

**FINAL REPORT**

**WETLAND TECHNICAL REPORT FOR  
THE US 36 EIS PROJECT**

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BOULDER COUNTIES, COLORADO**

*Prepared for*  
Colorado Department of Transportation and the  
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Wetlands and other waters were identified on two 600-foot wide corridors between Denver and Boulder, including an 18-mile corridor along US 36 and a 30-mile corridor along the BNSF. Wetlands were identified based on the presence of wetland vegetation and wetland hydrology, assuming the presence of hydric soils.

A total of 219 wetlands were identified in the study area, including 103 along US 36 and 116 along the BNSF. These wetlands encompass a total of 115.87 acres, 70.18 acres along US 36 and 45.69 along the BNSF. The wetlands are organized into three groups, including natural, irrigation-related, and stormwater-related. Approximately 30 percent of the wetlands are natural wetlands, 55 percent are associated with irrigation, and 15 percent are stormwater-related.

The wetlands were classified into four groups using a standard classification system, including palustrine emergent, palustrine scrub/shrub, palustrine emergent and scrub/shrub combination, and palustrine forested. Most of the wetlands are classified as palustrine emergent (97.57 acres or 84 percent of the wetlands in the study area). Palustrine scrub/shrub wetlands are the second-most common with 9.63 acres (8 percent), palustrine emergent and scrub/shrub are third-most common with 8.23 acres (7 percent), and palustrine forested are the least common with 0.44 acre (less than 1 percent).

A total of 23 wetland plant associations were identified in the study area, including 14 from a recently published local field guide. The most common six associations observed include *Carex emoryi*, *Phalaris arundinacea*, *Salix exigua*/mesic graminoid, *Typha angustifolia*/*Typha latifolia*, and mixed wetland graminoid, mixed wetland herbaceous.

A regionally used and accepted wetland functional assessment method was used to determine the high-rated functions for the wetlands in the study area. A total of 12 functions were examined and high-ratings were received for nine. The functions most commonly rated high include: special status species habitat, shoreline stabilization, general wildlife habitat, and sediment/nutrient/toxicant removal. The wetlands that received high ratings encompass a total of 99.90 acres, including 62.03 along US 36 and 37.87 along the BNSF.

Of the 219 wetlands and 115.87 acres, 87 are likely considered jurisdictional by the USACE for a total of 90.72 acres. Most of the jurisdictional wetlands are along US 36 (61.32 acres or 68 percent of the jurisdictional wetlands), with only 29.40 acres (32 percent) along the BNSF.

In addition to the wetlands, a total of 93 other waters were identified in the study area, encompassing 51.32 acres. This includes 41 along US 36 for a total of 11.30 acres, and 55 along the BNSF for 40.02 acres. These other waters are organized into the same three groups as the wetlands, including natural, irrigation-related, and stormwater-related. Most of the other waters belong to the natural group (36.13 acres or 70 percent of the other waters in the study area). Irrigation-related other waters are the second-most common with 8.01 acres (16 percent) and stormwater-related other waters are the least common with 7.18 acres (14 percent).

Of the 93 other waters (51.32 acres), 71 for a total of 34.55 acres are likely considered jurisdictional by the USACE. Most of the jurisdictional other waters are along the BNSF (29.52 acres or 85 percent of the jurisdictional other waters), with only 5.03 acres (15 percent) along US 36.



## **1.1 BACKGROUND**

The purpose of this report is to summarize the data collected for the wetland portion of the US 36 Environmental Impact Statement (EIS). Although the wetlands were not formally delineated per US Army Corps of Engineers (USACE) protocol, they were identified using a faster, more conservative approach. This method is explained in more detail in Section 2.0 Methods.

## **1.2 WETLAND DEFINITION AND PROTECTION**

Wetlands are important biological resources that perform many functions including groundwater recharge, flood flow attenuation, erosion control, and water quality improvement. They also provide habitat for many plants and animals, including threatened and endangered species.

Wetlands are defined by the USACE (33 CFR 328.3, 1986) and the US Environmental Protection Agency (40 CFR 230.3, 1980) as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.” Many wetlands and other aquatic features, including ephemeral, intermittent, and perennial streams, are considered waters of the US by the USACE and these “jurisdictional” areas are protected under Section 404 of the Clean Water Act.

It should be noted that although the Act “protects” those wetlands and other waters considered jurisdictional by the USACE, Executive Order (EO) 11990 “Protection of Wetlands” directs all federal agencies to “minimize the destruction, loss or degradation of wetlands.” Thus, in accordance with EO 11990, other federal policies, and Colorado Department of Transportation (CDOT) policy, all wetlands in the study area will be considered (regardless of jurisdictional status under Section 404) and all impacts to wetlands will be mitigated at a 1:1 ratio.

## **1.3 STUDY AREA**

The study area generally includes two 600-foot wide corridors. One corridor extends over 18 miles along US 36 from Interstate-25 (I-25) in Adams County to Foothills Parkway in Boulder. The second corridor extends over 30 miles along the Burlington Northern Santa Fe Railroad (BNSF) from near Union Station in Denver to Jay Road just north of Boulder. No wetlands or other waters were mapped along the BNSF corridor beyond the intersection of Jay Road. Figure 1 shows both corridors.

Due to the large size of the study area, the US 36 corridor has been divided into five segments and the BNSF corridor into six. The discussions in this report refer to these segments and they include (from south to north):

- Denver (BNSF only)
- Adams County
- Westminster

- Broomfield
- Superior/Louisville
- Boulder



## **2.1 DATA COLLECTION**

Prior to conducting any fieldwork, existing wetland data were collected and reviewed from several local and national sources. These sources included the National Diversity Information Source (NDIS) database, National Wetland Inventory maps, and Boulder County information. The NDIS database provided a complete data set for the study area and was the primary data set used in the preparation of a preliminary technical report that described the general area.

The entire study area was walked and/or driven on May 17—20, 24, and 28; June 2—4, 9, 10, and 28; and July 2, 15, and 16, 2004 to identify wetlands and other waters. Rather than completing a formal wetland delineation for the entire study area, the wetlands were identified based on the presence of hydrophytic (wetland) vegetation and wetland hydrology. Hydric soils were assumed to be present in all areas. This method was approved by CDOT, the USACE, and the other agencies involved in the project. Although this method may not be used for Section 404 permitting, it is valuable for projects that have very large study areas with numerous alternatives. The method provides a more time efficient approach to mapping wetlands than formal wetland delineation and the results represent a conservative estimate of the size of the wetlands in the study area. However, prior to impacting any of the wetlands within the study area, a formal wetland delineation should be completed.

## **2.2 WETLAND FUNCTIONS**

To assist in evaluating the functions of wetlands within the study area, a modified version of the Montana Department of Transportation Wetland Functional Assessment Method (Berglund 1999) was used to determine the functions of the wetlands within the study area. This method was used because it is efficient and concise, and is generally relevant to this region.

## **2.3 JURISDICTIONAL STATUS**

The jurisdictional status of the wetlands and other waters is generally based on the feature being adjacent to or having an obvious hydrologic connection to a known jurisdictional waterway or wetland. In most cases, if a wetland is only separated from a jurisdictional waterway by a berm, roadway, railway, or other man-made feature, it was considered jurisdictional even if a culvert or other surface connection was not observed. If no hydrologic connection (current or historical) was observed or could be identified on topographical maps, then the wetland was usually considered non-jurisdictional. Although many irrigation ditches and canals are generally considered non-jurisdictional, until further data can be collected on their endpoints and water source(s), they have been considered jurisdictional for this analysis. This includes any wetlands associated with these ditches and canals, including wetlands created by leaky ditches, irrigation water storage, etc.

This is only a preliminary assessment of jurisdiction. Prior to impacting any wetlands, an official jurisdictional determination must be obtained from the USACE.

## 2.4 MAPPING

Maps of all wetlands and other waters identified in the study area are included in Appendices A1 and A2. As mentioned in Section 1.3 Study Area, the study area generally consists of two 600-foot wide corridors (a 300-foot buffer from the centerline of US 36 and the BNSF).

Appendix A1 includes 32 consecutive sheets that show the US 36 corridor from I-25 (Sheet 32) to Foothills Parkway (Sheet 1), plus nine additional sheets that exemplify those areas outside of the 300-foot buffer area (Sheets 1A, 12A, 12B, 16A—16D, 20A, and 24A).

Appendix A2 includes 51 consecutive sheets that show the BNSF corridor from Jay Road (Sheet 4) to Union Station (Sheet 51), plus five additional sheets that show those areas not visible on the other sheets due to relatively abrupt turns in the alignment (Sheets 8A, 8B, 13A, 25A, and 33A). Sheets 1—3 have been omitted from the set since no data were collected north of Jay Road.

## 2.5 IDENTIFICATION NUMBERS

Every wetland and other water in the study area has been assigned a unique identification (ID) number. In many cases a “wetland” may include a group of small wetlands with similar vegetation and source of hydrology. Generally, the ID numbers for all features increase from south to north, except at the South Platte River on the BNSF which was visited last, and along the south/west side of US 36 where (for safety reasons) the work was conducted from Boulder to Denver. Although the same numbering scheme was used for both corridors, the ID numbers are unique to each corridor and the corridors are treated separately (e.g. Wetland 6 on US 36 is NOT the same wetland as Wetland 6 on the BNSF corridor). In some locations, alphanumeric ID numbers with “A” or other letter (e.g. Wetland 8C) was used for some wetlands. These wetlands are usually not associated with the wetlands of the same number (e.g. Wetland 8), but are just in close-proximity.

**3.1 WETLANDS**

A total of 219 wetlands were identified in the study area, including 103 along US 36 and 116 along the BNSF. Many of these wetlands include multiple parts and many extend beyond the boundaries of the defined study area. The wetlands encompass a total of 115.87 acres, including 70.18 acres along US 36 and 45.69 acres on the BNSF. The wetlands have been organized into three major groups, including natural, irrigation-related, and stormwater-related wetlands. These groups are briefly discussed below and more information can be found in Appendices B, C and D.

**Natural Wetlands**

Natural wetlands are those associated with natural seeps, springs, ponds, and waterways, including perennial, intermittent and/or ephemeral streams. A total of 41 natural wetlands were identified in the study area, including seven along US 36 and 34 along the BNSF. These wetlands encompass approximately 34.49 acres or 30 percent of the wetlands within the study area, and are generally located in low-lying areas on floodplains or along the banks of the waterways. Table 1 shows the number of acres of wetland in each group by project segment and each segment is briefly discussed below. Maps depicting all of the wetlands can be found in Appendices A1 and A2.

