

**CDOT PROJECT IM 0703-294
Sub-Account 15214**

**I-70/32nd AVENUE INTERCHANGE
ENVIRONMENTAL ASSESSMENT**

WETLAND FINDING

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LIST OF ABBREVIATIONS AND ACRONYMS

ADA	Americans with Disabilities Act
BA	Biological Assessment
BMP	Best Management Practices
CDOT	Colorado Department of Transportation
CFR	Code of Federal Regulations
CWA	Clean Water Act (33 U.S.C. § 1344)
dbh	diameter breast height
EA	Environmental Assessment
EB	Economic benefits (hydrogeomorphic wetland value)
Ed	Education and/or scientific value (hydrogeomorphic wetland value)
EPA	Environmental Protection Agency
FA	Flood attenuation and storage (hydrogeomorphic wetland function)
FAC	Facultative species
FACU	Facultative upland species
FACW	Facultative wetland species
FACW+	Facultative wetland plus species
FH	Fish and/or shellfish habitat (hydrogeomorphic wetland function)
FHU	Felsburg Holt & Ullevig
FHWA	Federal Highway Administration
GPS	Global Positioning System
GW	Groundwater discharge/recharge (hydrogeomorphic wetland function)
H	Herbaceous vegetative layer
I-70	Interstate Highway 70
MS	Midstory vegetative layer
msl	Mean sea level
N	Nutrient/toxicant retention & removal/transformation (hydrogeomorphic wetland function)
NEPA	National Environmental Policy Act of 1969 as Amended
NI	No Indicator
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service (formerly the Soil Conservation Service)
NRSI	Natural Resource Services, Inc.
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	Obligate wetland species
OS	Overstory vegetative layer
PE	Food chain production support/export (hydrogeomorphic wetland function)
PEM	Palustrine Emergent
PFO	Palustrine Forested Deciduous
PSS	Palustrine Scrub-Shrub
R	Recreation potential (hydrogeomorphic wetland value)
ROW	Right of Way
SH 58	State Highway 58
SR	Sediment/toxin retention (hydrogeomorphic wetland function)

SS	Shoreline and streambank stabilization (hydrogeomorphic wetland function)
SWMP	Stormwater Management Plan
TE	Usefulness as a habitat for special status wildlife and plant species (hydrogeomorphic wetland function)
U	Uniqueness or heritage value (hydrogeomorphic wetland value)
UPL	Upland species
URL	Uniform Resource Locator
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
V	Visual quality and aesthetics (hydrogeomorphic wetland value)
WH	Wildlife habitat and/or travel corridor (hydrogeomorphic wetland function)
WOTUS	Waters of the United States

1.0 INTRODUCTION

This report presents the wetland finding for Colorado Department of Transportation (CDOT) Project No. IM 0703-294, Sub-Account Number 15214, Interstate 70 (I-70)/32nd Avenue Interchange Improvements, and has been written in compliance with Executive Order 11990, "Protection of Wetlands," and in accordance with 23 Code of Federal Regulations (CFR) 771, 23 CFR 777, and Technical Advisory T6640.8A. The report was written using guidelines provided by CDOT (CDOT 2004).

In accordance with the National Environmental Policy Act of 1969 (NEPA) and its related regulations, the Federal Highway Administration (FHWA), as the Lead Agency, in cooperation with CDOT as the Applicant Agency, is preparing an Environmental Assessment (EA) for proposed improvements to the I-70/32nd Avenue Interchange. The project is proposed by the City of Wheat Ridge. Natural Resource Services, Inc. (NRSI) was contracted on August 30, 2005 by Felsburg Holt & Ullevig (FHU), acting on behalf of CDOT and the City of Wheat Ridge, to conduct a wetlands delineation and other natural resource assessments for the I-70/32nd Avenue Interchange EA. The detailed information included in this report was incorporated in summary form into the EA.

The purpose of this wetland finding is to review the Proposed Action presented in the I-70/32nd Avenue Interchange EA in sufficient detail to determine to what extent the Proposed Action may affect wetlands, which may or may not come under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE). This report is prepared in accordance with legal requirements set forth under NEPA as amended (42 United States Code (USC) 4321 et seq.) and Section 404 of the Clean Water Act (CWA) (33 USC 1344), and follows standards established in USACE, U.S. Fish and Wildlife Service (USFWS), Environmental Protection Agency (EPA), FHWA, and CDOT NEPA and CWA guidance documents.

A thorough onsite assessment of pertinent areas of the project site for the presence of jurisdictional and non-jurisdictional wetlands as defined under Section 404 of the CWA was conducted between September 21 and September 30, 2005 and on January 14, 2006 by Steve C. Johnson, Senior Ecologist with NRSI (FHU and NRSI 2006). A delineation of the boundaries of all wetlands located within relevant areas of the project area, using procedures described in the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), was completed during that period.

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2.0 PROJECT LOCATION

The I-70/32nd Avenue Interchange project is located in the western part of the Denver metropolitan area, as shown in **Figure 1-1**. The project area falls partially within the cities of Wheat Ridge and Lakewood and within unincorporated Jefferson County (see **Figures 1-1 and 1-2**). The City of Arvada is located north of the project area, and the City of Golden is located to the west.

The project area is shown in **Figure 1-2**. It includes about two miles of I-70 from 26th Avenue to Ward Road and two miles of State Highway 68 (SH 58) from McIntyre Street to I-70. The general coordinates are 39° 46' 00" N latitude and 105° 09' 00" W longitude (UTM Zone 13 487,500E and 4,402,000N). The project area can be found on the U.S. Geological Survey (USGS) Golden, CO 7.5 minute topographic quadrangle at the following locations:

- ▶ SE1/4 of Section 24 in Township 3 South, Range 70 West of the 6th Prime Meridian
- ▶ NE1/4 of Section 25 in Township 3 South, Range 70 West of the 6th Prime Meridian
- ▶ S1/2 of Section 19 in Township 3 South, Range 69 West of the 6th Prime Meridian
- ▶ NW1/4SW1/4 of Section 20 in Township 3 South, Range 69 West of the 6th Prime Meridian
- ▶ W1/2 of Section 29, Township 3 South, Range 69 West of the 6th Prime Meridian
- ▶ N1/2 of Section 30 in township 3 South, Range 69 West of the 6th Prime Meridian
- ▶ NW1/4 of Section 32, township 3 South, Range 69 West of the 6th Prime Meridian

SH 58 is located in the northern portion of the project area and extends west from the I-70/SH 58 interchange. I-70 generally has an east-west orientation to the east of the interchange, and a north-south orientation directly south of the interchange. Clear Creek parallels SH 58 to the south through the project area, crossing underneath I-70 south of the I-70/SH 58 interchange. The local streets of 32nd and 44th Avenues extend east-west through the project area. The Clear Creek Trail parallels Clear Creek through the project area. On the east side of I-70, the trail is located within the City of Wheat Ridge Green Belt, while the trail falls within an easement and is maintained by Jefferson County Open Space west of I-70. Youngfield Street parallels I-70 on the east through the project area from 44th Avenue through 26th Avenue, and beyond.

To address the issue of traffic congestion due to regional growth and the proposed development in the project area, improvements to the following transportation facilities are being considered by FHWA and CDOT as part of this I-70/32nd Avenue Interchange project:

- ▶ I-70/32nd Avenue interchange
- ▶ SH 58 from McIntyre Street to I-70
- ▶ Adjacent portions of 32nd Avenue between Alkire Street and Xenon Street, Youngfield Street between 35th Avenue and 27th Avenue, the Youngfield Street/27th Avenue intersection, and a proposed Cabela Drive from 32nd Avenue to approximately 40th Avenue and from just north of Clear Creek to 44th Avenue

