field and should not present a great hardship to the mining operation.

I hope this information is helpful. Please let me know if you have any questions.

Sincerely,



Dave Weber
Habitat Biologist

cc: Peter Plage, USFWS
Mark Cousins, DWM
Barb Brunk, Rocky Mountain Consultants

APPENDIX VI

CONSERVATION AGREEMENT

LEONARD ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN

DEED OF CONSERVATION EASEMENT

This Deed of Conservation Easement is granted by Tracy A. Leonard and Lana Leonard, as joint tenants ("Grantor") on the 20th day of August, 1999, to the County of Boulder ("Grantee"), a body corporate and politic ("County").

WHEREAS, Grantor is the owner of Outlot A and Outlot B (collectively, the "Property") as more particularly described on the Final Plat for Leonard N.U.P.U.D., which is located in the NE1/4 of Section 35, Township 3N, Range 70W of the 6th P.M., in the County of Boulder, State of Colorado, recorded in the public records of Boulder County at Reception No. _____ (the "Final Plat"); and

WHEREAS, Grantee is a governmental entity as required under §§38-30.5-104 (2), Colorado Revised Statutes (C.R.S.); and

WHEREAS, Grantor has received the County's approval of the Final Plat as a Nonurban Planned Unit Development, and has been allowed greater density and flexibility in development in consideration of Grantor's agreement to preserve the Property as set forth in; and

WHEREAS, the Property possesses agricultural, open space, scenic, riparian, and wildlife habitat values (collectively, the "Conservation Values") of great importance to Grantor, Grantee, the people of Boulder County, Colorado, and the people of the State of Colorado. Specifically, the Property contains (i) environmental values designated in the Environmental Resources Element of the Boulder County Comprehensive Plan, (ii) riparian habitat along the St. Vrain River, (iii) several ponds, (iv) a wetland bench, (v) pasture land, (vi) scenic view corridors from the Crane Hollow Road to the St. Vrain River and unimpeded views to the west of the Property to Longs Peak. The Property is habitat to many different wildlife species including deer, elk, mountain lion, bear, fox, eagles, hawks, owls, ducks, geese, and blue herons. Blue herons have established heron rookeries on the Property from time to time. In addition, the section of the St. Vrain River that runs through the property adjacent to the Property has never been dredged and is habitat for a rare species of fish known as the "Stone Roller;" and

WHEREAS, C.R.S. §§33-1-101, *et seq.*, provides in relevant part that "it is the declared policy of the State of Colorado that the wildlife and their environment are to be protected, preserved, enhanced, and managed for the use, benefit, and enjoyment of the people of this state and its visitors." Additionally, C.R.S. §§35-1-101, *et seq.*, provides in relevant part that "it is the declared policy of the State of Colorado to conserve, protect, and encourage the development and improvement of agricultural land for the production of feed and other agricultural products." C.R.S. §§38-30.5-101, *et seq.*, provides for the establishment of conservation easements to maintain land "in a natural, scenic, or open condition, or for wildlife habitat, or for agricultural ... or other use or condition consistent with the protection of open land having wholesome environmental quality or life-sustaining ecological diversity;" and

WHEREAS, the Conservation Values and the characteristics, current use, and status of improvements on, and the development of the Property on the date of this Deed are further documented in (i) the Development Report prepared by Tracy A. Leonard on March 3, 1999, and which shall hereafter be located in the official Boulder County Land Use Department records (the "Development Report"), and (ii) the Leonard N.U.P.U.D. dated August 20, 1999, and which shall hereafter be located in the official Boulder County Land Use Department Records, and all other documents referenced therein (collectively, the "Leonard N.U.P.U.D."). The Development Report and the Leonard N.U.P.U.D. may hereafter be collectively referred to as the "Reports." The Reports are hereby acknowledged as accurate by Grantor and Grantee. The Reports will be used by Grantee to assure that any future changes in the use of the Property will be consistent with the terms of this Deed. However, the Reports are not intended to preclude the use of other evidence to establish the present condition of the Property if there is a controversy over its use; and