**Table 1  
Wetlands by Project Segment**

Project Segment	Wetland Group (acres)			Total
	Natural	Irrigation -Related	Stormwater -Related	
<b>US 36 Corridor</b>				
Adams County	0.00	0.68	1.06	<b>1.74</b>
Westminster	0.90	1.32	3.20	<b>5.42</b>
Broomfield	0.14	2.92	1.26	<b>4.32</b>
Superior/Louisville	4.96	0.79	0.81	<b>6.56</b>
Boulder	1.67	50.04	0.43	<b>52.14</b>
<b>Subtotal</b>	<b>7.67</b>	<b>55.75</b>	<b>6.76</b>	<b>70.18</b>
<b>BNSF Corridor</b>				
Denver	0.23	0.00	0.00	<b>0.23</b>
Adams County	6.16	0.14	1.22	<b>7.52</b>
Westminster	5.78	0.41	1.51	<b>7.70</b>
Broomfield	3.31	0.10	2.41	<b>5.82</b>
Superior/Louisville	0.59	0.52	1.43	<b>2.54</b>
Boulder	10.75	7.21	3.92	<b>21.88</b>
<b>Subtotal</b>	<b>26.82</b>	<b>8</b>	<b>10.49</b>	<b>45.69</b>
<b>TOTAL</b>	<b>34.49</b>	<b>64.13</b>	<b>17.25</b>	<b>115.87</b>
<b>Percent of Total</b>	<b>30</b>	<b>55</b>	<b>15</b>	<b>100</b>

*US 36 Corridor*

Seven natural wetlands were identified along US 36 (Wetlands 88, 35, 37, 39, 46, 75, and 59) and they encompass a total of 7.67 acres. These wetlands include the following (most of those listed are associated with the waterways in parentheses):

- Adams County: none
- Westminster: Wetland 88 (Big Dry/Walnut Creek)
- Broomfield: Wetlands 35 and 37
- Superior/Louisville: Wetlands 39, 46, and 75 (Rock Creek, Coal Creek)
- Boulder: Wetland 59 (South Boulder Creek)

*BNSF Corridor*

Thirty-four (34) natural wetlands were identified along the BNSF corridor and encompass a total of 26.82 acres. These wetlands include the following (most of those listed are associated with the waterways in parentheses):

- Denver: Wetland 112 (South Platte River)
- Adams County: Wetlands 4, 7—11, and 18 (Clear Creek, Little Dry Creek)
- Westminster: Wetlands 27 and 29—31 (Big Dry Creek, Walnut Creek)
- Broomfield: Wetlands 33, 37, 38, and 41 (Rock Creek)
- Superior/Louisville: Wetlands 41, 44, 45, 50, and 52 (Rock Creek, Coal Creek)
- Boulder: Wetlands 65, 75, 76, 81, 82, 84—86, 92—94, 99, 104, and 107 (Dry Creek, Hillcrest Reservoir, South Boulder Creek, Boulder Creek, Fourmile Creek)

**Irrigation-Related Wetlands**

Irrigation wetlands are those associated with irrigation ditches and canals, and their use. This includes wetlands that have been created by flood irrigation, over-irrigation, irrigation overflow, and seeping or leaking ditches. A total of 72 irrigation-related wetlands were identified in the study area, including 44 along US 36 and 28 along the BNSF. These wetlands encompass approximately 64.13 acres or 55 percent of the wetlands within the study area. Most of these wetlands are linear, are situated in open meadows that receive flood irrigation, or are in low-lying areas that collect irrigation overflow.

*US 36 Corridor*

Forty-four (44) irrigation-related wetlands were identified along US 36 and they encompass a total of 55.75 acres. These wetlands include the following (many of those listed are associated with the irrigation ditches in parentheses):

- Adams County: Wetlands 2, 6, and 65 (Allen Ditch)
- Westminster: Wetlands 6, 12—14 (Allen Ditch, Farmer's Highline Canal, Niver Canal)
- Broomfield: Wetlands 17—21, 23, 24, 27, 28, 79, 81, 84, 86, and 87 (Equity Ditch, Community Ditch)
- Superior/Louisville: Wetlands 40, 43, 44, 48, 49, 72, 74, 77, and 79

- Boulder: Wetlands 48, 49, 51—57, 60—62, 64, and 68—70 (Davidson Ditch, Goodhue Ditch, South Boulder Canyon Ditch)

#### *BNSF Corridor*

Twenty-eight (28) irrigation-related wetlands were identified along the BNSF corridor and they encompass a total of 8.38 acres. These wetlands include the following (many of those listed are associated with the irrigation ditches in parentheses):

- Denver: none
- Adams County: Wetland 2 (Fisher Ditch)
- Westminster: Wetlands 23 and 25 (Allen Ditch, Farmer's Highline Canal)
- Broomfield: Wetlands 34 and 111 (Community Ditch)
- Superior/Louisville: Wetlands 47, 48, 53, and 54 (Goodhue Ditch, Highline Lateral)
- Boulder: Wetlands 57—64, 66, 67, 72, 73, 77, 83, 87, 97, 102, 103, and 108 (Marshallville Ditch, South Boulder Canyon Ditch, McGinn Ditch, New Dry Creek Ditch, Cottonwood Ditch No. 2, Enterprise Ditch, East Boulder Ditch, South Boulder Creek Diversion, Boulder and Lefthand Ditch, Boulder and Whiterock Ditch)

#### **Stormwater-Related Wetlands**

Stormwater wetlands are those associated with stormwater runoff from impermeable surfaces such as roadways, buildings, and parking lots. This includes wetlands that have been created in roadside or railyard ditches, in detention ponds, at leaky storm-sewer pipes, or at blocked stormwater drains. A total of 106 stormwater-related wetlands were identified in the study area, including 52 along US 36 and 54 along the BNSF. These wetlands encompass approximately 17.25 acres or 15 percent of the wetlands within the study area. Most of these wetlands are generally small and isolated, although those along the roadside or railyard can be very long.

#### *US 36 Corridor*

Fifty-two (52) stormwater-related wetlands were identified along US 36 and they encompass a total of 6.76 acres. These wetlands include the following:

- Adams County: Wetlands 1, 3—5, 7, 9, 11B, 11C, 66, and 67
- Westminster: Wetlands 8, 8A, 8C, 11, 16, and 89—92
- Broomfield: Wetlands 22, 22A, 25, 26, 29, 30, 33, 36, 38, 79B, 80, 82, 83, 84B, 84C, 84D, and 85
- Superior/Louisville: Wetlands 31, 32, 41, 42, 45, 47, 71, 73, 76, 78, and 1-5
- Boulder: Wetlands 47, 58, 63, 63A, 71, 1-4, and 1-6

#### *BNSF Corridor*

Fifty-four (54) stormwater-related wetlands were identified along US 36 and they encompass a total of 10.49 acres. These wetlands include the following:

- Denver: none

- Adams County: Wetlands 1, 3, 5, 6, 12—17, and 19—21
- Westminster: Wetlands 22, 24, 26, 28, 29A, 29B, and 32
- Broomfield: Wetlands 35, 36, 39, 40, and 111A
- Superior/Louisville: Wetlands 42, 43, 44B, 46, 49, 51, 55, and 56
- Boulder: Wetlands 65A, 68, 69, 71, 74, 78—80, 88—91, 95, 96, 98, 100, 101, 105, 106, 109, and 110

### 3.1.1 Wetland Classifications

Using a standard classification system (Cowardin, et al. 1979), the wetlands can be placed into four groups, including palustrine emergent (PEM), palustrine scrub/shrub (PSS), palustrine emergent/palustrine scrub/shrub (PEM/PSS) combination, and palustrine forested (PFO).

PEM wetlands are defined by Cowardin, et al. (1979) as those wetlands that are dominated by erect, rooted, herbaceous plants. These wetlands encompass approximately 97.57 acres (84 percent of the wetlands in the study area), including 59.27 acres along US 36 and 38.30 acres along the BNSF. These wetlands are commonly dominated by cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), rushes (*Juncus* spp.), and various forbs.

PSS wetlands are defined by Cowardin, et al. (1979) as those wetlands that are dominated by woody vegetation less than 20 feet tall. These wetlands encompass approximately 9.63 acres (8 percent) in the study area, including 5.94 acres along US 36 and 3.69 acres along the BNSF. These wetlands are commonly dominated by sandbar willow (*Salix exigua*), with other willows (*Salix* spp.) and shrubs.

PEM/PSS wetlands are those wetlands that are composed of equal parts PEM and PSS. If the composition of a wetland is not evenly split (*i.e.* 50 percent PEM and 50 percent PSS), it is not classified as PEM/PSS. Instead, it is classified as the dominant type. These wetlands encompass approximately 8.23 acres (7 percent) in the study area, including 4.53 acres along US 36 and 3.70 acres along the BNSF. These wetlands are commonly dominated by sandbar willow with pockets of sedges, rushes and various forbs.

PFO wetlands are defined by Cowardin, et al. (1979) as those wetlands that are dominated by woody vegetation greater than 20 feet tall. These wetlands encompass approximately 0.44 acre (less than 1 percent) and are only found along Coal Creek on the US 36 corridor. These wetlands contain an herbaceous layer similar to that described for PEM wetlands with an overstory dominated by peachleaf willow (*Salix amygdaloides*), crack willow (*Salix fragilis*), green ash (*Fraxinus pensylvanica*), and plains cottonwood (*Populus deltoides*). These trees are rooted both inside and outside of the wetland boundary and create a closed canopy over the wetlands.

Table 2 lists the wetland types identified and the number of acres of each in the study area (by segment). The tables in Appendices B1 and B2 provide the wetland classification for each wetland (shown as a percentage of the wetland area for each class).

**Table 2**  
**Wetland Classes by Project Segment**

Project Segment	Wetland Type <sup>1</sup> (acres)				Total (acres)
	PEM	PSS	PEM/PSS	PFO	
<b>US 36 Corridor</b>					
Adams County	1.42	0.32	0.00	0.00	<b>1.74</b>
Westminster	3.39	1.29	0.74	0.00	<b>5.42</b>
Broomfield	3.86	0.46	0.00	0.00	<b>4.32</b>
Superior/Louisville	5.77	0.28	0.07	0.44	<b>6.56</b>
Boulder	44.83	3.59	3.72	0.00	<b>52.14</b>
<b>Subtotal</b>	<b>59.27</b>	<b>5.94</b>	<b>4.53</b>	<b>0.44</b>	<b>70.18</b>
<b>BNSF Corridor</b>					
Denver	0.23	0.00	0.00	0.00	<b>0.23</b>
Adams County	5.11	2.41	0.00	0.00	<b>7.52</b>
Westminster	7.20	0.50	0.00	0.00	<b>7.70</b>
Broomfield	5.82	0.00	0.00	0.00	<b>5.82</b>
Superior/Louisville	2.22	0.32	0.00	0.00	<b>2.54</b>
Boulder	17.72	0.46	3.70	0.00	<b>21.88</b>
<b>Subtotal</b>	<b>38.30</b>	<b>3.69</b>	<b>3.70</b>	<b>0.00</b>	<b>45.69</b>
<b>TOTAL</b>	<b>97.57</b>	<b>9.63</b>	<b>8.23</b>	<b>0.44</b>	<b>115.87</b>

<sup>1</sup>Wetland type is based on Cowardin, et al. (1979)

### 3.1.2 Wetland Plant Associations

In addition to the Cowardin, et al. (1979) classifications, the recently published *Field Guide to the Wetland and Riparian Plant Associations of Colorado* (Carsey, et al. 2003) was used to describe the wetlands. A total of 14 of the plant associations included in the document were identified within the study area. This guide is generally useful to characterize many of the common associations but does not provide a comprehensive list of possible associations. Thus, nine additional associations were added to the complete the list of associations in the study area. Table 3 lists the associations identified (by project segment) and the tables in Appendices B1 and B2 provide more information for each wetland.