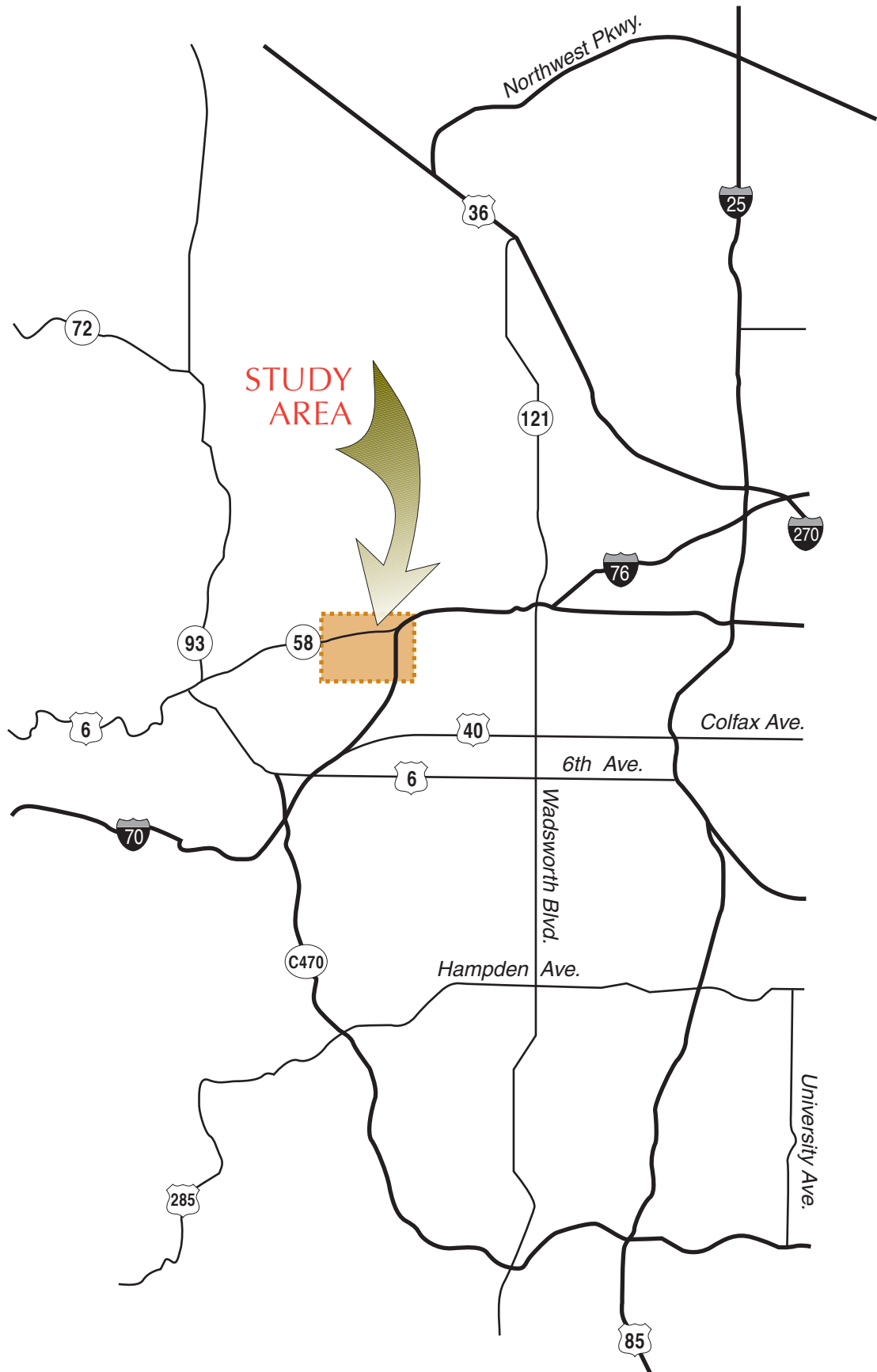


Figure 2-1

Project Location

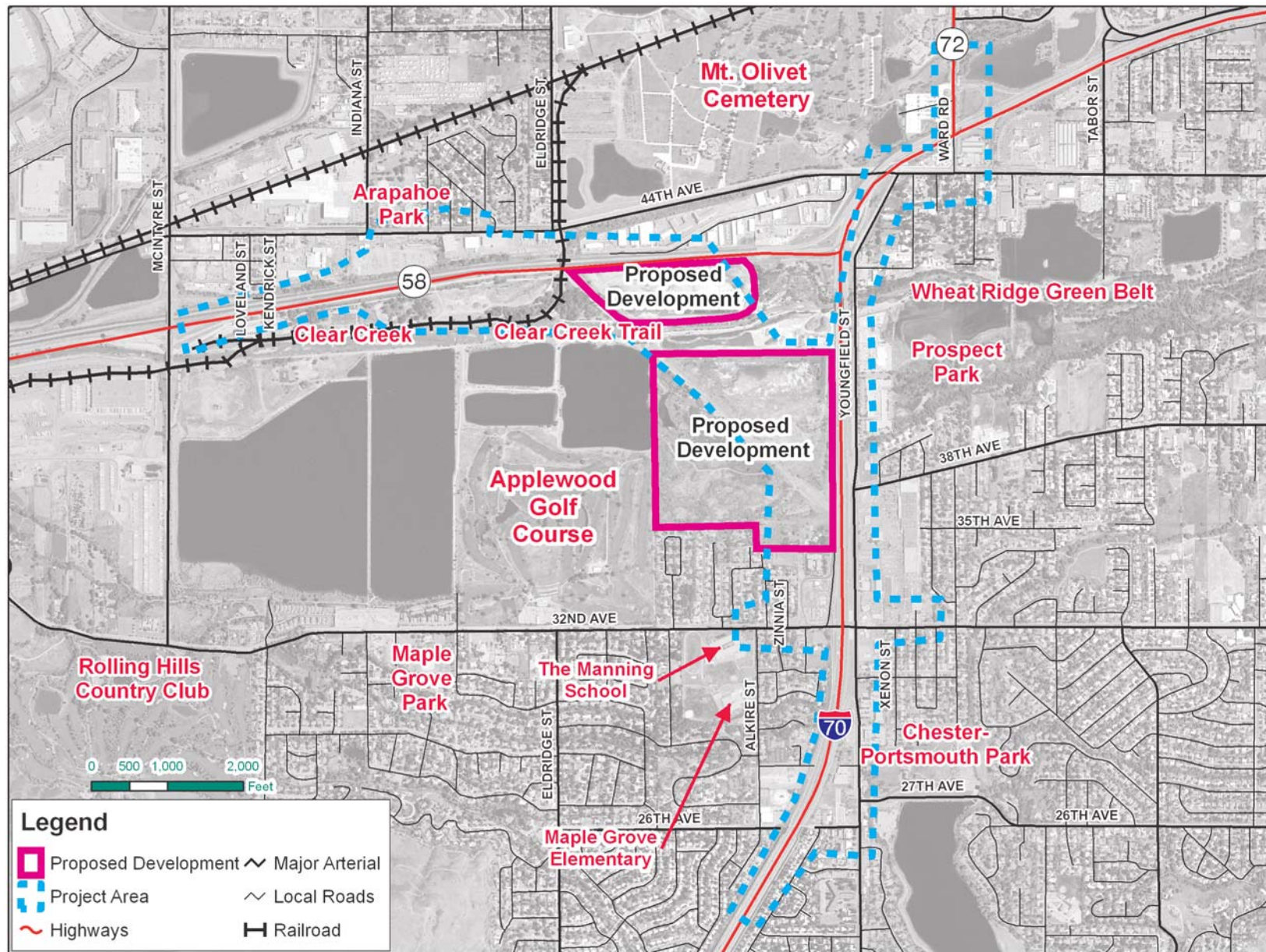


Figure 2-2
Project Area

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3.0 SITE DESCRIPTION

The project area includes an urban riparian corridor along Clear Creek at the base of the foothills of the Colorado Front Range. It also includes associated irrigation and drainage ditches and a narrow strip of more xeric mixed grasslands and rubber rabbitbrush (*Chrysothamnus nauseosus*) dominated shrublands that provide habitat for a variety of wildlife species including grassland birds, and mammals. The streambed of Clear Creek is composed largely of quaternary alluvium. Most soils within the project area are classified as torrifluvents. These are gravelly, deep, excessively drained soils which have poor water holding capabilities (Price and Amen 1980). Today, Clear Creek is highly channelized and is largely isolated from its floodplain (Arbogast et al. 2000).

The project area is located in a matrix of land which has been put to a variety of commercial uses including aggregate mining, soil and equipment storage, and water storage. As a result, the area has been significantly altered from natural conditions (Arbogast et al. 2000). It does include, however, several areas of habitat that are used by a variety of wildlife species. The site is also adjacent to the Wheat Ridge Greenbelt, east of I-70, which is centered on Clear Creek and is home to a large number of terrestrial and aquatic species (Anderson and Stevens 2000). It is located just northeast of several large protected natural habitats including Denver Mountain Park, South Table Mountain Park, North Table Mountain, and adjacent undeveloped land south of Rolling Hills Country Club.

The project area includes a long section of Clear Creek, a major tributary of the South Platte River, and associated irrigation and drainage ditches as well as several large holding ponds for water used by the Coors Brewing Company (see **Figure 1-2**). Clear Creek parallels SH 58 to the south through the project area crossing beneath I-70 south of the I-70/SH 58 Interchange.

Some mature riparian forest dominated by an overstory of cottonwood (*Populus* sp.), boxelder (*Acer negundo*), Siberian elm (*Ulmus pumila*), and willow (*Salix* sp.) species exist in the area adjacent to Clear Creek. Forested, scrub-shrub and emergent wetlands are also scattered throughout the area. Upland vegetation consists of a combination of small patches of reseeded native shortgrass prairie species surrounded by large areas which are dominated by non-native grasses and a large variety of native and non-native forbs and noxious weed species. The dominant upland shrub is rubber rabbitbrush while the dominant riparian and wetland shrub is coyote willow (*Salix exigua*).

Highway rights-of-way (ROW) in the project area have been highly disturbed in the past and are dominated by non-native grasses and weedy forbs. The southwestern portion of the area has been developed as a golf course while the southeastern portion consists primarily of residential development. The project area is surrounded on the north by industrial development on the north side of SH 58 and on the east by residential and light commercial development on the east side of I-70. A railroad line supplying the Coors Brewing Company enters the project area from the north and parallels the north side of Clear Creek. The railroad line services a grain elevator complex located in the northwest corner of the project area, which is owned by Coors Brewing Company, as well as the primary Coors Brewing Company industrial complex which is located immediately west of McIntyre Street.

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4.0 PROJECT DESCRIPTION

The I-70/32nd Avenue Interchange improvement process began with the development of a broad range of alternatives. The *I-70/32nd Avenue Interchange System Level Feasibility Study* (FHU 2005a) examined 21 alternatives and nine sub-alternatives. The System Level Feasibility Study, which was approved by the Colorado Transportation Commission in September 2005, advanced three alternative packages for further study in the EA. Technical screening and evaluation narrowed down the list of alternatives and resulted in the identification of the Proposed Action, which is described in this section.

The City of Wheat Ridge submitted an application to CDOT for construction of a series of local agency projects that were common to each of the three alternatives presented in the *I-70/32nd Avenue Interchange System Level Feasibility Study* and that would be independent and stand on their own merits should no other improvements take place. The local agency projects do not preclude any of the alternatives evaluated in the EA. The local agency projects include:

- ▶ Construction of the 40th Avenue underpass of I-70
- ▶ Widening of Youngfield Street from 38th Avenue to 44th Avenue
- ▶ Construction of Cabela Drive from 40th Avenue to the proposed development just north of Clear Creek

These local agency projects are to be completed by the City of Wheat Ridge as separate projects that are not dependent on the interchange improvements or on federal funding and thus are not part of the Proposed Action but are included in the travel demand forecasting for the No-Action Alternative traffic analysis.

4.1 *Proposed Action*

The Proposed Action consists of the following elements (see **Figure 4-1**):

- ▶ **New I-70/32nd Avenue Interchange Hook Ramps**
 - Construction of off-set hook ramps at the I-70/32nd Avenue interchange with the westbound hook ramps located north of 32nd Avenue at approximately 35th Avenue and the eastbound hook ramps located at Youngfield Street and 27th Avenue
 - Construction of a third bridge over 32nd Avenue for the I-70 westbound ramp traffic
 - Closure of the existing westbound I-70 off-ramp that exits to 32nd Avenue. The existing westbound I-70 on-ramp would remain open but access would be limited to eastbound 32nd Avenue traffic only
 - Partial reconstruction and restriping of Youngfield Street between 27th Street and approximately 30th Avenue to achieve a 5 lane roadway section

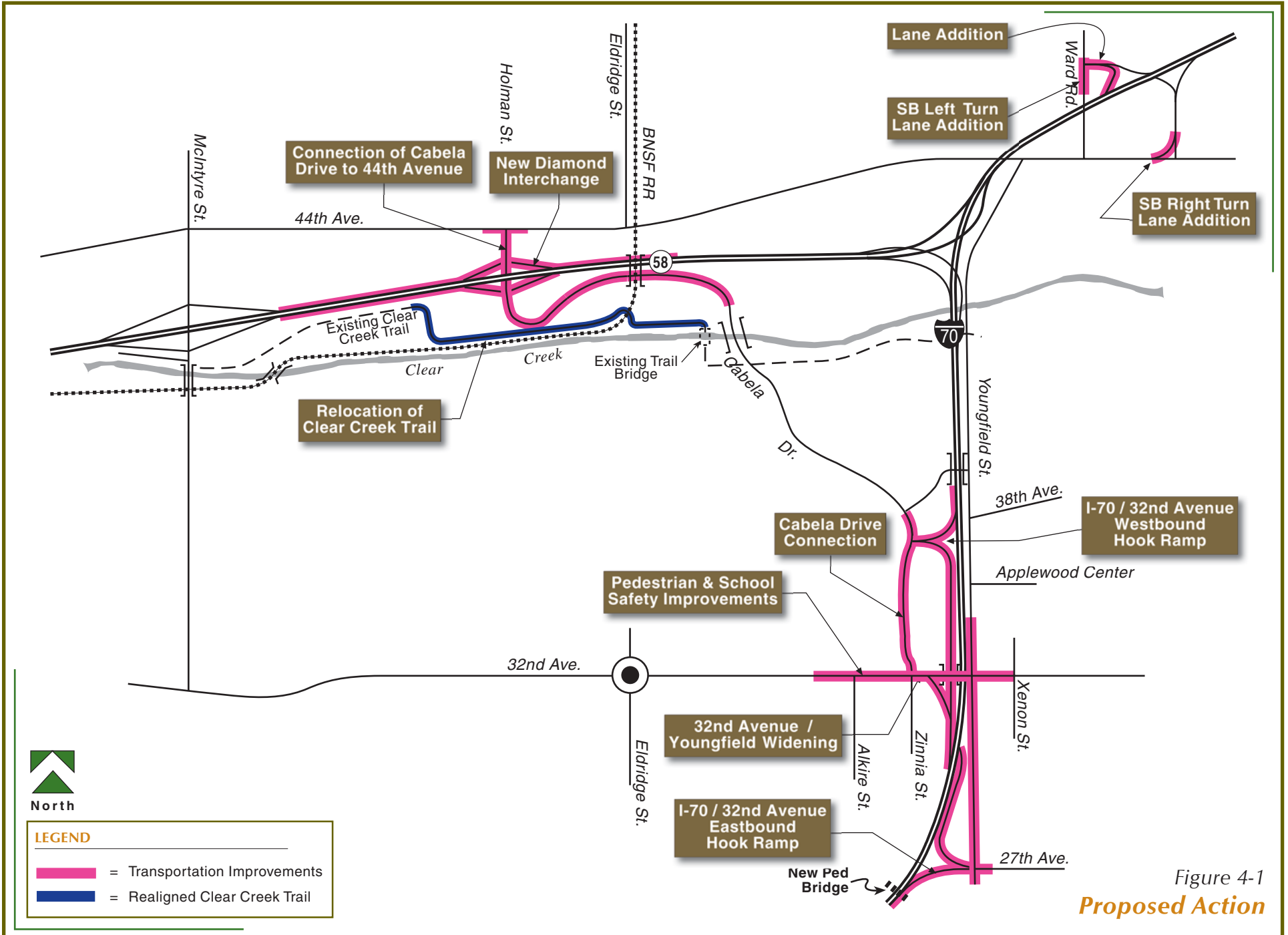


Figure 4-1
Proposed Action

▶ **32nd Avenue Improvements**

- Widening of 32nd Avenue between approximately Alkire Street and approximately Xenon Street and the widening of Youngfield Street between approximately 35th Avenue and 30th Avenue in the vicinity of the I-70/32nd Avenue interchange
- Connection of Cabela Drive with 32nd Avenue west of I-70 (40th Avenue to 32nd Avenue)