WHEREAS, Grantor intends to convey this Deed of Conservation Easement to Grantee for the exclusive purpose of assuring that the Conservation Values of the Property will be conserved and maintained forever, and that uses of the Property that are inconsistent with the Conservation Values will be prevented or corrected. The parties agree, however, that the current use of, and improvements to, the Property are consistent with the Conservation Values.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein, Grantor voluntarily grants and conveys to Grantee, and Grantee voluntarily accepts, a perpetual Conservation Easement in gross, an immediately vested interest in real property defined by C.R.S. §§38-30.5-101, et seq., and of the nature and character described in this Deed, for the purpose of conserving and forever maintaining the Conservation Values of the Property.

1. *Purpose.* The purpose of this Conservation Easement is to preserve and protect in perpetuity the Conservation Values of the Property. It is also the purpose of this Conservation Easement to permit other uses of the Property, which uses are expressly described herein, that are consistent with the foregoing goals.

2. *Rights of Grantee.* To accomplish the purpose of this Deed the following rights are hereby conveyed to Grantee:

A. To preserve and protect the Conservation Values of the Property;

B. To enter upon the Property at reasonable times in order to monitor Grantor's compliance with and otherwise enforce the terms of this Deed; provided that, except in cases where Grantee determines that immediate entry is required to prevent, terminate, or mitigate a violation of this Deed, such entry shall be upon prior reasonable notice to Grantor, and Grantee shall not unreasonably interfere with Grantor's use and quiet enjoyment of the Property; and

C. To prevent any activity on or use of the Property that is inconsistent with the purpose of this Deed and to require the restoration of such areas or features of the Property that may be damaged by an inconsistent activity or use.

3. *Prohibited Acts.* Any activity on or use of the Property inconsistent with the purpose of this Deed is expressly prohibited. Without limiting the generality of any of the foregoing, Grantor and Grantee hereby acknowledge and agree:

A. *Construction of Buildings and Other Structures.* The construction of any buildings or other structures, signs or billboards, except the dock/deck connections from the homes to the Pond in Outlot B, and a loafing shed, as specified on the Final Plat.

B. *Roads.* No portion of the Property shall be paved or otherwise be covered with concrete, asphalt, or any other paving material.

C. *Subdivision.* Grantor shall not divide either Outlot A or Outlot B into two or more parcels, separate interests or interests in common, unless such division is one which is excluded from the statutory definition of "subdivision" by C.R.S. 30-28-101(10)(c)(VII), or is exempted under C.R.S. 30-28-101(10)(d).

D. *Mining.* The commercial mining or extraction of soil, sand, gravel, rock, oil, natural gas, fuel, or any other mineral substance is prohibited.

E. *Water Rights.* In order to maintain the Conservation Values of the Property, Grantor shall retain, reserve, and preserve the right to use 2 acre feet of water per year (the "Reserved Water") from the Webster-McCaslin ditch for each acre of the Property identified as "Agricultural Zone" in the Outlot Management Plan (approximately 11 acres), which Outlot Management Plan was approved as part of the Leonard N.U.P.U.D. and is a subpart of the Reports (the "Outlot Management Plan"), subject to the physical and legal availability of water at the headgate of the Webster-McCaslin ditch. The Reserved Water shall not be transferred, encumbered, leased, sold or otherwise separated from the title to the Property.

F. *Industrial Activity.* No industrial uses shall be allowed on the Property.

G. *Hazardous Materials.* The storage, dumping or the disposal of toxic and/or hazardous materials on the Property is prohibited. For the purpose of this paragraph, hazardous or toxic substances shall mean any hazardous or toxic substance which is regulated under any federal, state, or local law.

4. *Management Practices.* The Property shall be managed in accordance with the Outlot Management Plan.

5. *Rights Retained by Grantor.* Grantor retains the right to perform any act not specifically prohibited or limited by this Deed. These ownership rights include, but are not limited to, the right to exclude any member of the public from trespassing on the Property, and the right to sell or otherwise transfer the Property to anyone Grantor chooses.