Table 3  
Plant Associations by Project Segment

Project Segment	Carsey Associations													Other Associations									
	<i>Carex emoryi</i>	<i>Carex nebrascensis</i>	<i>Distichlis spicata</i>	<i>Eleocharis palustris</i>	<i>Hordeum jubatum</i>	<i>Juncus balticus</i>	<i>Phalaris arundinacea</i>	<i>Populus deltoides (Salix amygdaloides) / Salix exigua</i>	<i>Salix exigua / Barren Ground</i>	<i>Salix exigua / Mesic Graminoid</i>	<i>Schoenoplectus acutus / Schoenoplectus tabernaemontani (Scirpus validus)</i>	<i>Schoenoplectus maritimus (Scirpus paludosus)</i>	<i>Schoenoplectus (Scirpus pungens)</i>	<i>Spartina pectinata</i>	<i>Typha angustifolia / Typha latifolia</i>	<i>Carex lanuginosa</i>	<i>Mixed Wetland Forbs</i>	<i>Mixed Wetland Graminoids</i>	<i>Mixed Wetland Herbaceous</i>	<i>Rumex crispus</i>	<i>Salix amygdaloides / Mixed Wetland Forbs</i>	<i>Salix exigua / Mixed Wetland Forbs</i>	<i>Salix exigua / Mixed Wetland Graminoids</i>
<b>US 36 Corridor</b>																							
Adams County	X		X	X				X						X			X	X	X				X
Westminster	X		X			X		X	X				X				X	X				X	X
Broomfield	X	X	X		X	X		X	X		X		X	X	X	X	X	X				X	X
Superior/Louisville	X	X	X		X		X	X			X	X	X				X	X		X			X
Boulder	X		X			X		X	X	X	X			X	X		X	X				X	X
<b>BNSF Corridor</b>																							
Denver						X			X														
Adams County	X					X		X	X					X	X	X	X	X			X	X	
Westminster	X		X			X	X	X	X					X			X		X		X	X	
Broomfield	X					X		X						X			X		X				
Superior/Louisville	X		X	X		X	X	X						X			X	X	X				
Boulder	X					X	X	X					X	X	X	X	X	X	X			X	X

3.1.3 Wetland Hydrology

The water for the wetlands in the study area generally comes from natural sources (rivers, streams, lakes, groundwater discharge, etc.), irrigation-related sources, or stormwater runoff. The tables in Appendices B1 and B2 list the water source for each wetland in the study area. Many wetlands have multiple sources of hydrology, but only the suspected primary source is listed on the table.

3.1.4 Wetland Functions

To assist in evaluating the functions of wetlands within the study area, a modified version of the Montana Department of Transportation Wetland Functional Assessment Method (Berglund



1999) was used to determine the high-rated functions of the wetlands within the study area. This method was used because it is efficient and concise, and is generally relevant to this region.

Due to the extraordinary number of wetlands in the study area and the preliminary nature of the work, a formal functional analysis was not completed for each wetland. Instead, the Montana Method was used to identify any high-rated functions for each wetland. The study area contains wetlands that received high ratings for nine of the 12 functions included in the method. None of the wetlands provide more than five high-rated functions. Table 4 lists the high-rated functions, the number of wetlands in each project segment that received the high-ratings, and the corresponding acreage. The tables in Appendices B1 and B2 list the high-rated functions for each wetland in the study area and more information on the high-rated functions is provided in the following text.

**Table 4  
High-Rated Wetland Functions by Project Segment**

Project Segment	Number of Wetlands with High-Rated Wetland Functions									Total Acres of Highly Functional Wetlands
	T&E Species Habitat	CNHP Species Habitat	General Wildlife Habitat	General Aquatic Habitat	Flood Attenuation	Sediment Nutrient Toxicant Removal	Shoreline Stabilization	Production Export/Food Chain Support	Groundwater Discharge/Recharge	
<b>US 36 Corridor</b>										
Adams County	0	0	0	0	0	3	0	0	0	<b>0.43</b>
Westminster	0	4	0	0	0	2	2	0	0	<b>2.83</b>
Broomfield	0	1	0	0	0	0	3	0	0	<b>1.37</b>
Superior/Louisville	0	5	0	0	0	1	4	0	0	<b>5.48</b>
Boulder	15	16	15	0	0	3	6	2	0	<b>51.92</b>
<b>Subtotal</b>	<b>15</b>	<b>24</b>	<b>15</b>	<b>0</b>	<b>0</b>	<b>9</b>	<b>15</b>	<b>2</b>	<b>0</b>	<b>62.03</b>
<b>BNSF Corridor</b>										
Denver	0	1	0	0	0	0	1	0	0	<b>0.23</b>
Adams County	0	7	0	0	1	3	8	0	0	<b>6.72</b>
Westminster	1	4	0	0	0	2	5	0	0	<b>6.62</b>
Broomfield	0	4	0	0	0	2	2	0	0	<b>4.07</b>
Superior/Louisville	0	4	1	0	0	0	6	0	0	<b>1.06</b>
Boulder	4	23	5	0	0	2	14	2	1	<b>19.17</b>
<b>Subtotal</b>	<b>5</b>	<b>43</b>	<b>6</b>	<b>0</b>	<b>1</b>	<b>9</b>	<b>36</b>	<b>2</b>	<b>1</b>	<b>37.87</b>
<b>TOTAL</b>	<b>20</b>	<b>67</b>	<b>21</b>	<b>0</b>	<b>1</b>	<b>18</b>	<b>51</b>	<b>4</b>	<b>1</b>	<b>99.90</b>

**Listed/Proposed Threatened and Endangered (T&E) Species Habitat**

Wetlands that received a high rating for this function are areas of known or suspected populations of species listed by the U.S. Fish and Wildlife Service as federally endangered, threatened, proposed or candidate. These species are listed in Table 5. The species that are

responsible for the wetland receiving a high rating are listed in the “Notes” row of the tables in Appendices B1 and B2.

**Table 5  
Special Status Species Associated With Wetlands in the Study Area**

Common Name	Scientific Name	Status <sup>1</sup>
Preble’s meadow jumping mouse	<i>Zapus hudsonius preblei</i>	FT, ST
Ute ladies’ tresses orchid	<i>Spiranthes diluvialis</i>	FT
Colorado butterfly plant	<i>Gaura neomexicana ssp. coloradensis</i>	FT
Common shiner	<i>Luxilus cornutus</i>	ST
Brassy minnow	<i>Hybognathus hankinsoni</i>	ST
Common garter snake	<i>Thamnophis sirtalis</i>	SC
Northern leopard frog	<i>Rana pipiens</i>	SC
American toothcup	<i>Rotala ramosior</i>	S1

<sup>1</sup>Abbreviations: FT=federally threatened, ST=state threatened, SC=state species of special concern, S1=state critically imperiled

**Colorado Natural Heritage Program Species Habitat**

Wetlands that received a high rating for this function are areas of known or suspected populations of species listed as state threatened, endangered or special concern by the Colorado Division of Wildlife and those listed as critically imperiled in the state by the Colorado Natural Heritage Program. These species are listed in Table 5

The species that are responsible for the wetland receiving a high rating are listed in the “Notes” row of the tables in Appendices B1 and B2. Most wetlands with a perennial water source and well-developed wetland vegetation were considered good habitat for the common garter snake and northern leopard frog. Most of the recently created stormwater ponds were excluded based on the lack of well-developed wetland vegetation. The wetlands located near known populations of American toothcup were rated as high for that species. Only those wetlands associated with waterways known to be suitable habitat for the two fish species were rated as high.

**General Wildlife Habitat**

Wetlands that received a high rating for this function are those that contain a perennial water source, two or more vegetative strata (e.g. herbaceous with woody overstory), and a low or moderate level of disturbance. Generally, these areas are relatively undisturbed and contain pockets of open water surrounded by a mix of PEM, PSS, and PEM/PSS wetlands with mature woody riparian vegetation on the wetland perimeter.

**General Fish/Aquatic Habitat**

No wetlands received a high rating for general fish/aquatic habitat. This is mostly due to the lack of a perennial water source with substantial areas of cover for fish (e.g. over hanging banks, logs, large rocks, etc.) and at least 50 percent of the shoreline dominated by trees and shrubs.

**Flood Attenuation**

Generally, the wetlands that received a high rating for this function are those that are greater than 2 acres in size, flood via overbank or in-channel flow, and have a restricted outlet (or no outlet).

**Sediment/Nutrient/Toxicant Removal**

Wetlands that received a high rating for this function are those that are densely vegetated; exhibited evidence of ponding; receive water from a land use that has the potential to deliver a moderate amount of sediment, nutrients or toxicants; and has a restricted outlet (or no outlet). The study area contains many wetlands associated with stormwater detention/retention ponds that were given high ratings for this function.

**Sediment/Shoreline Stabilization**

Wetlands that received a high rating for this function are those associated with open water (e.g. a channel or water body) that has densely vegetated banks or shoreline.

**Production Export/Food Chain Support**

Wetlands that received a high rating for this function are those that have a perennial or seasonal/intermittent water source, are larger than one acre, have two or more vegetative strata, and contain an outlet.

**Groundwater Discharge/Recharge**

Wetlands that received a high rating for this function are those that were obviously discharging or recharging groundwater. Typically, these wetlands contained springs or seeps.

**3.1.5 Jurisdictional Status**

Of the 219 wetlands encompassing 115.87 acres in the study area, a total of 87 are likely considered jurisdictional by the USACE. These 87 wetlands include 32 on US 36 (61.32 acres) and 55 along the BNSF (29.40 acres) that encompass a total of 90.72 acres or 78 percent of the wetlands in the study area. The jurisdictional status of these wetlands is based previous project experience and a conversation with the USACE regarding irrigation ditches/canals (McKee 2004). Table 6 shows the acres of jurisdictional wetland in the study area by wetland group and project segment. The tables in Appendices B1 and B2 list the jurisdictional status of each wetland in the study area. More information on the jurisdictional determination is provided in Section 2.4 Jurisdictional Status.