▶ **New SH 58/Cabela Drive Interchange**

- Construction of a new diamond interchange on SH 58 west of Eldridge Street and connection of Cabela Drive to this interchange
- Connection of Cabela Drive with 44th Avenue north of the new interchange on SH 58

▶ **I-70/Ward Road Interchange**

- Restriping of the Ward Road and westbound I-70 on-ramp intersection to add an additional southbound left turn lane onto the ramp and widen the ramp to receive this lane
- Addition of a second right-turn lane for the eastbound I-70/Ward Road off-ramp

▶ **Bicycle/Pedestrian Improvements**

- Relocation of the Jefferson County Open Space Clear Creek trail in the vicinity of the new SH 58/Cabela Drive interchange
- Replacement of the 32nd Avenue trail detached sidewalk along the south side of 32nd Avenue from Alkire Street to Cabela Drive with an attached sidewalk
- Improvements to pedestrian and school safety along 32nd Avenue
- Construction of an Americans with Disabilities Act (ADA)-compliant pedestrian bridge at 27th Avenue to replace the existing pedestrian bridge at 26th Avenue as part of the eastbound I-70 hook ramps
- Provisions for Jefferson County Open Space Clear Creek Trail access through the development site from 32nd Avenue
- Wider sidewalks under I-70 on the south side of 32nd Avenue to better accommodate bicycles and pedestrians

4.2 *Wetland Impact Avoidance and Minimization*

During the technical screening which identified the Proposed Action, two of the three alternatives evaluated included two new bridge crossings of Clear Creek. Both of these alternative packages were eliminated during the screening, resulting in a minimization of wetland impacts along Clear Creek. Cabela Drive from 40th Avenue to the proposed development just north of Clear Creek is a local agency project and can proceed without FHWA and CDOT approval. As a local agency action not requiring CDOT right-of-way, FHWA/CDOT approval for construction of Cabela Drive from 40th Avenue to the proposed development just north of Clear Creek is not required; however, environmental permitting for these projects such

as the Clean Water Act and other relevant environmental regulations will be the responsibility of the local agency or developer.

As part of the Proposed Action, Cabela Drive from 44th Avenue would connect just north of Clear Creek with the portion of Cabela Drive, which is a local agency project, and proceed northward paralleling the east side of the existing railroad berm through the Mt. Olivet South mine reclamation area (see **Figure 4-2**). The Mt. Olivet South mine reclamation area contains some wetlands at the bottom of the existing mine pit, but these were not delineated by NRSI as part of the EA. The Mt. Olivet South Pit is still an active gravel pit, which is going to be reclaimed per mined land reclamation Mine Permit No. M-1989-127 (USACE 2004). Cabela Drive would then curve westward beneath the existing railroad grade separation and follow the footprint of the existing frontage road south of SH 58 for a short distance before looping southward to allow access to a new SH 58/Cabela Drive diamond interchange. The existing SH 58 frontage road would end in a cul-de-sac west of the new SH 58/Cabela Drive interchange.

The Proposed Action would primarily impact weedy upland grassland that has already been severely impacted by past mining and industrial uses. Some mature hardwoods may be impacted along the SH 58 frontage road. Some wetlands associated with ditches in the SH 58 roadway drainage system would also be impacted. Wetlands associated with Clear Creek and the Bayou Ditch (see **Figure 4-2**) would not be affected by the Proposed Action.

Temporary construction access for any of the construction associated with the Proposed Action would probably not require any new road construction and, therefore, probably would not impact any significant wetlands or wildlife habitat areas. Permanent and temporary impacts resulting from the Proposed Action to wetlands in the vicinity of the new SH 58/Cabela Drive interchange would only affect non-jurisdictional wetlands (see **Figure 4-2**).

The widening of the Ward Road westbound I-70 on-ramp would impact a jurisdictional wetland, N-1. The USACE determined that the wetland areas identified in the *I-70/32nd Avenue Interchange Environmental Assessment Wetland Delineation Report* (FHU and NRSI 2006) as wetlands A-2, A-3, A-4, D-1, E-1, E-2, F-1, G-1, H-1, I-1, I-2, I-3, I-4, I-5, J-1, J-2, J-3, J-4, K-1, K-2, K-3, K-4, L-1 and M-1 are non-jurisdictional (USACE 2006).

Detailed project plans associated with the Proposed Action had not been developed by the date of this report. During final design, additional efforts will be taken to minimize impacts to wetlands. These efforts may include:

- ▶ “Compacting” the design along the horizontal alignment of the roadway, i.e. no divided section nor open median
- ▶ Minimize slope footprints through the use of guard rails, adjusted vertical alignment, etc.
- ▶ placement of concrete abutments and riprap so as to minimize encroachment on wetlands;
- ▶ Use of “dirty” riprap, i.e. earth interspersed within the riprap
- ▶ Planting of coyote willow cuttings within the riprap to soften the look, aid in bank stabilization, and further minimize wetland impacts

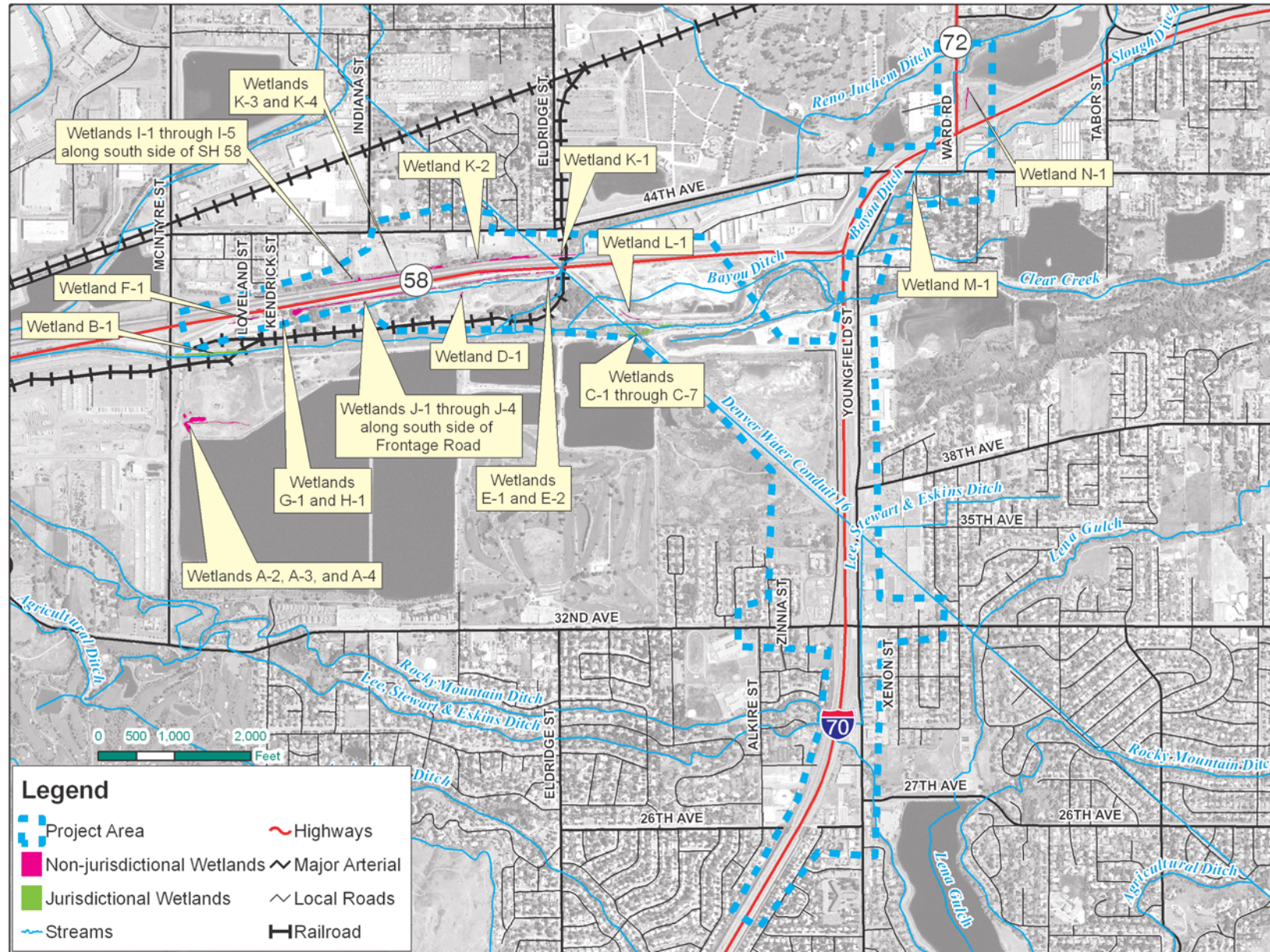


Figure 4-2
**Overview of Jurisdictional and Non-Jurisdictional
 Wetlands in the Study Area**



SOURCE: FHU and NRSI 2006c

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5.0 WETLANDS

NRSI was contracted by FHU to conduct a wetlands assessment and boundary delineation for the project area. A thorough onsite assessment of pertinent areas of the project area for the presence of jurisdictional and non-jurisdictional wetlands as defined under Section 404 of the CWA was conducted between September 21 and September 30, 2005 and on January 14, 2006 by Steve C. Johnson, Senior Ecologist with NRSI. A delineation of the boundaries of all wetlands located within relevant areas of the project area, using procedures described in the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), was completed during the same period (FHU and NRSI 2006). The following describes the methods used and the results of the assessment and delineation.

Wetlands described in this section include only those jurisdictional and non-jurisdictional wetlands which may be impacted by the Proposed Action. For a detailed description of all wetlands identified in the project area, refer to the Wetland Delineation Report for the site (FHU and NRSI 2006).

5.1 Description of Delineation Procedures

Routine Onsite Wetland Determination procedures as outlined in the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987:57-69) were utilized to delineate the wetland boundaries within the project area. Preliminary data collection included inspection of copies of Natural Resources Conservation Service (NRCS) soils maps (Price and Amen 1980) and local hydric soils lists obtained from the U.S. Department of Agriculture (USDA), NRCS, Lakewood, Colorado office (NRCS 2003); inspection of USGS 7.5 minute topographic quadrangle sheets (Golden, CO quad); inspection of 2004 aerial orthophotography; and inspection of the USFWS National Wetland Inventory (NWI) Golden, CO quad map.