6. *Responsibilities of Grantor and Grantee Not Affected.* Other than as specified herein, this Deed is not intended to impose any legal or other responsibility on Grantee, or in any way to affect any existing obligations of Grantor as owner of the Property. Additionally, unless otherwise specified below, nothing in this Deed shall require Grantor to take any action to restore the condition of the Property after any Act of God or other event over which Grantor had no control. Grantor understands that nothing in this Deed relieves Grantor of any obligation or restriction on the use of the Property imposed by law. Among other things, this shall apply to:

A. *Taxes.* Grantor shall continue to be solely responsible for payment of all taxes and assessments levied against the Property. If for any reason Grantor fails to pay any taxes, assessments or similar requisite charges, Grantee may pay such taxes, assessments or similar charges, and may bring an action against Grantor to recover all such taxes, assessments and similar charges.

B. *Upkeep and Maintenance.* Grantor shall continue to be solely responsible for the upkeep and maintenance of the Property, to the extent it may be required by law. Grantee shall have no obligation for the upkeep or maintenance of the property.

7. *Access and Enforcement.* Grantee shall have the right to prevent and correct or require correction of violations of the terms and purposes of this Deed. With reasonable advance notice to Grantor, Grantee may enter the Property for the purpose of inspecting for violations. If Grantee finds what it believes is a violation, Grantee shall notify Grantor in writing of the nature of the alleged violation. Upon receipt of this written notice, Grantor shall either (a) restore the Property to its condition prior to the violation or (b) provide a written explanation to Grantee of the reason why the alleged violation should be permitted. If the condition described in clause (b) above occurs, both parties agree to meet as soon as possible to resolve this difference. If a resolution of this difference cannot be achieved at the meeting, both parties shall be entitled to any remedy available at law or equity.

8. *Public Access.* Nothing herein contained shall be construed as affording the public access to any portion of the Property, although the Grantor may permit public access to the Property on such terms and conditions as it deems appropriate, provided that such access is consistent with the terms of this Deed.

9. *Transfer of Easement.* Upon the prior written consent of Grantor, which consent shall not be unreasonably withheld, Grantee shall have the right to transfer the easement created by this Deed to any public agency or private non-profit organization that, at the time of transfer, is a "qualified organization" under § 170(h) of the U.S. Internal Revenue Code, and under C.R.S. §§38--30.5-101, *et seq.*, and only if the agency or the organization expressly agrees to assume the responsibility imposed on Grantee by this Deed. If Grantee ever ceases to exist or no longer qualifies under federal or state law, a court with jurisdiction shall transfer this easement to another qualified organization having similar purposes that is designated by the then owner of the Property and that agrees to assume the responsibility.

10. *Transfer of Property.* Either Outlot A or Outlot B, or both, may be transferred by Grantor to any third party at any time; provided however, that the documents of conveyance shall expressly refer to this Deed of Conservation Easement. Grantor's failure to comply with this requirement will not invalidate the conveyance.

11. *Perpetual Duration.* The easement created by this Deed shall be a servitude running with the land in perpetuity. The easement created by this Deed shall not be terminated under any circumstances, including but not limited to a subsequent unexpected change in the conditions surrounding the Property that make the continued use of the Property for the conservation purposes impractical or impossible, or the fact that prohibited uses hereunder are quite valuable. Every provision of this Deed that applies to Grantor or Grantee shall also apply to their respective agents, heirs, executors, administrators, assigns, and all other successors as their interests may appear; provided, however, that either party's rights and obligations under this Deed shall terminate (as to such party, but not as to such party's successor, who shall be bound as provided herein) upon a transfer of such party's entire interest in this Deed or the Property, except that liability of such transferring party for any acts or omissions occurring prior to such transfer shall survive the transfer.

12. *Notices.* Any notices required by this Deed shall be in writing and shall be personally delivered to or sent by certified mail, return receipt requested, to Grantor and Grantee respectively at the following addresses, unless a party has been notified by the other of a change of address:

Grantor: Tracy A. and Lana Leonard
P.O. Box 190
Hygiene, Colorado 80533

Grantee: Board of County Commissioners for Boulder County
P.O. Box 471
Boulder, Colorado 80306

With a Copy to: Boulder County Land Use Department
P.O. Box 471
Boulder, Colorado 80306

13. *Acceptance.* Grantee hereby accepts without reservation the rights and responsibilities conveyed by this Deed of Conservation Easement.