**Table 6**  
**Jurisdictional Status of Wetlands by Project Segment**

Project Segment	Wetland Group (acres)						Total Jurisdictional (acres)	Total Non-Jurisdictional (acres)	Total (acres)
	Natural		Irrigation-Related		Stormwater-Related				
	Jurisdictional	Non-Jurisdictional	Jurisdictional	Non-Jurisdictional	Jurisdictional	Non-Jurisdictional			
<b>US 36 Corridor</b>									
Adams County	0.00	0.00	0.63	0.05	0.00	1.06	<b>0.63</b>	<b>1.11</b>	<b>1.74</b>
Westminster	0.90	0.00	0.93	0.39	0.00	3.20	<b>1.83</b>	<b>3.59</b>	<b>5.42</b>
Broomfield	0.14	0.00	1.33	1.59	0.45	0.81	<b>1.92</b>	<b>2.40</b>	<b>4.32</b>
Superior/Louisville	4.96	0.00	0.27	0.52	0.00	0.81	<b>5.23</b>	<b>1.33</b>	<b>6.56</b>
Boulder	1.67	0.00	50.04	0.00	0.00	0.43	<b>51.71</b>	<b>0.43</b>	<b>52.14</b>
<b>Subtotal</b>	<b>7.67</b>	<b>0.0</b>	<b>53.20</b>	<b>2.55</b>	<b>0.45</b>	<b>6.31</b>	<b>61.32</b>	<b>8.86</b>	<b>70.18</b>
<b>BNSF Corridor</b>									
Denver	0.23	0.00	0.00	0.00	0.00	0.00	<b>0.23</b>	<b>0.00</b>	<b>0.23</b>
Adams County	5.94	0.21	0.14	0.00	0.00	1.22	<b>6.08</b>	<b>1.44</b>	<b>7.52</b>
Westminster	0.93	4.85	0.41	0.00	0.00	1.51	<b>1.34</b>	<b>6.36</b>	<b>7.70</b>
Broomfield	2.10	1.21	0.09	0.01	0.00	2.41	<b>2.19</b>	<b>3.63</b>	<b>5.82</b>
Superior/Louisville	0.49	0.10	0.42	0.10	0.16	1.27	<b>1.07</b>	<b>1.47</b>	<b>2.54</b>
Boulder	10.73	0.02	5.00	2.21	2.75	1.17	<b>18.52</b>	<b>3.36</b>	<b>21.88</b>
<b>Subtotal</b>	<b>20.42</b>	<b>6.39</b>	<b>6.06</b>	<b>2.32</b>	<b>2.91</b>	<b>7.58</b>	<b>29.40</b>	<b>16.25</b>	<b>45.68</b>
<b>TOTAL</b>	<b>28.09</b>	<b>6.39</b>	<b>59.26</b>	<b>4.83</b>	<b>3.36</b>	<b>13.89</b>	<b>90.72</b>	<b>25.11</b>	<b>115.87</b>

### 3.2 OTHER WATERS

A total of 93 other waters were identified in the study area, including 41 along US 36 and 55 along the BNSF. These features encompass a total of 51.32 acres (11.30 acres along US 36 and 40.02 along the BNSF) and have been organized into three major groups, including natural, irrigation-related, and stormwater-related. These are discussed below.

#### Natural Other Waters

Natural other waters are those associated with natural waterways and water bodies, including perennial, intermittent and/or ephemeral streams, lakes, reservoirs and ponds. A total of 38 natural other waters encompassing approximately 36.13 acres or 70 percent of the other waters within the study area were identified. This includes 12 along US 36 for a total of 4.07 acres (Other Waters 16, 88, 34, 84, 39, 46, 74, 75, 23, 50, 59, and 63A) and 26 along the BNSF encompassing 32.06 acres (Other Waters 112, 4, 7—11, 18, 29—31, 41, 44, 46, 52, 53A, 65, 73, 76, 85, 86, 89, 94, 97, 99, and 107). Table 7 shows the number of acres of other waters in each group by project segment and the tables in Appendices B3 and B4 provide detailed information on each other water identified in the study area.

**Table 7**  
**Other Waters by Project Segment**

Project Segment	Other Waters (acres)			Total (acres)
	Natural	Irrigation-Related	Stormwater-Related	
<b>US 36 Corridor</b>				
Adams County	0.00	0.44	0.23	0.67
Westminster	1.02	0.59	0.00	1.61
Broomfield	0.36	0.52	3.23	4.11
Superior/Louisville	1.36	0.16	0.38	1.90
Boulder	1.33	1.44	0.24	3.01
<b>Subtotal</b>	<b>4.07</b>	<b>3.15</b>	<b>4.08</b>	<b>11.30</b>
<b>BNSF Corridor</b>				
Denver	1.48	0.00	0.00	1.48
Adams County	9.63	0.16	0.17	9.96
Westminster	8.12	0.33	0.00	8.45
Broomfield	0.05	0.31	0.00	0.36
Superior/Louisville	0.73	0.30	1.80	2.83
Boulder	12.05	3.76	1.13	16.94
<b>Subtotal</b>	<b>32.06</b>	<b>4.86</b>	<b>3.10</b>	<b>40.02</b>
<b>TOTAL</b>	<b>36.13</b>	<b>8.01</b>	<b>7.18</b>	<b>51.32</b>
<b>Percent of Total</b>	<b>70</b>	<b>16</b>	<b>14</b>	<b>100</b>

### Irrigation-Related Other Waters

Irrigation-related other waters are those associated with irrigation ditches, canals and storage ponds. A total of 43 of these waters were identified, encompassing approximately 8.01 acres or 16 percent of the other waters within the study area. This includes 20 along US 36 for a total of 3.15 acres (Other Waters 6, 67C, 13, 27, 86, 44, 45, 49, 51—57, 60—62, 69, and 70) and 23 along the BNSF for a total of 4.86 acres (Other Waters 2, 23, 25, 111, 48, 52A, 53, 54, 55, 57, 59—62, 64, 67, 71, 72, 77, 82, 83, 103, and 109). Table 7 shows the number of acres of other waters in each group by project segment and the tables in Appendices B3 and B4 provide detailed information on each other water identified in the study area.

### Stormwater-Related Other Waters

Stormwater-related other waters are those associated with the collection of stormwater runoff from impermeable surfaces such as roadways, buildings, and parking lots. Twelve (12) of these waters, encompassing approximately 7.18 acres or 14 percent of the other waters within the study area were identified. This includes seven along US 36 for a total of 4.08 acres (Other Waters 2, 4, 90, 81, 82, 76, and 47A) and five along the BNSF encompassing 3.10 acres (Other Waters 6, 13, 20, 43 and 91). Table 7 shows the number of acres of other waters in each group by project segment and the tables in Appendices B3 and B4 provide detailed information on each other water identified in the study area.

**3.2.1 Jurisdictional Status**

Of the 93 other waters encompassing 51.32 acres in the study area, a total of 71 (34.55 acres) or 67 percent are likely considered jurisdictional by the USACE. This includes 26 other waters for a total of 5.03 acres along US 36 and 45 other waters encompassing 29.52 acres along the BNSF. Table 8 shows the acres of jurisdictional other waters in the study area by group and project segment. The tables in Appendices B3 and B4 list the jurisdictional status of each other water in the study area. More information on the jurisdictional determination is provided in Section 2.4 Jurisdictional Status.

**Table 8  
Jurisdictional Status of Other Waters by Project Segment**

Project Segment	Wetland Group (acres)						Total Jurisdictional (acres)	Total Non-Jurisdictional (acres)	Total (acres)
	Natural		Irrigation-Related		Stormwater-Related				
	Jurisdictional	Non-Jurisdictional	Jurisdictional	Non-Jurisdictional	Jurisdictional	Non-Jurisdictional			
<b>US 36 Corridor</b>									
Adams County	0.00	0.00	0.40	0.04	0.00	0.23	0.40	0.27	<b>0.67</b>
Westminster	0.42	0.60	0.59	0.00	0.00	0.00	1.01	0.60	<b>1.61</b>
Broomfield	0.01	0.35	0.52	0.00	0.00	3.23	0.53	3.58	<b>4.11</b>
Superior/Louisville	1.02	0.34	0.13	0.03	0.00	0.38	1.15	0.75	<b>1.90</b>
Boulder	0.50	0.83	1.44	0.00	0.00	0.24	1.94	1.07	<b>3.01</b>
<b>Subtotal</b>	<b>1.95</b>	<b>2.12</b>	<b>3.08</b>	<b>0.07</b>	<b>0.00</b>	<b>4.08</b>	<b>5.03</b>	<b>6.27</b>	<b>11.30</b>
<b>BNSF Corridor</b>									
Denver	1.48	0.00	0.00	0.00	0.00	0.00	1.48	0.00	<b>1.48</b>
Adams County	9.56	0.07	0.16	0.00	0.00	0.17	9.72	0.24	<b>9.96</b>
Westminster	0.24	7.88	0.33	0.00	0.00	0.00	0.57	7.88	<b>8.45</b>
Broomfield	0.05	0.00	0.31	0.00	0.00	0.00	0.36	0.00	<b>0.36</b>
Superior/Louisville	0.21	0.52	0.24	0.06	0.00	1.80	0.45	2.38	<b>2.83</b>
Boulder	12.05	0.00	3.76	0.00	1.13	0.00	16.94	0.00	<b>16.94</b>
<b>Subtotal</b>	<b>23.59</b>	<b>8.47</b>	<b>4.80</b>	<b>0.06</b>	<b>1.13</b>	<b>1.97</b>	<b>29.52</b>	<b>10.50</b>	<b>40.02</b>
<b>TOTAL</b>	<b>25.54</b>	<b>10.59</b>	<b>7.88</b>	<b>0.13</b>	<b>1.13</b>	<b>6.05</b>	<b>34.55</b>	<b>16.77</b>	<b>51.32</b>

Wetlands and other waters were identified on two 600-foot wide corridors between Denver and Boulder, including an 18-mile corridor along US 36 and a 30-mile corridor along the BNSF. Wetlands were identified based on the presence of wetland vegetation and wetland hydrology, assuming the presence of hydric soils.

A total of 219 wetlands were identified in the study area, including 103 along US 36 and 116 along the BNSF. These wetlands encompass a total of 115.87 acres, 70.18 acres along US 36 and 45.69 along the BNSF. The wetlands are organized into three groups, including natural, irrigation-related, and stormwater-related. Approximately 30 percent of the wetlands are natural wetlands, 55 percent are associated with irrigation, and 15 percent are stormwater-related.

The wetlands were classified into four groups using a standard classification system, including palustrine emergent, palustrine scrub/shrub, palustrine emergent and scrub/shrub combination, and palustrine forested. Most of the wetlands are classified as palustrine emergent (97.57 acres or 84 percent of the wetlands in the study area). Palustrine scrub/shrub wetlands are the second-most common with 9.63 acres (8 percent), palustrine emergent and scrub/shrub are third-most common with 8.23 acres (7 percent), and palustrine forested are the least common with 0.44 acre (less than 1 percent).

A total of 23 wetland plant associations were identified in the study area, including 14 from a recently published local field guide. The most common six associations observed include *Carex emoryi*, *Phalaris arundinacea*, *Salix exigua*/mesic graminoid, *Typha angustifolia*/*Typha latifolia*, and mixed wetland graminoid, mixed wetland herbaceous.

A regionally used and accepted wetland functional assessment method was used to determine the high-rated functions for the wetlands in the study area. A total of 12 functions were examined and high-ratings were received for nine. The functions most commonly rated high include: special status species habitat, shoreline stabilization, general wildlife habitat, and sediment/nutrient/toxicant removal. The wetlands that received high ratings encompass a total of 99.90 acres, including 62.03 along US 36 and 37.87 along the BNSF.