Onsite sampling procedures included:

- ▶ Visual inspection of the soils, hydrology, and flora of the overall project site and specific designated sampling points
- ▶ Completion, for each sample point, of a USACE data form for Routine Onsite Wetland Determination as approved by Headquarters U.S. Army Corps of Engineers in March 1992

Sample points were selected at representative sites within identified wetlands using procedures described in the *1987 Delineation Manual* (Environmental Laboratory 1987:60-63) for areas of less than five acres in size.

5.1.1 Vegetation

Characteristics and indicators of vegetation present on the site were determined using procedures outlined in the *1987 Wetland Delineation Manual* (Environmental Laboratory 1987:16-26). Plant community characteristics were determined in the field and compared with designations described by Cowardin et al. (1979). Appropriate community designations were recorded on each data sheet.

Vegetation at each sample point was divided into three strata for sampling purposes. These were overstory (OS), midstory (MS), and herbaceous (H). The OS was sampled by counting the number of stems greater than one decimeter diameter breast height (dbh) for each species within a ten meter radius of the plot center. MS vegetation was sampled by estimating the percent ground cover for shrubs and vines with stems less than one decimeter dbh and over one meter high for dominant species within a three meter radius of the plot center. Vegetation in the H strata was sampled by estimating the percent ground cover for dominant species less than one meter high within a one meter radius of the plot center. Predominant plant species within each stratum were recorded on each data sheet.

If a species could not be identified in the field, samples were taken to the lab for identification using appropriate reference books and keys (Bruggen 1983, Carter 1988, Gleason and Cronquist 1963, Hitchcock and Chase 1971, Nelson and Williams 1992, Royer and Dickinson 1999, Weber 1976, Weber and Wittman 1996, Whitson et al. 2001, Wingate 1994). The *National List of Vascular Plant Species That Occur in Wetlands: 1988 National Summary* (USFWS 1988) was used to determine the hydrophytic status of plant species [obligate (OBL), facultative wetland plus (FACW+), facultative (FACW), facultative wetland (FACW-), facultative (FAC), facultative upland (FACU), upland (UPL), or no indicator (NI)] which was also recorded for each species on the data sheets.

5.1.2 Hydrology

Hydrology was determined using guidelines outlined in the *1987 Delineation Manual* (Environmental Laboratory 1987:34-41).

5.1.3 Soils

Soil characteristics were identified using guidelines described in the *1987 Delineation Manual* (Environmental Laboratory 1987:26-34). Soils data were collected using a tube-type soil auger with an 18 inch long, 13/16 inch inner diameter sampling tube. A “sharp-shooter” spade was also used. Soil colors were determined using the *1994 Revised Edition of Munsell Soil Color Charts* (Kollmorgan Instruments Corp. 1994). Soil characteristics identified in the field were compared with soil descriptions provided in the *Soil Survey of Golden Area, Colorado* (Price and Amen 1980) and local hydric soils lists obtained from the NRCS, Lakewood, Colorado office (NRCS 2003) to verify soil type. Hydric soil determinations were made using characteristics described in the *1987 Wetland Delineation Manual* (Environmental Laboratory 1987:26-34) in conjunction with referencing the local hydric soils list (NRCS 2003) and the U.S. Department of Agriculture list of hydric soils of the United States (USDA 1991).

5.1.4 Wetland Boundary Designation

All delineation sample data points were marked in the field with pink surveyor's ground flags imprinted with the words “Wetland Delineation”. Specific alpha-numeric plot sample point identifier codes were written on each flag. Sample points where data sheets were completed had corresponding alpha numeric identifiers written on the data sheet. Most wetland boundaries delineated within the project area were flagged with orange ribbon imprinted with the words “WETLAND BOUNDARY”. Field mapping of the locations of boundary and data points was accomplished using an aerial photograph of the site. Delineated wetland boundaries

were surveyed using a Leica GS20 Global Positioning System (GPS) unit. Approximate wetland boundaries of all wetlands delineated in the project area are shown in **Figure 5-1** superimposed on a recent (2004) aerial orthophotography (FHU and NRSI 2006).

5.1.5 Wetland Functions and Values Determination

Functions associated with each delineated wetland were determined using best professional judgment and hydrogeomorphic functional assessment guidance provided by Brinson (1993), Hauer et al. (2002), and Smith et al. (1995). Individual functions associated with each wetland varied depending upon wetland type (Cowardin et al. 1979), wetland location within the landscape, and wetland relationship with other adjacent ecotones. A list of functions and values which were evaluated as possibly applicable to each delineated wetland within the project area included the following:

▶ Functions:

- Groundwater discharge/recharge (**GW**)
- Flood attenuation and storage (**FA**)
- Shoreline and streambank stabilization (**SS**)
- Sediment/toxin retention (**SR**)
- Nutrient/toxicant retention and removal/transformation (**N**)
- Food chain production support/export (**PE**)
- Wildlife habitat and/or travel corridor (**WH**)
- Fish and/or shellfish habitat (**FH**)
- Usefulness as a habitat for special status wildlife and plant species (**TE**)

▶ Values:

- Recreation potential (**R**)
- Education and/or scientific value (**Ed**)
- Uniqueness or heritage value (**U**)
- Visual quality and aesthetics (**V**)
- Economic benefits (**EB**)

Both functions and values were rated using the following system: **H** – high, **M** – medium, and **L** – low. Not all of these functions and values were found to be associated with all delineated wetlands within the project area.

5.2 Wetland Delineation Results

A total of thirty-three wetland polygons were identified within the entire assessed project area (FHU and NRSI 2006) (see **Table 5-1** and **Figure 4-2**). Data sheets for 41 data plots were completed by NRSI and are included in Wetland Delineation Report (FHU and NRSI 2006). Observations during the site visits conducted by NRSI between September 20 and September 30, 2005 determined that most of the project area had been significantly disturbed in the past. Identified historic disturbance factors included:

- ▶ Extensive mining for gravel in the areas north and south of Clear Creek and east of the railroad
- ▶ Construction of several irrigation ditches to transport water from Clear Creek to areas north of the project area (these include the Juchem Ditch, the Juchem-Reno Ditch, and the Bayou Ditch)
- ▶ Construction of a number of check dams along the length of Clear Creek within the project area
- ▶ Construction of SH 58 and the associated frontage road on the south side of the highway, 5) the recent construction of the paved Jefferson County Open Space Clear Creek Pedestrian Trail and associated infrastructure
- ▶ Construction of I-70 and the I-70/SH 58 interchange
- ▶ Construction of the railroad spur line which crosses SH 58 at the east end of the project area and parallels the north bank of Clear Creek to provide access to the Coors Brewing Company grain elevator and other industrial infrastructure at the west end of the project area
- ▶ Historic channelization of most of the length of Clear Creek within the project area and associated application of large riprap to the both banks along most of the channelized areas
- ▶ Historic construction of water treatment infrastructure and research facilities associated with the operation of the Coors Brewing Company plant
- ▶ Recent construction of a permitted wetland mitigation area just south of Clear Creek at the east end of the project area by Jefferson County
- ▶ Disturbance associated with the industrial use of portions of the area as borrow areas for earthen fill material and as storage areas for concrete, earthen and wooden construction materials

Construction activity associated with reclamation of the a former aggregate mine, where the majority of the proposed development will be located, was proceeding south of Clear Creek at the east end of the project area at the time the wetland determination was completed (FHU and NRSI 2006).

Table 5-1 Physical Characteristics of Wetlands Delineated

Wetland ID ¹	Wetland Type ²	Jurisdictional Wetland	Estimated Area in Wetland in sq. ft. [acre (ac)] ³	Estimated Area of Impacts in sq. ft. (ac) ⁴
A-2	PEM	No	950 (0.022)	0 (0.0)
A-3	PEM	No	1,724 (0.040)	0 (0.0)
A-4	PEM	No	16,840 (0.387)	0 (0.0)
B-1	PEM/PSS	Yes	24,110 (0.553)	0 (0.0)
C-1	PEM	Yes	110 (0.003)	0 (0.0)
C-2	PSS	Yes	539 (0.012)	0 (0.0)
C-3	PFO	Yes	4,092 (0.094)	0 (0.0)
C-4	PEM/PSS	Yes	4,027 (0.092)	0 (0.0)
C-5	PSS	Yes	1,621 (0.037)	0 (0.0)
C-6	PEM/PSS	Yes	53 (0.001)	0 (0.0)
C-7	PEM/PSS	Yes	2,013 (0.046)	0 (0.0)
D-1	PSS	No	2,256 (0.052)	1,214 (0.028)
E-1	PSS	No	243 (0.006)	176 (0.004)
E-2	PSS	No	557 (0.013)	442 (0.10)
F-1	PEM/PSS	No	4,280 (0.098)	0 (0.0)
G-1	PEM/PSS	No	3,067 (0.070)	0 (0.0)
H-1	PEM	No	87 (0.002)	0 (0.0)
I-1	PSS	No	598 (0.014)	699 (0.016)
I-2	PEM	No	636 (0.015)	63 (0.001)
I-3	PEM	No	377 (0.009)	217 (0.005)
I-4	PEM	No	96 (0.002)	26 (0.001)
I-5	PEM	No	7,140 (0.164)	4,301 (0.099)
J-1	PEM/PSS/PFO	No	18,220 (0.418)	111 (0.003)
J-2	PEM/PSS/PFO	No	14,180 (0.326)	9,521 (0.219)
J-3	PEM/PSS/PFO	No	9,406 (0.216)	7,864 (0.181)
J-4	PEM/PSS	No	2,244 (0.052)	1,950 (0.045)
K-1	PEM	No	762 (0.017)	1,588 (0.036)
K-2	PEM/PSS/PFO	No	34,660 (0.796)	25,071 (0.576)
K-3	PEM/PSS	No	748 (0.017)	906 (0.021)
K-4	PEM/PSS	No	1,470 (0.034)	2,106 (0.048)
L-1	PSS	No	1,315 (0.030)	0.0 (0.00)
M-1	PSS	No	279 (0.006)	0 (0.0)
N-1	PEM	Yes	5,260 (0.121)	28 (0.001)
Total			163,960 (3.764)	56,284 (1.292)

¹ A-1 is omitted since it did not meet the vegetation requirements to qualify as a wetland (Environmental Laboratory 1987).

² PEM = Palustrine Emergent; PSS = Palustrine Scrub-Shrub; PFO = Palustrine Forested (Cowardin et al. 1979)

³ Wetland area is the estimated total delineated area of the wetland.