14. *General Provisions:*

A. *Severability.* If any provision of this Deed, or the application thereof to any person or circumstance, is found to be invalid, the remainder of the provisions of this Deed, or the application of such provision to persons or circumstances other than those as to which it is found to be invalid, as the case may be, shall not be affected thereby.

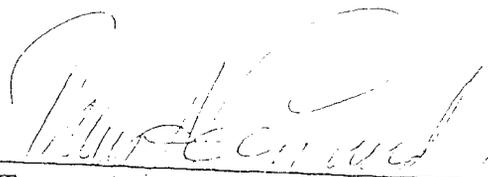
B. *Captions.* The captions in this instrument have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon construction or interpretation.

C. *Interpretation.* This Deed shall be interpreted under the laws of Colorado, resolving any ambiguities and questions of the validity of specific provisions so as to give effect to its intended conservation purposes.

D. *Counterparts.* The parties may execute this instrument in two or more counterparts which shall, in the aggregate, be signed by all parties; each counterpart shall be deemed an original instrument as against any party who has signed it; all counterparts, when taken together, shall constitute this instrument.

E. *Amendment.* If the circumstances arise under which an amendment to or modification of this easement would be appropriate, Grantor and Grantee are free to jointly amend this easement without a public hearing; provided that no amendment shall be allowed that would either (i) affect the qualifications of this easement under any applicable laws, (ii) affect the status of the Grantee pursuant to C.R.S. §§ 38-30.5-101, *et seq.*, (iii) amount to a substantial modification of the terms and conditions of the Leonard N.U.P.U.D., (iv) affect the easement's perpetual duration, or (v) be inconsistent with the Conservation Values. Any amendment must be in writing, signed by both parties, and recorded in the real property records of Boulder County, Colorado.

IN WITNESS WHEREOF, Grantor has caused its name to be hereunto subscribed the day and year first above written.



Tracy A. Leonard



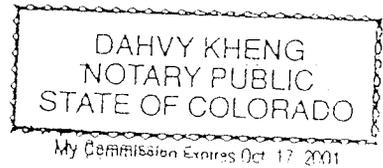
Lana Leonard

STATE OF COLORADO)
) ss.
COUNTY OF BOULDER)

The foregoing instrument was acknowledged before me this 27th day of August, 1997 by Tracy A. and Lana Leonard, as joint tenants.

Witness my hand and official seal.

My commission expires: Oct 17, 2001



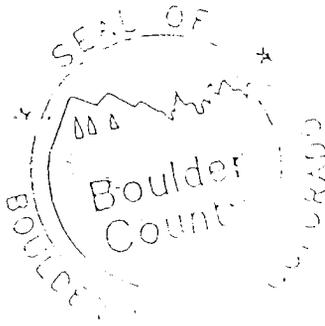
Dahvy Kheng
Notary Public

IN WITNESS AND ACCEPTANCE WHEREOF, the County of Boulder has caused its name to be hereunto subscribed this 27 day of _____, 1999.

Richard A. Stewart
Chair, Board of County Commissioners of the County of Boulder, Colorado

ATTEST:

[Signature]
Clerk to the Board



APPENDIX VII

REVEGETATION PLAN

LEONARD ENVIRONMENTAL ASSESSMENT/
HABITAT CONSERVATION PLAN

LEONARD RECLAMATION PLAN

Goals and Objectives

The reclamation plan for the Leonard mine shall be consistent with the following Golden's Master Plan reclamation goals and objectives:

Environmental Goals

- ◆ Create and preserve a diversity of plant communities and wildlife habitats

The post mining use of this property will include two new ponds with shoreline wetland plant communities, irrigated pasture, non irrigated grassland areas, the existing pond and residential improvements and preservation of the riparian corridor adjacent to St. Vrain Creek. The revegetation plan for the mined areas includes upland grasses and shoreline riparian vegetation.