Of the 219 wetlands and 115.87 acres, 87 are likely considered jurisdictional by the USACE for a total of 90.72 acres. Most of the jurisdictional wetlands are along US 36 (61.32 acres or 68 percent of the jurisdictional wetlands), with only 29.40 acres (32 percent) along the BNSF.

In addition to the wetlands, a total of 93 other waters were identified in the study area, encompassing 51.32 acres. This includes 41 along US 36 for a total of 11.30 acres, and 55 along the BNSF for 40.02 acres. These other waters are organized into the same three groups as the wetlands, including natural, irrigation-related, and stormwater-related. Most of the other waters belong to the natural group (36.13 acres or 70 percent of the other waters in the study area). Irrigation-related other waters are the second-most common with 8.01 acres (16 percent) and stormwater-related other waters are the least common with 7.18 acres (14 percent).

Of the 93 other waters (51.32 acres), 71 for a total of 34.55 acres are likely considered jurisdictional by the USACE. Most of the jurisdictional other waters are along the BNSF (29.52 acres or 85 percent of the jurisdictional other waters), with only 5.03 acres (15 percent) along US 36.





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**FIGURE 1: US 36 PROJECT AREA SEGMENTS**



**Study Segments**

- Segment 6 Boulder
- Segment 5 Superior/Louisville
- Segment 4 Broomfield
- Segment 3 Westminster
- Segment 2 Adams
- Segment 1 Denver

**3-mile Study Area**

**Alternative Centerlines**

- Rail
- Road

0 1 2 Miles

Sources:  
CDOT  
CH2M HILL



**Appendix A1**  
**Maps of Wetlands and Other Waters Along US 36**

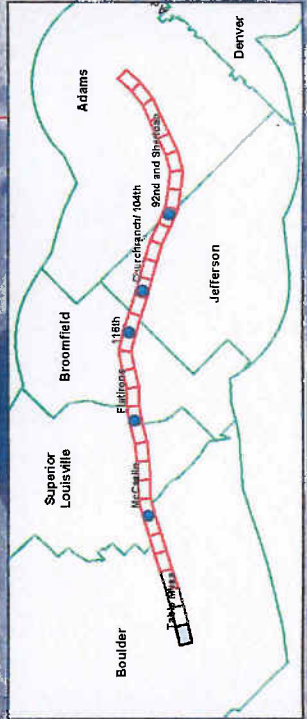
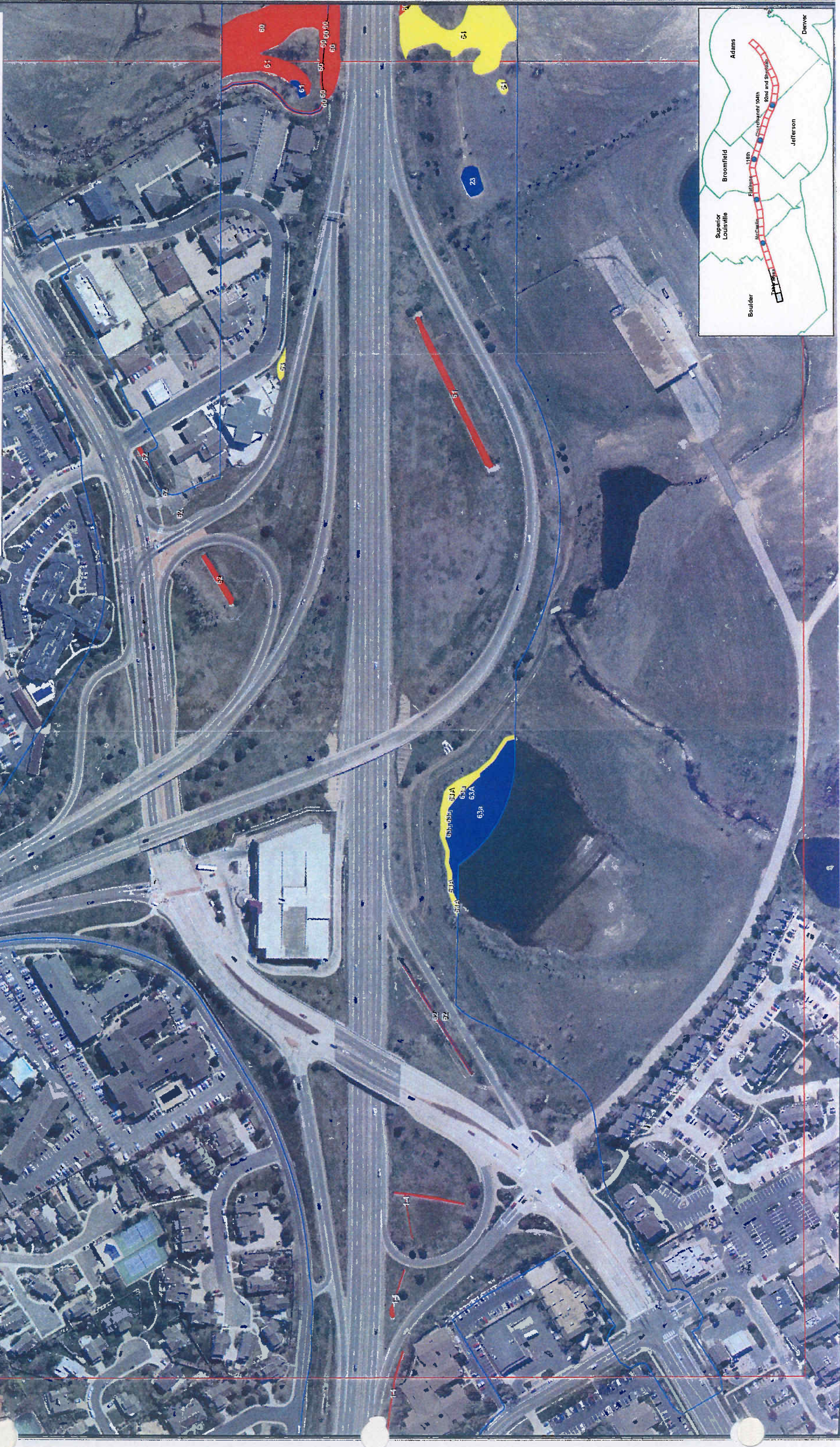
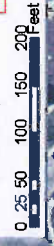


**US 36 EIS**  
**Sheet 1**

WETLANDS and OTHER WATERS



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries







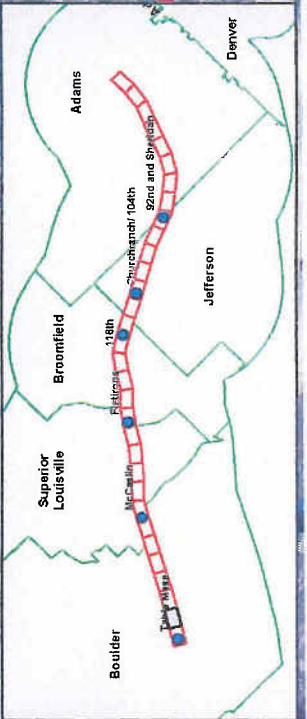
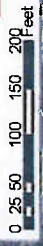
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 1A



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet
- Boundaries





# US 36 EIS

## WETLANDS and OTHER WATERS

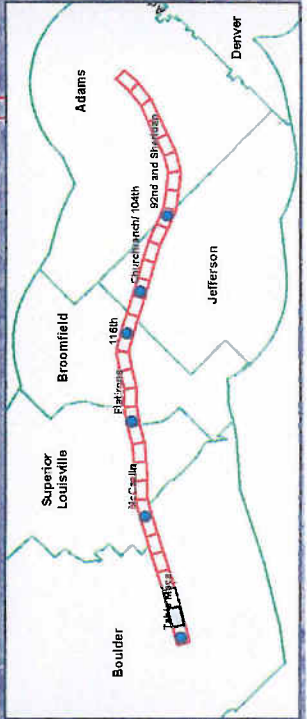
### Sheet 2



US 36 CORRIDOR  
Environmental Impact Statement

	PFC
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

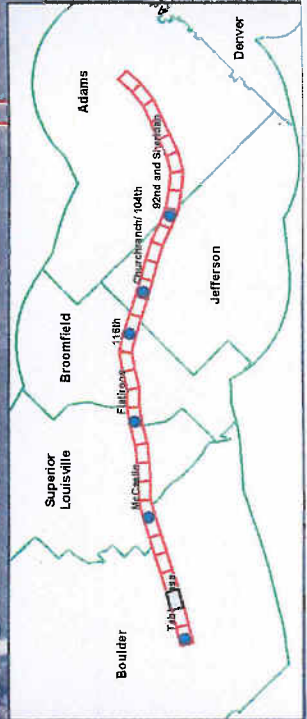
### Sheet 3



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

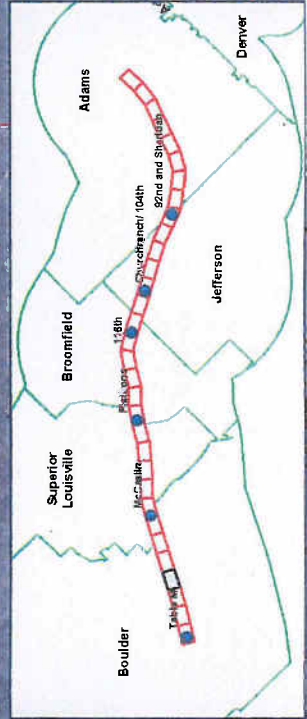
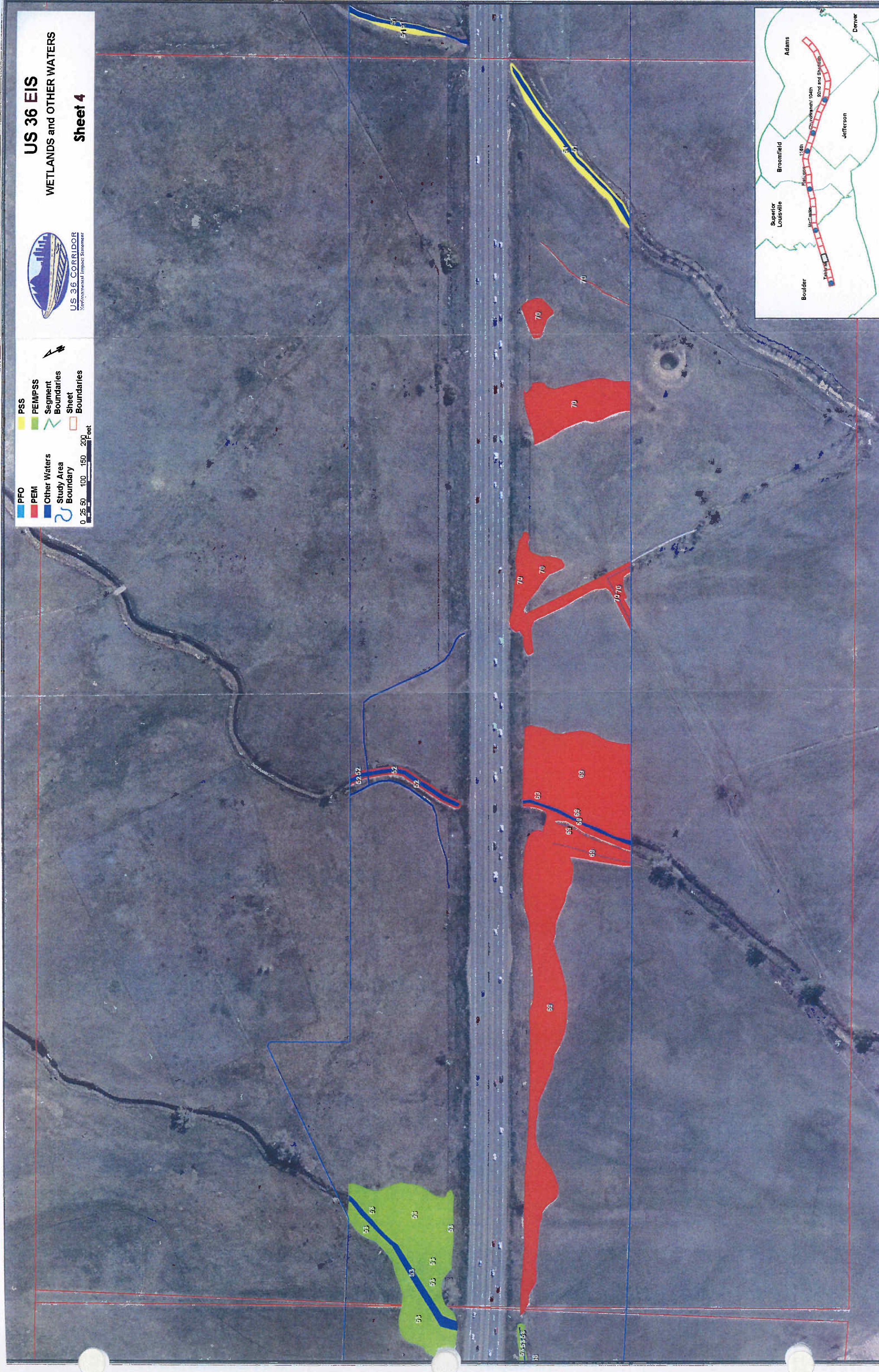
### Sheet 4