⁴ Estimated area of impacts is the area of a wetland which may be temporarily or permanently impacted by construction of the Proposed Action. **Note: This is an estimate only and will require confirmation prior to permitting.**

The literature review identified several wetland delineations and USACE Jurisdiction Determinations which have been completed within the project area in the recent past (FHU and NRSI 2006). These include the following:

- ▶ Work associated with the Dog Pound Gravel Pit fill and mitigation area to include the issuance of Department of the Army Section 404 Permit No. 199680390 to the Jefferson County Road Department on November 26, 1996 (USACE 1996). This permit authorized placing 70,000 cubic yards of fill material and creating a 3.4 acre mitigation wetland in an old gravel pit immediately south of Clear Creek at the east end of the I-70/32nd Avenue Interchange EA project area.
- ▶ A preliminary jurisdictional determination issued by the Department of the Army, Corps of Engineers for the Golden Pits, Mining Permit # M-1977-145, for isolated wetlands and open water of Pits B5-East and A5-West, Corps File No. 199176059 (USACE 2003). The jurisdictional determination was issued to Coors Brewing Company, Golden, Colorado by the Omaha District, Denver Regulatory Office, 9307 South Wadsworth Blvd., Littleton, Colorado. January 27, 2003.
- ▶ A wetland delineation completed by Weiland Sugnet, Inc. in October of 2001 for CH2MHILL for the I-70/SH 58 Interchange Project, CDOT Project No. NH0703-246 (Weiland Sugnet, Inc. 2001e). This delineation report was prepared as part of the EA process for that project.
- ▶ A wetland delineation completed by Savage and Savage, Inc. in November 2004 for the west end of the Dog Pound Pit and portions of Clear Creek (Savage and Savage, Inc. 2004d). The delineation was completed for Martin/Martin on behalf of Cabela's.
- ▶ A Department of the Army, Corps of Engineers Jurisdiction Determination and Nationwide Permit (NWP) No. 14 (USACE 2004) completed for the Mt. Olivet South Pit (Mine Permit No. M-1989-127 and Corps File No. 199015027) and issued to Coors Brewing Company on October 26, 2004. The NWP No. 14 was issued for a temporary culverted access road crossing over Clear Creek to provide access to the Mt. Olivet South Pit which is located on the north side of Clear Creek. The NWP is valid until October 25, 2006.

The seventeen wetland units identified by NRSI within the immediate vicinity of the Proposed Action construction area (FHU and NRSI 2006) were designated as shown in **Table 5-1** and in **Figure 4-2**. They could be generally described as follows:

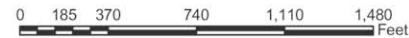
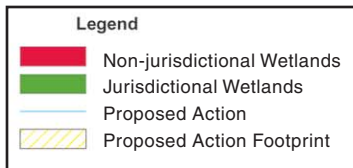
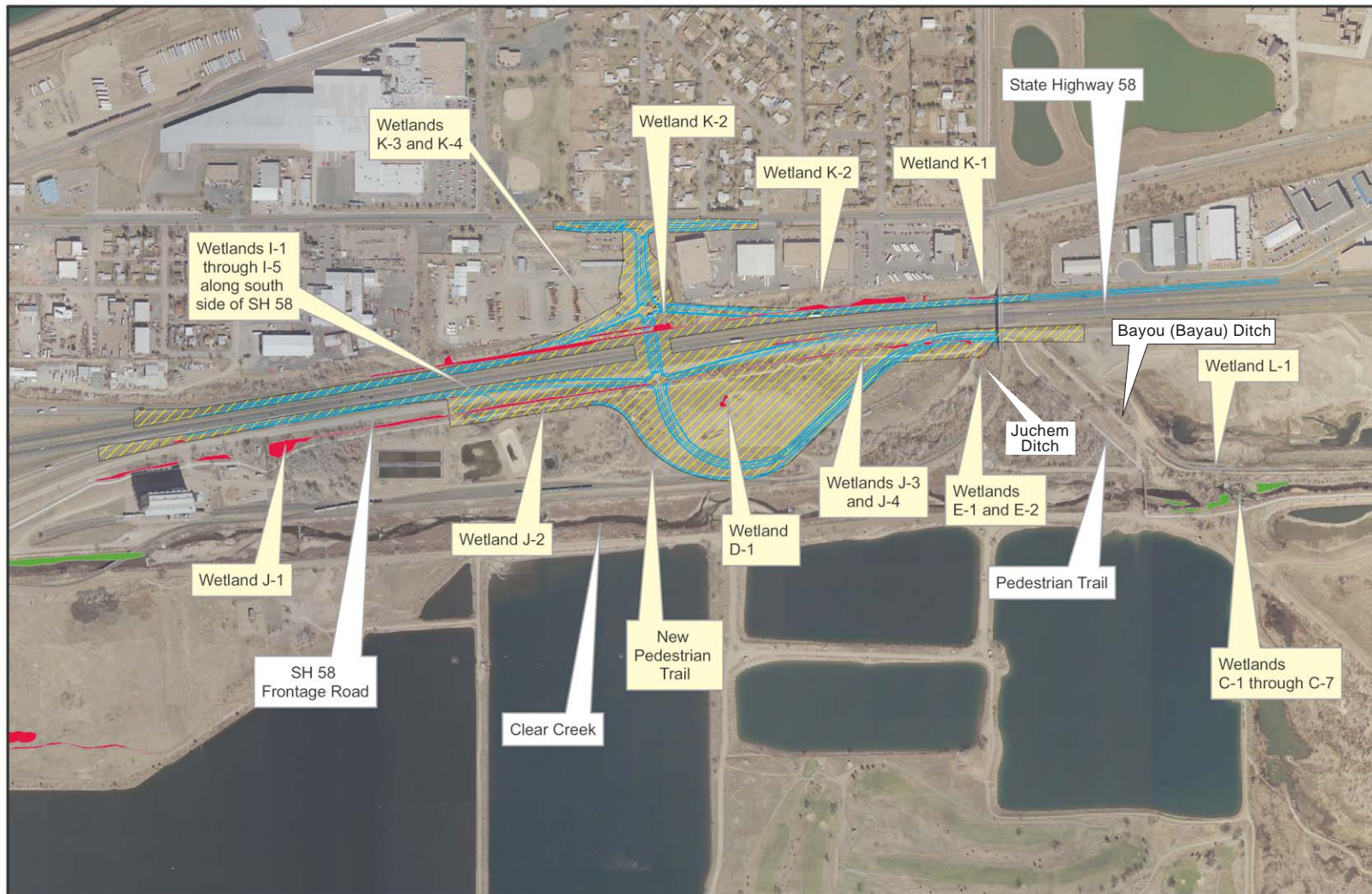
- ▶ Wetland D-1 (Data Point D-1a) was an isolated wetland located north of Clear Creek and immediately south of the Jefferson County Pedestrian Trail at the center of the Study Area (see **Figure 4-2**).
- ▶ Wetlands E-1 (Data Point E-1a) and E-2 (Data Point E-2a) (see **Figure 4-2**) were associated with a groundwater seepage and stormwater drainage system for SH 58 and its associated south frontage road which carries water into the Juchem Ditch.

- ▶ Wetlands I-1, I-2, I-3, I-4, and I-5 (Data Points I-1a, I-2a, I-3a, I-4a, and I-5a, respectively) (see **Figure 4-2**) were all isolated wetlands formed where groundwater seepage and stormwater runoff flowing from the north side of SH 58 emerged from culverts beneath the highway and either entered another culvert beneath the south frontage road (I-1, I-2, I-3, and I-4) or flowed down the ditch between SH 58 and the frontage road for some distance before entering a culvert (I-5).
- ▶ Wetlands J-2 (Data Point J-2a), J-3 (Data Point J-3a), and J-4 (Data Point J-4a) were all segments of the groundwater seepage and stormwater drainage ditch which paralleled the south side of the frontage road (see **Figure 4-2**). The segments were separated by three culverted access road crossings.
- ▶ Wetlands K-1 (Data Point K-1a) and K-2 (Data Points K-2a and K-2b) were segments of the SH 58 drainage ditch paralleling the north side of SH 58 (see **Figure 4-2**). The ditch carries groundwater seepage and stormwater runoff either directly into the Juchem Ditch just east of the railroad overpass (Wetland J-1) or to culverts beneath SH 58 which carry runoff south to Wetlands I-1 through I-5 and ultimately to the Juchem Ditch south of the SH 58 frontage road. Water then flows through the Juchem Ditch back north under SH 58.
- ▶ Wetlands K-3 (Data Point K-3a) and K-4 (Data Point K-4a) were perched wetlands located immediately north of Wetland K-2 (see **Figure 4-2**) and were probably formed from groundwater seepage from the hillside.
- ▶ Wetland L-1 (Data Point L-1a) was wetland associated with the edge of the Bayou Ditch at the waterline on both sides of the ditch. Data Point L-1a was located immediately north of Clear Creek near the C-1 through C-7 complex of wetlands (see **Figure 4-2**).
- ▶ Wetland N-1 (Data Point N-1a) was a wetland located in the drainage ditch of the Ward Road westbound I-70 on-ramp.

Full descriptions of each of the delineated wetlands that were located within the construction area of the Proposed Action are provided below. Completed field data sheets that were completed by NRSI (FHU and NRSI 2006) are included in the Wetland Delineation Report (FHU and NRSI 2006).

5.2.1 Wetland D-1

Wetland D-1 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2** and **5-1**) was classified by NRSI as a very marginal isolated depressional wetland (FHU and NRSI 2006). The wetland could potentially be impacted by the Proposed Action. This isolated depression appeared to have been formed at some time in the past by industrial fill removal or application and associated grading activities. A data sheet for delineation Data Point D-1a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland D-1 is included in **Table 5-1**. A more detailed description of characteristics associated with Wetland D-1 is provided below.



SOURCE: FHU and NRSI 2006c

Figure 5-1

Proposed Action Wetland Impacts

- ▶ **Hydrology:** Wetland D-1 was isolated and not associated with WOTUS. This marginal wetland was located in a shallow depression which appeared to have been created by the excavation and subsequent grading of fill dirt from an industrial storage area for wooden and concrete construction materials. The wetland apparently receives runoff during rainfall and snowfall events from a large area of extremely flat land and possibly from the south side of the Jefferson County Open Space Clear Creek Trail. At the time of the site visit, there was no standing water in the depression and the soil was cracked at the surface (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetland D-1 could be characterized as a PSS (Cowardin et al. 1979) wetland with very little vegetative species diversity. The transition from upland to wetland was extremely gradual. Vegetation within Wetland D-1 consisted entirely of shrub species which included plains cottonwood (*Populus deltoides*) (FAC), narrow-leaved cottonwood (*P. angustifolia*) (FACW), and tamarisk (*Tamarix ramosissima*) (FACW). No herbaceous layer was present at the time of the survey. The overstory consisted of young narrow-leaved cottonwoods (FACW). The upland areas surrounding this wetland were dominated by an open ecotone composed of a mix of various weed species including field bindweed (*Convolvulus arvensis*), prickly lettuce (*Lactuca serriola*), sweet clover (*Mellilotus* sp.), and teasel (*Dipsacus fullonum*).
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland D-1 as Alda-Niwot complex 0 to 2 percent slopes.. Soils characteristics determined during sampling at various locations at the site on September 27, 2005 closely resembled the mapped soil type (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland D-1 (FHU and NRSI 2006).

Functions:	Values:
GW – H	R - L
FA – L	ED – L
SS – L	U - L
SR – H	V - L
N – L	EB - L
PE – L	
WH – L	
FH – L	
TE - L	

5.2.2 Wetland E-1

Wetland E-1 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) was located immediately south of a culvert outlet carrying water beneath the Jefferson County Open Space Clear Creek Trail from Wetland J-4 and Wetland I-5. Water exits Wetland E-1 through a 12 inch culvert beneath a dirt access road on Coors Brewery Company property and immediately empties into the Juchem Ditch through Wetland E-2. The wetland would be impacted by the

Proposed Action (see **Figures 4-2 and 5-1**). A data sheet for delineation Data Point E-1a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland E-1 is included in **Table 5-1**. A more detailed description of characteristics associated with Wetland E-1 is provided below.