- ◆ Create and enhance diverse, functional wetland communities

Shoreline roughening (scarification) in mid-May or June on portions of the ponds will create habitat for native vegetation. The shoreline vegetation will consist primarily of the willow/cottonwood community typically associated with the St. Vrain corridor in this area. These shoreline wetland benches will function as additional wildlife habitat on this property.

Community Goals

- ◆ Provide a diversity of post-mining land uses

Post mining land use will include residential improvements, recreational and agricultural uses associated with the ponds, enhanced wildlife habitat and irrigated pasture.

- ◆ Minimize the area of impact and length of mining phase

Mining and reclamation of this property will be completed within 18 months.

- ◆ Establish mining and reclamation phasing and scheduling prior to permitting

If Golden's can begin mining at this site no later than December 1996, they anticipate that mining and grading for reclamation at the Leonard property can be completed by December 1997.

REPLACE TOP SOIL,
MAX. 4:1 SLOPE
TO MEET GRADE AT TOP
OF DIKE. DRYLAND SEED.

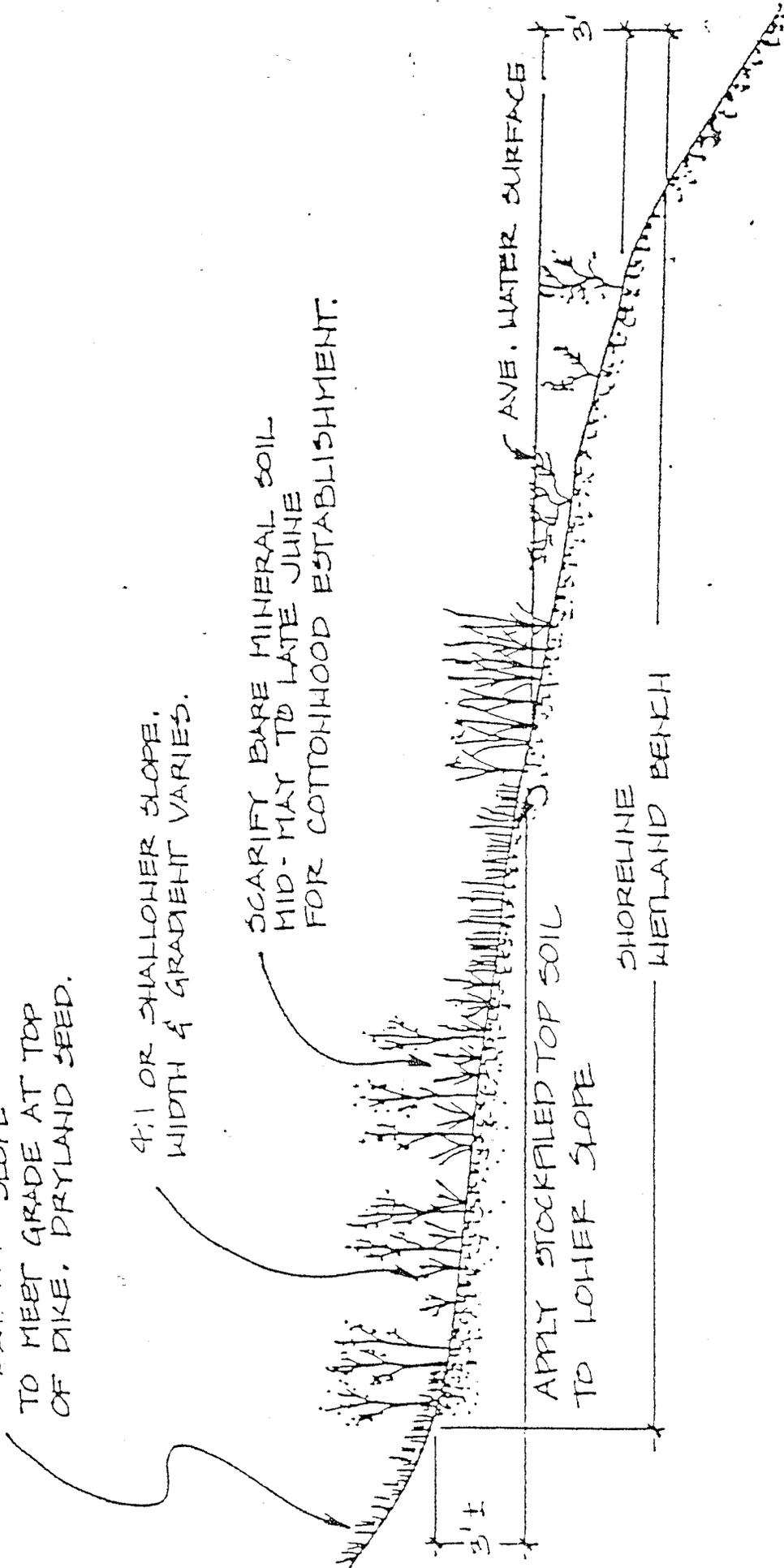
4:1 OR SHALLOWER SLOPE.
WIDTH & GRADIENT VARIES.