**PFO** **PEM** **Other Waters** **Study Area** **Boundary**

**PSS** **PEMPSS** **Segment** **Boundaries** **Sheet** **Boundaries**

0 25 50 100 150 200 Feet







# US 36 EIS

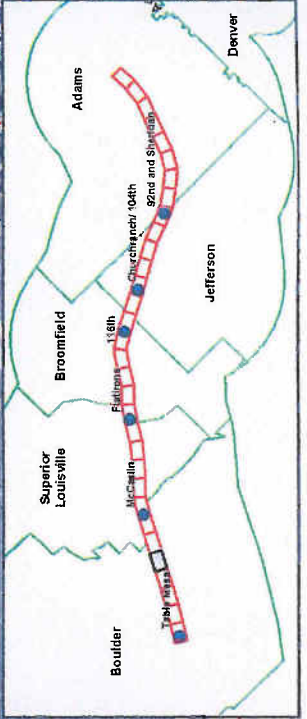
## WETLANDS and OTHER WATERS

### Sheet 5



	PFC
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

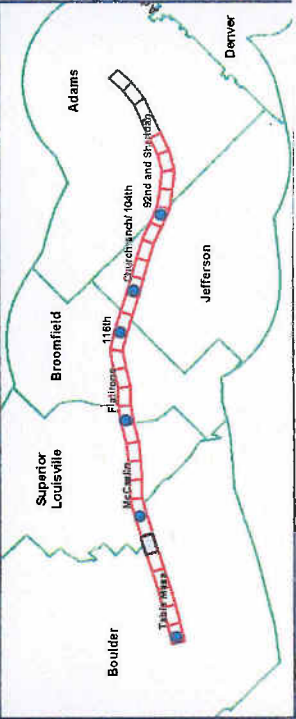
### Sheet 6



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





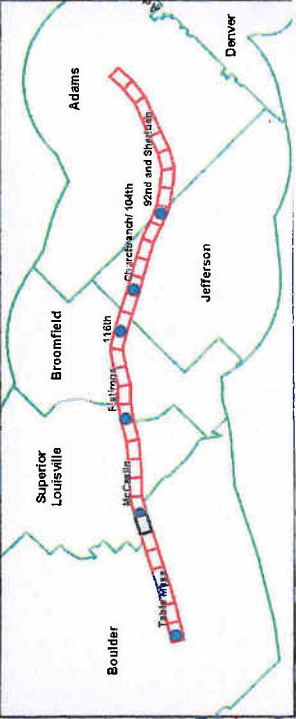
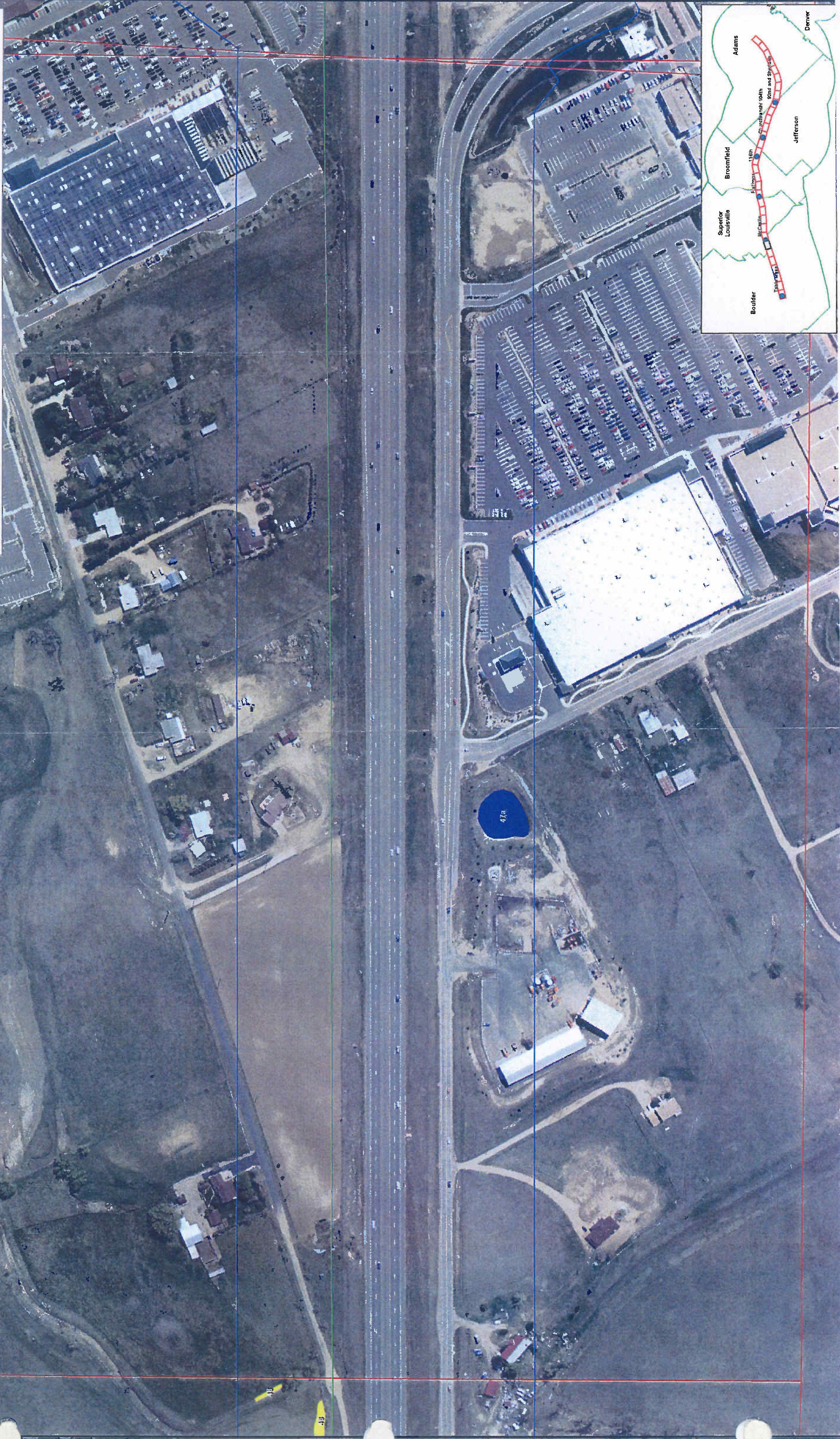
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 7



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries





# US 36 EIS

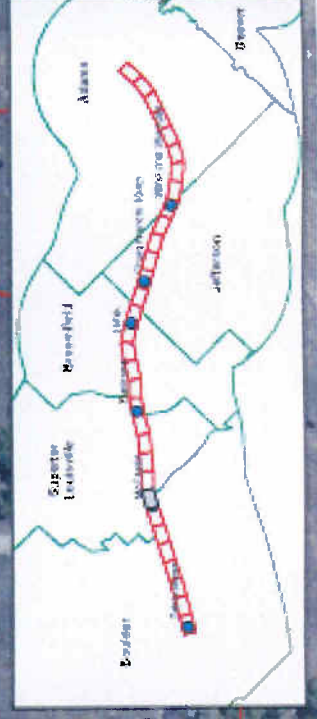
## WETLANDS and OTHER WATERS

### Sheet 8



U.S. 36 CORRIDOR  
International Business Machines

- PEO
- PEM
- Other Waters
- Study Area
- Boundary
- PS5
- PEM/PS5
- Segment
- Boundary
- Subcell
- Boundaries







# US 36 EIS

## WETLANDS and OTHER WATERS

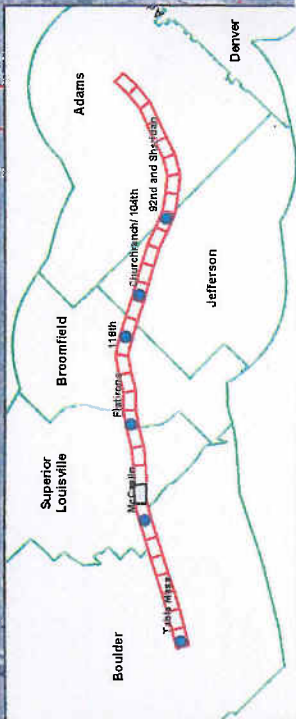
Sheet 9



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMP-SS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 feet





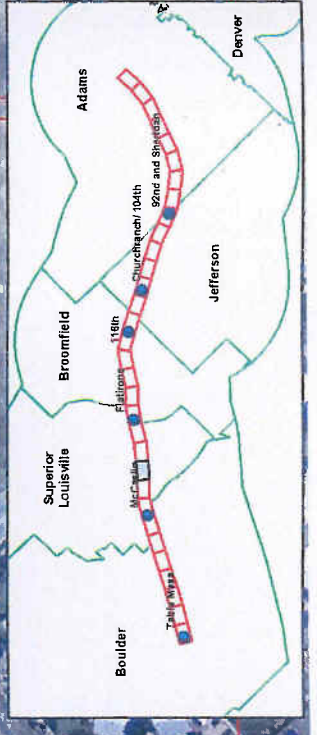
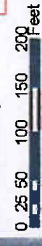
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 10