- ▶ **Hydrology:** Wetland E-1 was associated with a groundwater seepage and stormwater drainage ditch system which carries water from SH 58 and its frontage road into the Juchem Ditch at a point just south of the SH 58 frontage road and Jefferson County Trail and just west of the railroad overpass over SH 58. At the time of the site visit, there was runoff water flowing through the wetland (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetland E-1 could be characterized as PSS (Cowardin et al. 1979) wetland with moderate vegetative species diversity. The transition from upland to wetland was abrupt to gradual. Vegetation within Wetland E-1 consisted of herbaceous species which included teasel (NI), reed canarygrass (*Phalaris arundinacea*) (FACW+), cattail (*Typha latifolia*) (OBL), poison hemlock (*Conium maculatum*) (FACW), water speedwell (*Veronica anagallis-aquatica*) (OBL), Canada thistle (*Cirsium arvense*) (FACU), and goldenrod (*Solidago canadensis*) (FACU). Shrub species identified within the wetland included coyote willow (OBL) and wild plum (*Prunus americana*) (UPL). Boxelder (FAC) was the only overstory species. The upland areas surrounding this wetland were mostly open and were dominated by a mix of various exotic weed species including field bindweed, prickly lettuce, sweet clover, poison hemlock, teasel, and many others. Boxelder, Siberian elm, plains cottonwood, and narrow-leaved cottonwood composed the upland overstory which was generally confined to the vicinity of the Juchem Ditch (FHU and NRSI 2006).
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland E-1 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 27, 2005 closely resembled the mapped soil type (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland E-1 (FHU and NRSI 2006).

Functions:		Values:
GW – M	FH – L	R - L
FA – L	TE – L	ED – L
SS – L		U - L
SR – L		V - L
N – L		EB - M
PE – H		
WH – H		

5.2.3 Wetland E-2

Wetland E-2 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) was located immediately adjacent to the Juchem Ditch in a very narrow band along the sides of the Ditch and at the outlet of the culvert carrying runoff from Wetland E-1. The wetland could also potentially be impacted by the Proposed Action (see **Figure 5-1**). A data sheet for delineation Data Point E-2a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland E-2 is included in **Table 5-1**. A more detailed description of characteristics associated with Wetland E-2 is provided below.

- ▶ **Hydrology:** Wetland E-2 was also associated with a groundwater seepage and stormwater drainage ditch system which carries water from SH 58 and its frontage road into the Juchem Ditch at a point just south of the SH 58 frontage road and Jefferson County Pedestrian Trail and just west of the railroad overpass over SH 58. Water enters Wetland E-2 through the 12 inch culvert buried beneath a dirt access road on Coors Brewery Company property and immediately exits the wetland into the Juchem Ditch which flows north beneath SH 58. At the time of the site visit, there was runoff water flowing through the wetland (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetland E-2 could be characterized as a PSS (Cowardin et al. 1979) wetland with low hydrophytic vegetative species diversity. The transition from upland to wetland was abrupt. Vegetation within Wetland E-2 consisted of herbaceous species which included teasel (NI), Canada thistle (FACU), goldenrod (FACU), nettle (*Urtica dioica*) (FACW), and false Solomon's seal (*Smilacina stellata*) (FAC). Shrub species identified within the immediate vicinity of the wetland included coyote willow (OBL), snowberry (NI), and licorice (*Glycyrrhiza lepidota*) (FACU). Boxelder (FAC) was the only overstory species in the vicinity of the data plot. The upland areas surrounding this wetland were mostly open and were dominated by a mix of various exotic weed species including field bindweed, prickly lettuce, sweet clover, poison hemlock, teasel, and many others. Boxelder, Siberian elm, plains cottonwood, and narrow-leaved cottonwood composed the overstory which was generally confined to the vicinity of the Juchem Ditch (FHU and NRSI 2006).
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland E-2 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 27, 2005 closely resembled the mapped soil type (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).

- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland E-2 (FHU and NRSI 2006).

Functions:	Values:
GW – L	R - L
FA – L	ED – L
SS – L	U - L
SR – L	V - L
N – M	EB - H
PE – M	
WH – L	
FH – L	
TE - L	

5.2.4 Wetland I-1

Wetland I-1 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) was located immediately east of the McIntyre Street interchange with SH 58, immediately south of SH 58 and north of the frontage road.-The wetland could potentially be impacted by the Proposed Action (see **Figure 5**). A data sheet for Data Point I-1a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland I-1 is included in **Table 5-1**. A more detailed description of characteristics associated with Wetland I-1 is provided below.

- ▶ **Hydrology:** The wetland can be characterized as a shallow isolated depression in a roadside swale at the extreme west end of the SH 58 roadside drainage ditch. The hydrology apparently derives entirely from precipitation runoff from the surrounding roadways. At the time of the site visit, the site was dry (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetland I-1 could be characterized as a PSS (Cowardin et al. 1979) wetland with very little vegetative species diversity. The transition from upland to wetland was very gradual. Vegetation within Wetland I-1 consisted of herbaceous species which included teasel (NI) and showy milkweed (*Asclepias speciosa*) (FAC); a dense stand of coyote willow (OBL) which comprised the only midstory shrub species; and a lone Siberian elm (NI) in the overstory. The upland areas surrounding this wetland were open and were dominated by smooth brome and a mix of various exotic weed species including field bindweed, prickly lettuce and many others (FHU and NRSI 2006).
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland I-1 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 29, 2005 generally resembled the mapped soil type even though the site had been highly disturbed by road construction in the past (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).

5.2.5 Wetlands I-2, I-3, and I-4

Wetlands I-2, I-3 and I-4 are non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) were located along the roadside ditch system on the south side of SH 58. The wetlands could potentially be impacted by the Proposed Action (see **Figure 5-1**). Data sheets for Data Points I-2a, I-3a and I-4a are included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of the wetlands are included in **Table 5-1**. More detailed descriptions of the characteristics associated with Wetlands I-2, I-3 and I-4 are provided below.

- ▶ **Hydrology:** Wetlands I-2, I-3 and I-4 were part of the previously discussed groundwater seepage and stormwater drainage ditch system which carries water from SH 58 and its frontage road into the Juchem Ditch. The drainage ditch system originates at the west end of the project area just east of McIntyre Street and flows eastward. Wetlands I-2, I-3 and I-4 were located at the outflow point of a culvert which carries water south under SH 58 from the drainage ditch on the north side of SH 58 (Wetland K-2) (see **Figure 4-2**). Water enters the wetlands through the small culvert from the north side of SH 58 and from rainfall runoff from the south side of SH 58 and the frontage road. All three wetlands then empty into separate culverts which carry water beneath the frontage road into the drainage ditch that lies between the frontage road and the Jefferson County Open Space Pedestrian Trail (Wetland J-3). Water was flowing through Wetlands I-2, I-3 and I-4 at the time of the site visit on September 29, 2005 (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetlands I-2, I-3 and I-4 could be characterized as PEM wetlands (Cowardin et al. 1979) with fairly high vegetative species diversity (FHU and NRSI 2006). The transition from upland to wetland was gradual to abrupt in all three wetlands. Vegetation within the wetlands was entirely herbaceous and included teasel (NI), watercress (*Nasturtium officinale*) (OBL), common spike-rush (*Eleocharis palustris*) (OBL), duckweed (*Lemna minor*) (OBL), large duckweed (*Spirodela polyrhiza*) (OBL), three-square rush (*Scirpus americanus*) (OBL), blue vervain (*Verbena hastata*) (FACW), Canada thistle (FACU), small fruited bulrush (*Scirpus microcarpus*) (OBL), hemp dogbane (*Apocynum cannabinum*) (FAC), water speedwell (OBL), Torrey's rush (*Juncus torreyi*) (FACW), and reed canarygrass (FACW+). No shrub species or overstory was present. The upland areas surrounding the wetland was open and was dominated by smooth brome and a mix of various grasses and exotic weed species (FHU and NRSI 2006).
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetlands I-2, I-3 and I-4 as Alda-Niwot complex 0 to 2 percent slopes (FHU and NRSI 2006). Soils characteristics determined during sampling at various locations within the wetlands on September 29, 2005 generally resembled the mapped soil type even though the site had been highly disturbed by road construction in the past (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).

- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetlands I-2, I-3 and I-4 (FHU and NRSI 2006).

Functions:		Values:
GW – M	PE – H	R - L
FA – L	WH – L	ED – L
SS – L	FH - L	U - L
SR – M	TE - L	V - L
N – L		EB – H

5.2.6 Wetland I-5

Wetland I-5 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) was very similar to Wetland I-4, but was much larger (FHU and NRSI 2006). The wetland was located at the east end of the project area within the SH 58 stormwater runoff ditch system between the highway and the frontage road and just west of the railroad overpass over SH 58. The wetland could potentially be impacted by the Proposed Action (see **Figure 5-1**). A data sheet for Data Point I-5a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland I-5 is included in **Table 5-1**. More detailed descriptions of the characteristics associated with Wetland I-5 are provided below.

- ▶ **Hydrology:** Wetland I-5 was also part of the previously discussed groundwater seepage and stormwater drainage ditch system which carries water from SH 58 and its frontage road into the Juchem Ditch. The west end of Wetland I-5 was located at the outflow point of a culvert which carries water south under SH 58 from the drainage ditch on the north side of SH 58 (Wetland K-2). Water flowing into Wetland I-5 from the culvert and from roadside runoff flows east through the wetland within the SH 58 south ditch for about two hundred yards and then empties into a culvert which carries water beneath the frontage road into the drainage ditch (Wetland J-4) located between the frontage road and the Jefferson County Open Space Pedestrian Trail. Ponded water was standing in Wetland I-5 along the length of the ditch at the time of the site visit on September 29, 2005 (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetland I-5 had very similar vegetation to that found in Wetland I-4. I-5 could be characterized as a PEM wetland (Cowardin et al. 1979) with PSS characteristics at the west end. A fairly high level of hydrophytic vegetative species diversity existed in the wetland. The transition from upland to wetland was fairly abrupt. Vegetation within the wetland included teasel (NI), watercress (OBL), duckweed (OBL), Baltic rush (*Juncus balticus*) (OBL), Canada thistle (FACU), and cattail (OBL). Shrub species and overstory present at the west end of the wetland consisted of coyote willow (OBL), Russian olive (*Elaeagnus angustifolia*) (FAC), plains cottonwood (FAC), and Siberian elm (NI). The upland areas surrounding this wetland were open and were dominated by smooth brome (*Bromus inermis*), blue gramma (*Bouteloua gracilis*) and a mix of various other grasses and exotic weed species (FHU and NRSI 2006).

- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland I-5 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 29, 2005 generally resembled the mapped soil type even though the site had been highly disturbed by road construction in the past (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland I-5 (FHU and NRSI 2006).

Functions:		Values:
GW – H	PE – H	R - L
FA – L	WH – L	ED – L
SS – L	FH – L	U - L
SR – H	TE - L	V - L
N – M		EB – H

5.2.7 Wetlands J-2, J-3, and J-4

Wetlands J-2, J-3, and J-4 are non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) were located immediately south of the SH 58 frontage road and north of the Jefferson County Open Space Trail and they occupied the drainage ditch located between that infrastructure. Each of these wetlands was separated by unpaved access roads and associated culverts which provide access from the frontage road into the Coors Brewing Company property south of the Pedestrian Trail. The wetlands would be impacted by the Proposed Action (See **Figure 5-1**). Data sheets for Data Points J-2a, J-3a, and J-4a are included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated areas of the wetlands are included in **Table 5-1**. More detailed descriptions of characteristics associated with these wetlands are provided below.