SCARIFY BARE MINERAL SOIL
MID-MAY TO LATE JUNE
FOR COTTONHOOD ESTABLISHMENT.

APPLY STOCKPILED TOP SOIL
TO LOWER SLOPE

SHORELINE
WETLAND BENCH

AVE. WATER SURFACE



Open Lake Reclamation Wetland / Riparian Regeneration

Implementation

The proposed mining and reclamation plans focus on minimizing the ecological impacts of mining, minimizing the length of time of impact, and maximizing long-term benefits. Reclamation techniques have been used which not only restore pre-mining conditions, but also revitalize the system.

Golden's developed the reclamation plan in conjunction with the landowners, based on the depth and configuration of the gravel resource and the landowners' plans for the property. The Applicant is proposing two ponds as part of final reclamation:

- ◆ a pond north of the St. Vrain River that is about 0.9 surface acres in size; currently, this area is poor quality pasture and the adjacent landowner to the north has requested a pond in this area;
- ◆ a pond south of the St. Vrain River that is approximately 6.9 surface acres. Golden's chose a pond as final reclamation for this area because landowners want to have a large pond in their backyard. Both ponds will provide wildlife habitat. In addition, the south pond will be available for private recreation, including canoeing, swimming and fishing.

Grading

Final grading will create a topography that is appropriate for the final land use. For example, final grading will replace topsoil at a maximum 4:1 slope to meet the grade at the top of the dike. Topsoil will be replaced on all slopes above the high water line. Bare mineral soil along the shoreline wetland bench (below the high water line) will be scarified in mid-May to late June to allow for Cottonwood and other wetland vegetation establishment.

All grading shall be done in a manner that controls erosion and siltation of the affected lands, to protect areas outside the affected land from slides and other damage. In addition, all backfilling and grading shall be completed as soon as feasible after the mining process.

Topsoil

Topsoil shall be removed and segregated from other soil. For reclamation, topsoil will be replaced by a scraper and generally graded with a blade. It will be replaced at a minimum of 6 inches depth.

Mulching

Material for mulching shall consist of hay off of the adjacent meadow or straw, oats, wheat, barley, or rye, and shall be free of noxious weed seeds. At least 50% of the mulch by weight shall be uniform in length.

Mulch will be applied to seeded areas. All newly seeded areas shall receive a uniform layer of mulch applied at the rate of 2 tons per acre, crimped with a crimper or other approved methods.

Fertilization

Fertilization will be determined at final reclamation, based on a soils test performed by Colorado State University in conjunction with the Soil Conservation Service.

Revegetation

In those areas where revegetation is part of the reclamation plan, Golden's will revegetate the land in such a way as to establish a diverse, effective, and long-lasting vegetative cover that is capable of self-regeneration without continued dependence on irrigation or fertilizer and is at least equal in extent of cover to the natural vegetation of the surrounding area.