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries





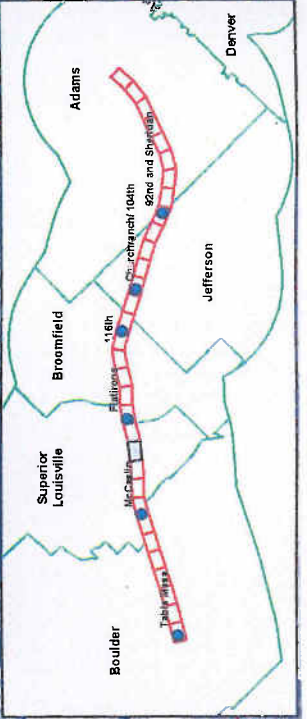
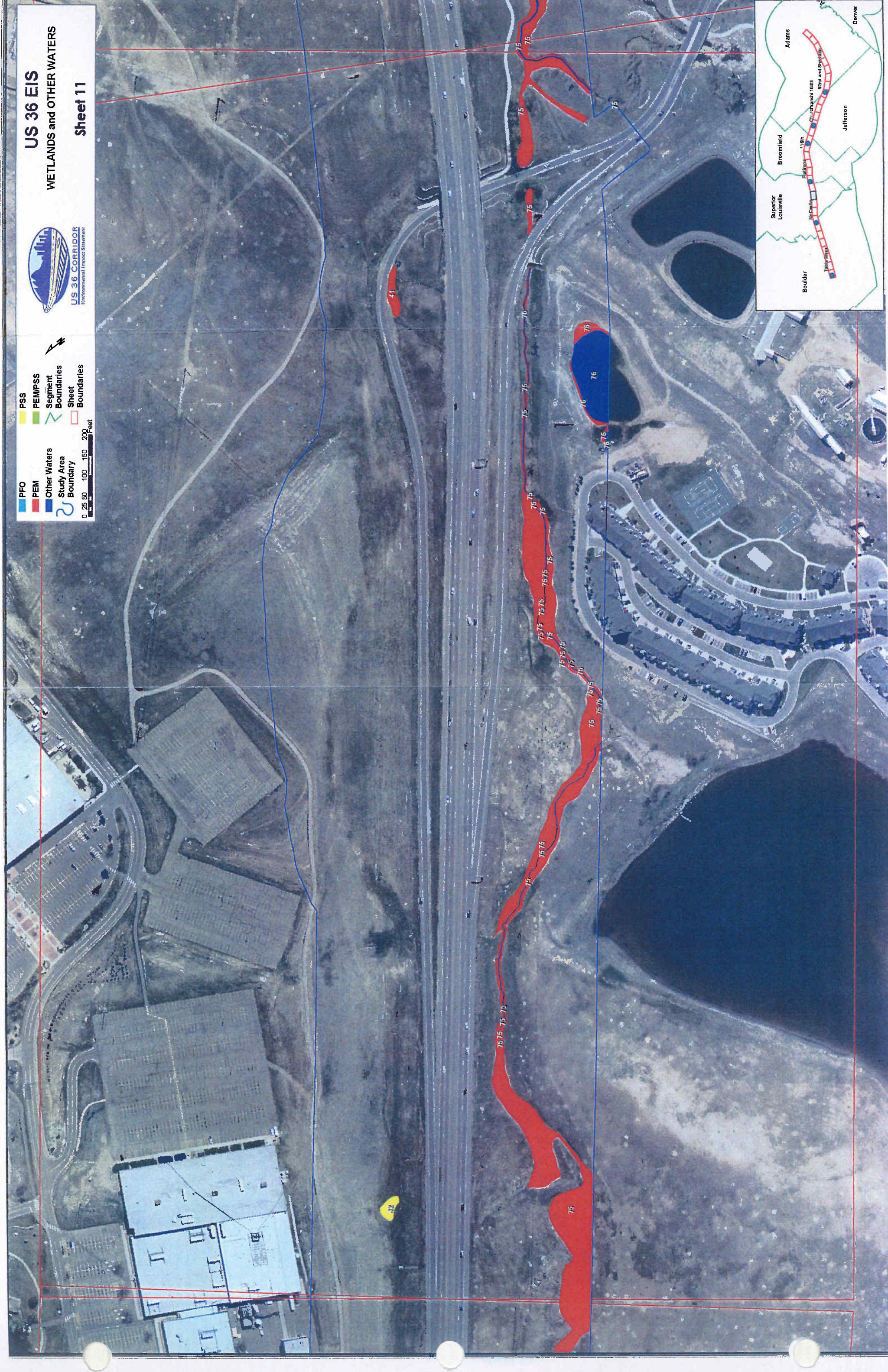
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 11



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet
- Boundaries





# US 36 EIS

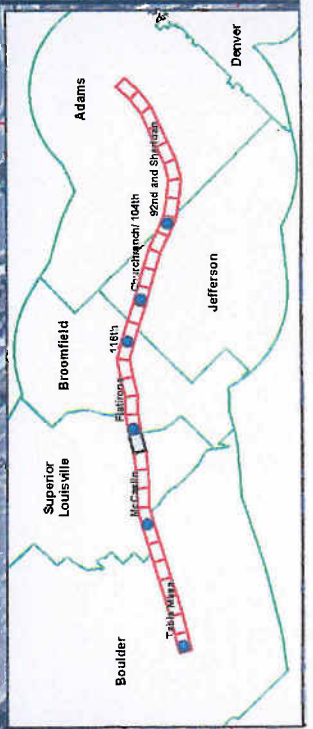
## WETLANDS and OTHER WATERS

### Sheet 12



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMP/SS
- Segment Boundaries
- Sheet Boundaries
- 0 25 50 100 150 200 Feet







# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 12A

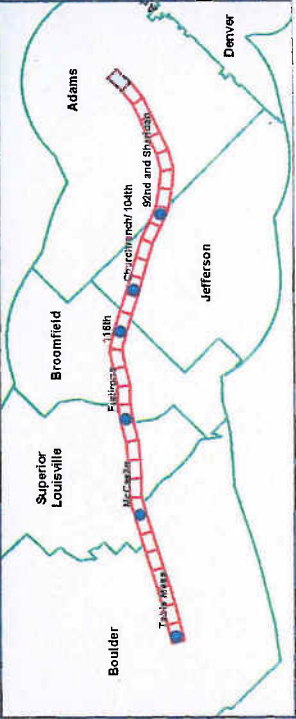


US 36 CORRIDOR  
Environmental Impact Statement

**PFO** **PEM** **Other Waters** **Study Area** **Boundary**

**PSS** **PEMPSS** **Segment** **Boundaries** **Sheet** **Boundaries**

0 25 50 100 150 200 Feet





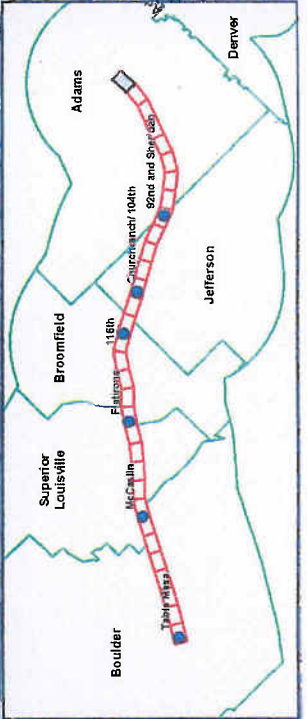
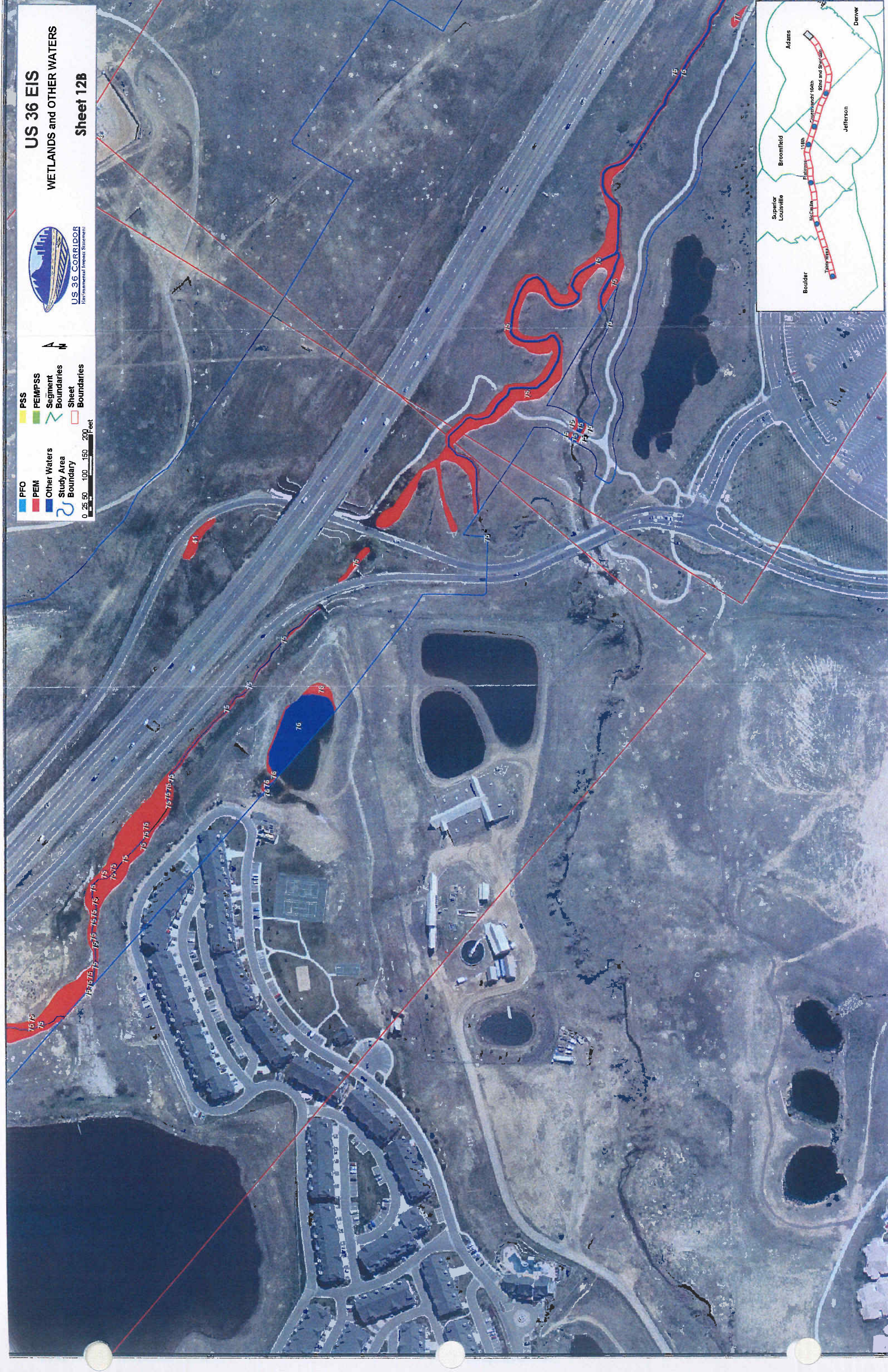
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 12B