- ▶ **Hydrology:** Wetlands J-2, J-3, and J-4 were also associated with the groundwater seepage and stormwater drainage ditch system which carries water from SH 58 and its frontage road into the Juchem Ditch at a point just south of the SH 58 frontage road and Jefferson County Pedestrian Trail and just west of the railroad overpass over SH 58. At the time of the site visit, there was runoff water flowing through these wetlands (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetlands J-2, J-3, and J-4 could be characterized as interspersed PFO, PEM and PSS (Cowardin et. al 1979) wetlands with moderate vegetative species diversity. The transition from upland to wetland was abrupt in most places but gradual in some areas. Vegetation within these wetlands consisted of herbaceous species which included teasel (NI), common reed (*Phragmites australis*) (FACW), cattail (OBL), small fruited bulrush (OBL), coyote willow (OBL), green ash (FACW), great bulrush (*Scirpus validus*) (OBL), domestic hops (*Humulus japonicus*) (FACU), horsetail (*Equisetum arvense*) (FAC), nettle (FACW), houndstongue (*Cynoglossum officinale*) (NI), poison hemlock (FACW), water speedwell (OBL), Canada thistle (FACU), duckweed (OBL), and large duckweed (OBL). Shrub species identified within the wetlands included coyote willow (OBL), boxelder (FAC), green ash (FACW), golden currant (*Ribes aureum*) (FAC), and plains rose (*Rosa arkansana*) (NI). Boxelder (FAC), green ash (FACW), alder (*Alnus incana*) (FACW), plains

cottonwood (FAC), and crack willow (*Salix fragilis*) (FAC) occupied the majority of the overstory. The open upland areas surrounding these wetlands were dominated by smooth brome and other grasses mixed with various exotic weed species including field bindweed, prickly lettuce, teasel, sweet clover, poison hemlock, and many others. Boxelder, Siberian elm, plains cottonwood, green ash and narrow-leaved cottonwood composed most of the upland overstory (FHU and NRSI 2006).

- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetlands J-2 through J-4 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 29, 2005 closely resembled the mapped soil type (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland J-2 through J-4 (FHU and NRSI 2006).

Functions:	Values:
GW – M to H	R – M to H
FA – L to M	ED – M to H
SS – L	U - L
SR – L to H	V – M to H
N – L to M	EB - H
PE – L to M	
WH – H	
FH – L	
TE - L	

5.2.8 Wetland K-1

Wetland K-1 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) occupied part of the drainage ditch on the north side of SH 58 immediately adjacent to the north abutment of the railroad overpass. The wetland may be impacted by construction associated with the Proposed Action (see **Figure 5-1**). A data sheet for Data Point K-1a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland K-1 is included in **Table 5-1**. More detailed descriptions of the characteristics associated with Wetland K-1 are provided below.

- ▶ **Hydrology:** Wetland K-1 drains directly into the Juchem Ditch on the north side of SH 58 and immediately to the east of the railroad overpass. The roadside ditch, at the location of the wetland, appeared to have been filled in the recent past with sediment from hillside runoff. Ponded water was overflowing onto the shoulder of the highway at the time of the site visit on September 30, 2005 (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetland K-1 had very similar vegetation to that found in Wetlands I-2 through I-5. K-1 could be characterized as a PEM wetland (Cowardin et al. 1979) with PSS characteristics at the west end. A fairly high level of hydrophytic vegetative species diversity

existed in the wetland. The transition from upland to wetland was fairly abrupt. Herbaceous vegetation identified within the wetland included watercress (OBL), Torrey's rush (FACW), Canada thistle (FACU), cattail (OBL), three-square rush (OBL), great bulrush (OBL), common spike-rush (OBL), and barnyard grass (FACW). Shrub species and overstory present at the west end of the wetland consisted of coyote willow (OBL), Russian olive (FAC), and plains cottonwood (FAC). A sparse overstory of plains cottonwood (FAC) was also present. The upland areas surrounding this wetland were open and were dominated by smooth brome, blue gramma, and a mix of various other grasses and exotic weed species (FHU and NRSI 2006).

- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland K-1 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 30, 2005 generally resembled the mapped soil type even though the site had been highly disturbed by road construction in the past (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).

5.2.9 Wetland K-2

Wetland K-2 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2** and **5-1**) occupied most of the drainage ditch on the north side of SH 58. The wetland probably would be impacted by the Proposed Action (see **Figure 5-1**). Data sheets for Data Points K-2a and K-2b are included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland K-2 is included in **Table 5-1**. More detailed descriptions of the characteristics associated with Wetland K-2 are provided below.

- ▶ **Hydrology:** Wetland K-2, as part of the north drainage ditch for SH 58, receives groundwater seepage and precipitation runoff from the north side of SH 58 and drains southward through five small culverts constructed beneath SH 58. These culverts empty through Wetlands F-1, I-2, I-3, I-4, and I-5 into the main drainage ditch on the south side of the SH 58 frontage road (Wetlands J-1 through J-4) which flows into the Juchem Ditch on the south side of SH 58 (see **Figure 4-2**). Ponded and flowing water was present in much of Wetland K-2 at the time of the site visit on September 30, 2005 (FHU and NRSI 2006).
- ▶ **Vegetation:** Wetland K-2 had very similar vegetation to that found in Wetlands J-1 through J-4. K-2 could be characterized as a mix of PEM, PSS, and PFO (Cowardin et al. 1979) wetlands. A fairly high level of hydrophytic vegetative species diversity existed in the wetland (FHU and NRSI 2006). Wetland K-2 coincided primarily with the highway drainage ditch and the transition from upland to wetland was fairly abrupt in most places. A number of upland seep areas with obligate wetland vegetation were identified on the side of the hill adjacent to this wetland to the north of SH 58, however. Herbaceous vegetation identified within the wetland included watercress (OBL), duckweed (OBL), large duckweed (OBL), Baltic rush (OBL), showy milkweed (*Asclepias speciosa*) (FAC), reed canarygrass (FACW+), Canada thistle (FACU), cattail (OBL), three-square rush (OBL), rabbitfoot grass (*Polypogon monspeliensis*) (OBL), water speedwell (OBL), great bulrush (OBL), common spike-rush (OBL), small fruited bulrush (OBL), cowbane (*Oxypolis fendleri*(?)) (NI) and barnyard grass

(*Echinochloa crusgalli*) (FACW). Shrub and overstory species present along the length of the wetland included coyote willow (OBL), Russian olive (FAC), plains cottonwood (FAC), crack willow (FAC), Siberian elm (NI), and boxelder (FAC). The upland areas surrounding this wetland were generally forested or covered with shrubby vegetation with an herbaceous understory dominated by smooth brome and a mix of various other grasses and exotic weed species (FHU and NRSI 2006).

- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland K-2 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 30, 2005 generally resembled the mapped soil type even though the site had been highly disturbed by road construction in the past (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland K-2 (FHU and NRSI 2006).

Functions:	Values:
GW – H	R - L
FA – L	ED – L
SS – L	U - L
SR – M to H	V - M
N – M to H	EB – M to H
PE – M	
WH – M	
FH – L	
TE – L	

5.2.10 Wetlands K-3 and K-4

Wetlands K-3 and K-4 are non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) were isolated wetlands located immediately north of Wetland K-2 and SH 58. The wetlands would be impacted by the Proposed Action (see **Figure 5-1**). Data sheets for Data Points K-3a and K-4a are included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated areas of Wetlands K-3 and K-4 are included in **Table 5-1**. More detailed descriptions of the characteristics associated with Wetlands K-3 and K-4 are provided below.

- ▶ **Hydrology:** Wetlands K-3 and K-4 were isolated wetlands perched on a terrace on the hillside immediately north of the SH 58 north ROW ditch. Shallow ponded water was present in portions of Wetlands K-3 and K-4 at the time of the site visit on September 30, 2005 and again on January 14, 2006 (FHU and NRSI 2006). Sustaining hydrology for both wetlands apparently originates from groundwater seepage from the hillside. No outlets were located.

- ▶ **Vegetation:** Wetlands K-3 and K-4 had very similar vegetation and could be characterized as a mix of PEM and PSS vegetative community types (Cowardin et al. 1979). These two rectangular shaped wetlands were occupied by dense homogeneous stands of cattail (OBL) mixed with great bulrush (OBL) and three-square rush (OBL) and were surrounded by dense stands of coyote willow (OBL) (FHU and NRSI 2006). The transition from upland to wetland was gradual to abrupt. Overstory species present along the length of the wetlands included coyote willow (OBL), plains cottonwood (FAC), Russian olive (FAC), and Siberian elm (NI). The upland areas surrounding this wetland were generally forested or covered with shrubby vegetation with an herbaceous understory dominated by smooth brome and a mix of various other grasses and exotic weed species (FHU and NRSI 2006).
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetlands K-3 and K-4 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 30, 2005 generally resembled the mapped soil type even though the site had been highly disturbed by road construction in the past (FHU and NRSI 2006). The Alda-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils list (NRCS) or the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland K-3 and K-4 (FHU and NRSI 2006).

Functions:	Values:
GW – M	R - L
FA – L	ED – L
SS – L	U - L
SR – H	V - M
N – L	EB - L
PE – L	
WH – M	
FH – L	
TE - L	

5.2.11 Wetland L-1

Wetland L-1 is non-jurisdictional and (see **Table 5-1** and **Figures 4-2 and 5-1**) was an extremely narrow strip along both sides of the Bayou Ditch, a historic irrigation ditch which diverts flow from Clear Creek and flows northeast from the project area. Only the area of the Ditch in the immediate vicinity of the proposed Cabela's Drive crossing over Clear Creek at the east end of the project area was delineated by NRSI (FHU and NRSI 2006). Other portions of the Bayou Ditch to the west of this site, especially the reach between the Clear Creek out-take check dam structure and the Jefferson County Open Space Clear Creek Trail (see **Figure 5-1**) were in a much more natural condition and more closely resembled a heavily forested riparian corridor with associated PEM wetlands rather than a maintained irrigation ditch. The area of the Ditch which was assessed during the field work conducted for this project on September 26, 2005 [see Data Sheet L-1a in the Wetland Delineation Report (FHU and NRSI 2006)] was a steeply channeled earthen ditch which had been relocated several years earlier during gravel mining operations associated with the Mt. Olivet South mining project (USACE 2004, FHU and

NRSI 2006). The wetland could potentially be impacted by the Proposed Action (see **Figure 5-1**). The Mt. Olivet mine site is scheduled for reclamation and possible realignment of the Bayou Ditch prior to construction of the I-70/32nd Avenue Interchange project (USACE 2004, FHU 2005b). A data sheet for Data Point L-1a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland L-1 is included in **Table 5-1**. A more detailed description of characteristics associated with Wetland L-1 is provided below.

- ▶ **Hydrology:** Wetland L-1 was associated with the waterline along the edges of the Bayou (Bayau) Ditch, an historic irrigation ditch which diverts flow from Clear Creek. Wetland L-1 formed a very narrow strip along both sides of the Ditch in the area of assessment. At the time of the site visit, there was considerable flow being diverted from Clear Creek through the Bayou Ditch (FHU and NRSI 2006). The Mt. Olivet South gravel pit was located immediately to the north of the Ditch. No mining operations were occurring at the Mt. Olivet site at the time of the site visit (Ibid 2006a).
- ▶ **Vegetation:** Wetland L-1 could be characterized as PSS (Cowardin et al. 1979) wetland with low vegetative species diversity. The transition from upland to wetland along the steep sides of the Ditch was abrupt. Vegetation within Wetland L-1 consisted of herbaceous species which included teasel (NI), reed canarygrass (FACW+), and goldenrod (FACU). Shrub species identified within the wetland consisted entirely of dense stands of coyote willow (OBL). Very scattered small Siberian elms (NI) and box elders (FAC) were the primary overstory species. The upland areas surrounding the Ditch were mostly open and were dominated by a mix of various exotic weed species including field bindweed, prickly lettuce, sweet clover, poison hemlock, teasel, and many others. Boxelder, Siberian elm, plains cottonwood, and narrow-leaved cottonwood composed the scattered upland overstory which was primarily confined to the Clear Creek corridor immediately to the south (FHU and NRSI 2006).
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland L as Torrifluvents, very gravelly, 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on September 26, 2005 closely resembled the mapped soil type (FHU and NRSI 2006). Torrifluvents are not listed as hydric soils on the Jefferson County local hydric soils list (NRCS 2003), nor are they listed as hydric soils in the *National List of Hydric Soils* (USDA 1991). Soils in the wetland exhibited hydric characteristics, however (FHU and NRSI 2006).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland L-1 (FHU and NRSI 2006).