The revegetation plans for this site include replacement of topsoil, seeding of all disturbed areas, grading and placement of backfill along portions of the shoreline to encourage the establishment of wetland vegetation, and installation of native and adapted trees and shrubs to enhance the wildlife habitat by providing food and cover for resident and migrating wildlife.

Dryland will be seeded with a mixture of native and introduced species that are approved by the MLRD. Final selection and placement of trees and shrubs will be determined in cooperation with the landowner, upon completion of the mining. However, all trees and shrubs will be planted in accordance with MLRD requirements. The land will be reclaimed in a manner that could reasonably be expected to prevent erosion or other deterioration. A bond will be posted with the MLRD to ensure proper reclamation of the site.

Timing

If Golden's can begin mining at the Leonard site no later than December 1996, they anticipate that mining and grading for reclamation at the Leonard property can be completed by December 1997. This would allow final planting and seeding to occur in the spring of 1998.

Seed Schedule

Scientific Name	Common Name	Variety	Pounds PLS/Acre
GRASSES			
<i>Agropyron smithii</i>	Western Wheatgrass	Arriba	6.00
<i>Agropyron smithii</i>	Western Wheatgrass	Barton	2.00
<i>Agropyron smithii</i>	Western Wheatgrass	Rosanne	2.00
<i>Boutelona gracillis</i>	Blue Grama	Lovington	1.00
<i>Buchloe dactyloides</i>	Buffalograss	Sharps Improved	0.50
<i>Festuca pratensis</i>	Meadow Fescue		1.00
<i>Poa compressa</i>	Canada Bluegrass	Rubens	0.50
<i>Sporobolus cryptandrus</i>	Sand Drop Seed		
FORBS			
<i>Achillea millefolium</i>	Yarrow		0.10
<i>Gaillardia aristata</i>	Blanketflower		0.20
<i>Linum lewisii</i>	Blue Flax		0.20

Plant Materials

The following is list of plant materials that may be utilized in the reclamation of the property.

Common Name	Botanical Name
Evergreen Trees	
Eastern Red Cedar	Juniperus virginiana
Rocky Mountain Juniper	Juniperus scopulorum
Oneseed Juniper	Juniperus monosperma
Austrian Pine	Pinus nigra
Ponderosa Pine	Pinus ponderosa
Bristlecone Pine	Pinus aristata
Pinyon Pine	Pinus cembroydes edulis
Colorado Spruce	Picea Pungens
<hr/>	
Ornamental Trees	
Hawthorn varieties	Crataegus var.
Flowering Crabapple	Malus var.
Native Plum	Prunus Americana
Chokecherry	Prunus virginiana
Gambel Oak	Qurecus gambelli
<hr/>	
Deciduous Trees	
Green Ash	Fraxinus pennsylvanica lanceolata
Autumn Purple Ash	Fraxinus Americana
Western Catalpa	Catalpa speciosa
Hackberry	Celitus occidentalis
Bur Oak	Gymnocladus diocius
Cottonless Cottonwood	Populus var.
Silver Maple	Acer saccharinum

Common Name	Botanical Name
Shrubs	
Common Buckthorn	Rhamnus cathartica
Buffalo berry	Sheperdia canadensis
Siberian Peashrub	Caragana arborensis
Cistena Cherry	Prunus cistena
Sand Cherry	Cornus mas
Alpine Current	Ribies alpinum
Red Osier Dogwood	Cornus stolonifera
Oregon Grape	Mahonia aquifolium
Honeysuckle var.	Lonicera var.
Juniper var.	Juniperus var.
Lilac var.	Syringa var.
Mountain Mahogany	Cercocarpus ledifolius
Ninebark	Psycocarpus monogynus
Rabbitbrush	Chrysathamnus nauseousus
Austrian Copper Rose	Rosa foetida bicolor
Rugosa Rose var.	Rosa rugosa
Sage var.	Artemisia var.
Seviceberry	Amalanchier alnifolia
Spirea var.	Spirea var.
Sumac var.	Rhus var.
Viburnum var.	Viburnum var.
Blue Stem Willow	Salix irrorata