Functions:

GW – L
FA – L
SS – L
SR – L
N – L
PE – L
WH – M
FH – L
TE - L

Values:

R - L
ED – L
U - L
V - L
EB - H

5.2.12 Wetland N-1

Wetland N-1 is jurisdictional and (see **Table 5-1 and Figure 4-2 and 5-2**) was located in a drainage ditch in the loop of the Ward Road westbound I-70 on-ramp. A data sheet for Data Point N-1a is included in the Wetland Delineation Report (FHU and NRSI 2006). The estimated area of Wetland N-1 is included in **Table 5-1**. A more detailed description of characteristics associated with Wetland N-1 is provided below.

- ▶ **Hydrology:** Wetland N-1 was a short drainage ditch segment which carries stormwater runoff from a buried culvert which crosses beneath Ward Road to another buried culvert which carries runoff beneath the I-70 westbound to Ward Road on-off ramp complex to a large detention pond. At the time of the site visit on January 14, 2006, there was standing and slowly flowing water along the entire length of Wetland N-1.
- ▶ **Vegetation:** Wetland N-1 could be characterized as a PEM (Cowardin et. al 1979) wetland with low vegetative species diversity. The transition from upland to wetland was generally abrupt but gradual in some places. Vegetation within this wetland consisted of herbaceous species which included teasel (NI), cattail (OBL), duckweed (OBL), large duckweed (OBL), Canada thistle (FACU), Baltic rush (OBL), three-square rush (OBL), water speedwell (OBL), and goldenrod (FACU). Shrub species consisted entirely of coyote willow (OBL). A sparse overstory consisted of four small Siberian elms (NI). The open upland areas surrounding these wetlands were dominated by smooth brome and other grasses mixed with various exotic weed species including field bindweed, prickly lettuce, and a few others.
- ▶ **Soils:** Published soil survey data (Price and Amen 1980) listed the predominant soils associated with Wetland N-1 as Alda-Niwot complex 0 to 2 percent slopes. Soils characteristics determined during sampling at various locations at the site on January 14, 2006 closely resembled the mapped soil type. The Ada-Niwot complex is not listed as a hydric soil on the Jefferson County local hydric soils listed (NRCS 2003) or the *National List of Hydric Soils* (USDA 1991).
- ▶ **Functions and Values:** The following function and value levels of importance were attributed to Wetland N-1 (FHU and NRSI 2006).

Functions:

GW – H
FA – L
SS – L
SR – L
N – L
PE – L
WH – L
FH – L
TE - L

Values:

R - L
ED – L
U - L
V - L
EB - L

5.2.13 Wetland Boundaries

The approximate boundaries of the thirty-three delineated wetlands within the project area are indicated in **Figure 4-2**. The respective data sheets for all Data Points are provided in the Wetland Delineation Report (FHU and NRSI 2006)

No wetlands were identified during this assessment in the area of the I-70/32nd Avenue Interchange, the I-70 ROW from 27th Avenue to Ward Road, the Youngfield Street ROW from 27th Avenue to 44th Avenue (other than Wetland M-1), or the proposed 40th Avenue underpass beneath I-70. The Clear Creek channel beneath I-70 and Youngfield Street was not assessed, as the area will not be affected by the Proposed Action (FHU and NRSI 2006).

6.0 WETLAND IMPACTS

The Proposed Action would impact wetlands during construction of the SH 58/Cabela Drive interchange. Estimated acreages of potential impacts associated with the Proposed Action were determined by overlaying the conceptual design for the Proposed Action with the delineated wetland map (see **Figure 5-1**). Approximately 1.291 acre of non-jurisdictional wetlands would be impacted by construction of the SH 58/Cabela Drive interchange included in the Proposed Action, and approximately 0.001 acre of jurisdictional wetlands would be impacted by the widening of the westbound I-70 on-ramp at Ward Road (see **Table 5-1**). Most of these impacted wetlands are associated with existing right-of-way drainage ditches along SH 58 and the SH 58 frontage road. Given the level of preliminary design completed to date; however, it is difficult at this stage to differentiate between temporary and permanent impacts. This will be done during final design and permitting.

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7.0 WETLAND MITIGATION

Under the TEA-21 federal guidance, “preference shall be given, to the maximum extent practicable, to the use of the mitigation bank” to compensate for wetland impacts resulting from CDOT projects. In an effort to comply with this federal guidance, the CDOT proposes to use pre-purchased wetland bank credits at a USACE approved wetlands bank with available credits within the primary service area to replace the wetland areas permanently affected by the I-70/32nd Avenue interchange project. Estimated impacts to wetlands are summarized in **Table 5-1**. During final design, additional efforts will be taken to minimize permanent wetland impacts.

Not only will mitigation banking comply with the federal guidance, but it offers the most practicable alternative for this project. The purchase of the bank credits would be completed prior to wetland impacts, and the functions and values of wetlands in the mitigation bank are likely higher than the low-quality wetlands that would be impacted. On-site wetland creation design, construction, and monitoring would not be efficient or cost-effective, and thus is not as practicable an alternative as mitigation banking.

Temporary impacts are normally required to be mitigated through restoration of impacted wetlands to a condition that equals or exceeds pre-construction conditions. Permanent impacts are normally required to be mitigated at a 1:1 acre for acre ratio.

Impacts to wetlands will be avoided and/or minimized to the extent practicable through the use of construction best management practices (BMPs), which would include the following:

- ▶ Erosion prevention, including temporary soil stabilization measures (e.g. surface roughening, terracing, mulching, and turf reinforcement mats) and structures, such as berms or swales with or without a diversion channel, to prevent and/or slow runoff across temporary and permanently disturbed areas and/or divert runoff to sediment basins
- ▶ Sediment control measures, including straw bales, silt fences, sediment traps, and/or sediment basins
- ▶ Water quality treatment measures to capture and treat runoff and to prevent runoff from entering Clear Creek and associated wetlands, which are identified in the *I-70/32nd Avenue Interchange Environmental Assessment Water Resources Technical Report* (FHU 2006)
- ▶ Use of designated areas for vehicle staging to minimize disturbance of wetlands and vegetated areas
- ▶ Revegetation of disturbed areas as quickly as possible with native vegetation throughout construction
- ▶ Installation of temporary fencing to prevent construction access to wetland areas
- ▶ Avoid wetland areas during dewatering activities
- ▶ Keep cranes and other equipment out of the creek or stream bank area to the greatest extent practicable

Issuance of a Colorado Discharge Permit System (CDPS) permit is anticipated for this project by the State of Colorado Department of Public Health and Environment which further protects wetlands and waterways. The Stormwater Management Plan (SWMP) to be submitted for this project will show the location(s) of all the BMPs required for this project.

8.0 CONCLUSION

Based on the above considerations, it is determined that there is no practicable alternative to the proposed new construction in wetlands and that the Proposed Action includes all practicable measures to minimize harm to wetlands which may result from such use.

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**ATTACHMENT
MITIGATION SITE SELECTION FORM**

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Wetland Mitigation Site Selection Form
Colorado Department of Transportation
Attachment to Wetland Finding

Project Name/No.: I-70/32 nd Avenue Interchange / IM 0703-294	
Sub-account No.: 15214	Region: 6
Author: Steve C. Johnson	Firm: Natural Resource Services, Inc.
Date Submitted: October 2006	

Mitigation Options Available	(1) Mitigation bank available? (yes/no) Yes
	(2) Project impacts in 1 ^o , 2 ^o service area? Yes, primary
	(3) HUC units: 10190004
	(4) On-site mitigation available? (yes/no) No
	(5) Off-site mitigation available? (yes/no) No
	(6) In-lieu fee arrangement available? (yes/no) No <i>In-lieu fee sponsor:</i>
	(7) Mitigation ratio(s) other than 1:1 involved? (yes/no) No <i>Ratio(s):</i>

Site Characteristics		Impact Site	Mitigation Site
	(8) Geographic location	T3S, R69W & 70W, S19, 20, 24, 25, 29, 30, & 32	Undetermined
	(9) Wetland CT, % of each type	PEM 50%, PSS 25%, PFO 25%	Undetermined
	(10) Functions, values	GW, FA, SS, SR, N, PE, WH, FH, TE, R, Ed, U, V, EB (All L to H)	Undetermined
	(11) Size of impacts, % of total area	1.292 acre	Undetermined

Wildlife/Habitat	(12) T&E species/habitat present?	No	Undetermined
	(13) Species? Status?	N/A	Undetermined
	(14) Migratory Bird Treaty Act issues?	<p>Conduct a thorough survey of active nests in the project area between April 1 (February for raptors) and August 15, prior to the initiate of construction activities</p> <p>Do not allow construction to begin near active nest areas until all nestlings have fledged, if active nests are found to be present</p> <p>Prevent all protected birds from achieving an active nest prior to and during the breeding season</p> <p>No work can occur that would impact the nests, if occupied nests are observed during construction</p> <p>Conduct habitat disturbing activities, such as tree removal, grading, scraping, grubbing, etc., during the non-breeding season unless the area has been verified by a qualified biologist that no active nests are present</p>	Undetermined
	(15) Other wildlife issues?	Travel corridor/potential nesting	Undetermined
	(16) Status of aquatic resource?	Not designated	Undetermined
	(17) Special aquatic site?	No	Undetermined
	(18) Unique? Quality? Ranking?	Medium quality	Undetermined

		Impact Site	Mitigation Site
	(19) Watershed, ecosystem issues?	Isolated system	Undetermined
Other	(20) Likelihood of success?	N/A	Undetermined
	(21) Interagency agreement?	N/A	Undetermined
	(22) Project logistics, size/scope?	N/A	Undetermined
	(23) Cost considerations?	N/A	Undetermined
	(24) Buffer used?	N/A	Undetermined
Water Issues	(25) Indiv. 404 permit condition?	Undetermined (Probably none required)	Undetermined
	(26) 404 (b)(1) Guidelines?	Probably non-jurisdictional	Undetermined
	(27) NWP gen. reg. conditions?	Probably non-jurisdictional	Undetermined
	(28) Regulatory letters?	Probably non-jurisdictional	Undetermined
	(29) S.B. 40?	No. No impacts to stream zone.	Undetermined
	(30) Water rights issues?	To be considered.	Undetermined
NEPA Issues	(31) Cumulative impact issues?	N/A	Undetermined
	(32) Agency policy, input?	CDOT/FHWA/CDOW/USACE/EPA/ DNR-DWR/CDPHE	Undetermined
	(33) Public involvement?	Yes	Undetermined

(34) Basis for Decision (Describe factors that are instrumental in the selection of the chosen mitigation decision.)

No mitigation decision has been made to date.

(35) Decision

No mitigation decision has been made to date.

(36) Contingency Plans

No mitigation decision has been made to date.