	PFO
	PEM
	Other Waters
	Study Area
	Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries





# US 36 EIS

## WETLANDS and OTHER WATERS

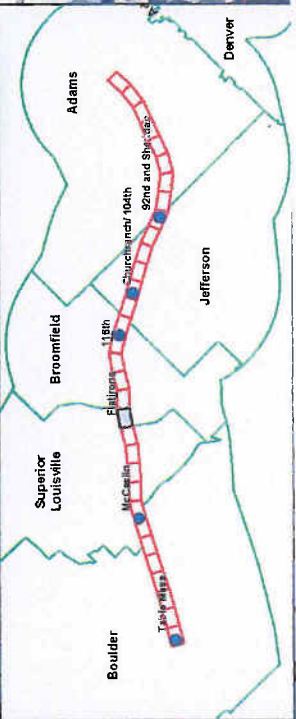
Sheet 13



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

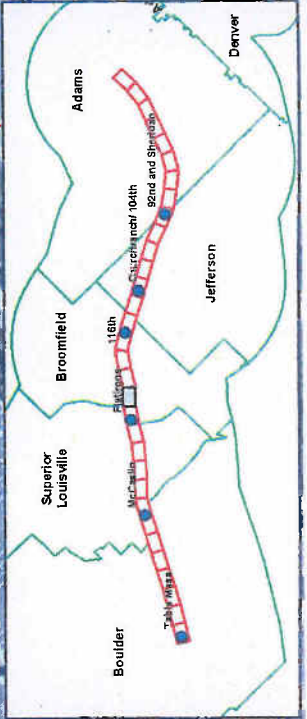
Sheet 14



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet Boundaries

0 25 50 100 150 200 Feet







# US 36 EIS

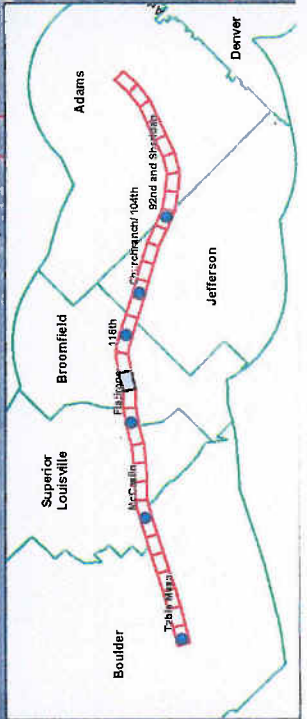
## WETLANDS and OTHER WATERS

Sheet 15



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area
- Boundary
- PSS
- PEM/SS
- Segment
- Boundaries
- Sheet
- Boundaries





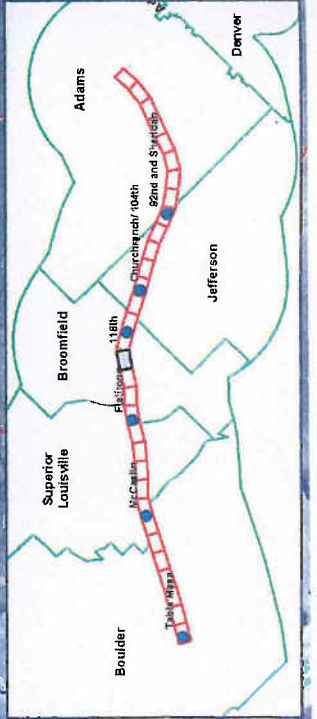
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 16



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries





# US 36 EIS

## WETLANDS and OTHER WATERS

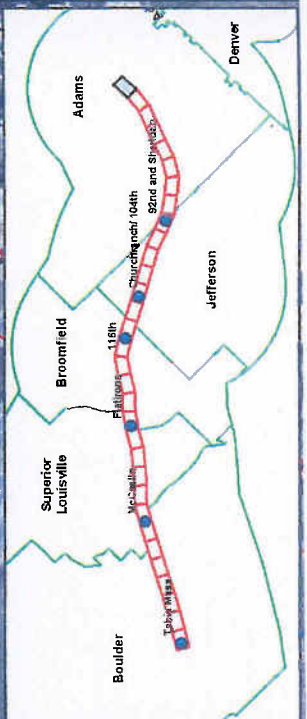
Sheet 16A



**Legend:**

- PFO (Blue line)
- PEM (Red line)
- Other Waters (Blue line)
- Study Area Boundary (Blue line)
- PSS (Yellow line)
- PEM/PSS Segment Boundaries (Green line)
- Sheet Boundaries (Red line)
- Boundaries (Red line)

Scale: 0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

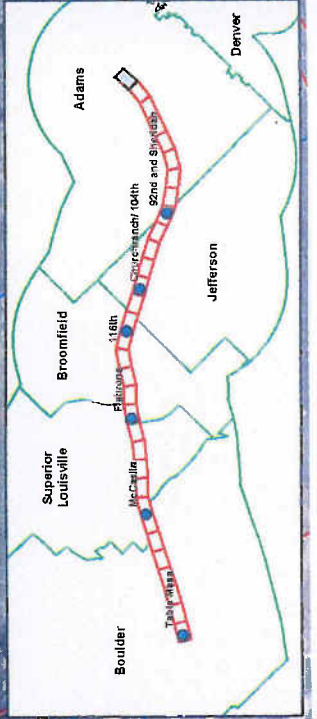
### Sheet 16B



**PFO** **PEM** **Other Waters** **Study Area** **Boundary**

**PSS** **PEMPSS** **Segment** **Boundaries** **Sheet** **Boundaries**

0 25 50 100 150 200 feet







# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 16C

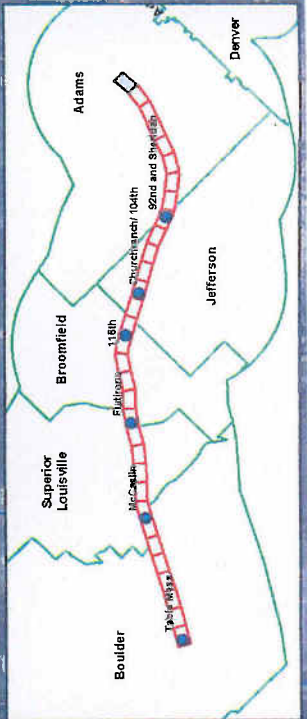


US 36 CORRIDOR  
Environmental Impact Statement

**PFO** **PEM** **Other Waters**   
**Study Area Boundary**

**PSS** **PEMPSS** **Segment**   
**Boundaries** **Sheet** **Boundaries**

0 25 50 100 150 200 feet





# US 36 EIS

WETLANDS and OTHER WATERS

Sheet 16D



**PFO** **PEM**

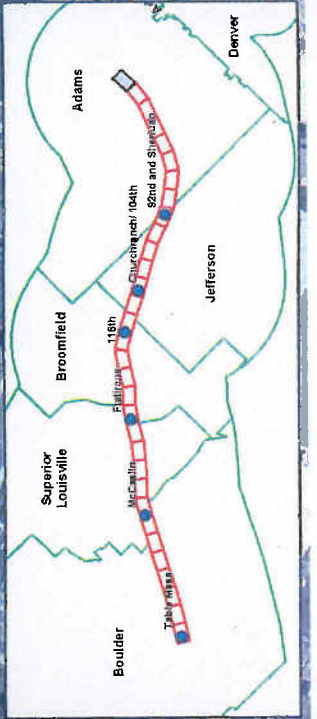
**PSS** **PEMPSS**

**Other Waters**

**Study Area Boundary**

**Boundaries**

0 25 50 100 150 200 feet





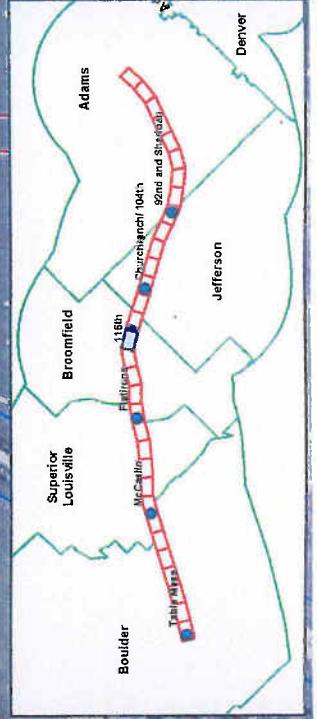
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 17



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries





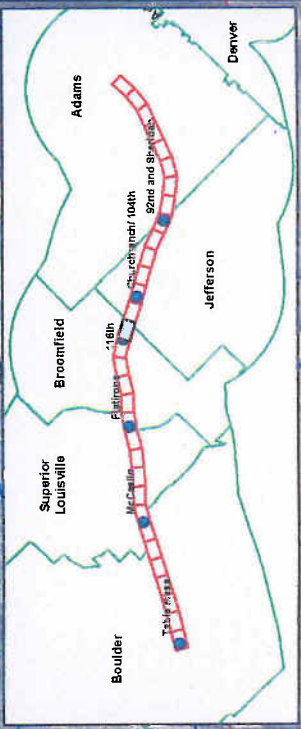
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 18



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries







# US 36 EIS

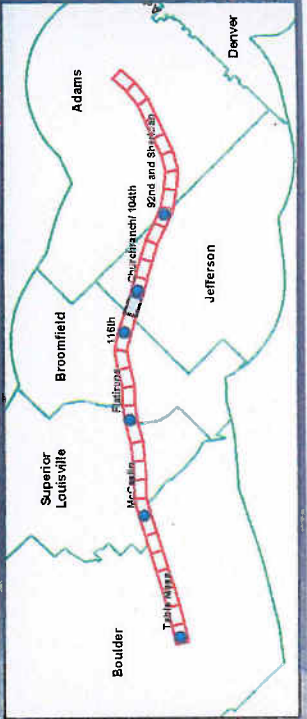
## WETLANDS and OTHER WATERS

Sheet 19



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 feet





# US 36 EIS

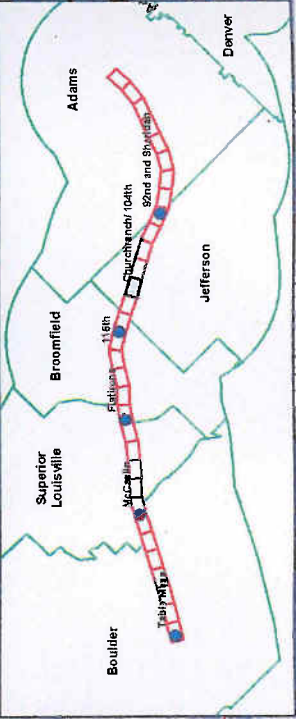
## WETLANDS and OTHER WATERS

Sheet 20



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS Segment Boundaries
- Sheet Boundaries





# US 36 EIS

WETLANDS and OTHER WATERS

Sheet 20A

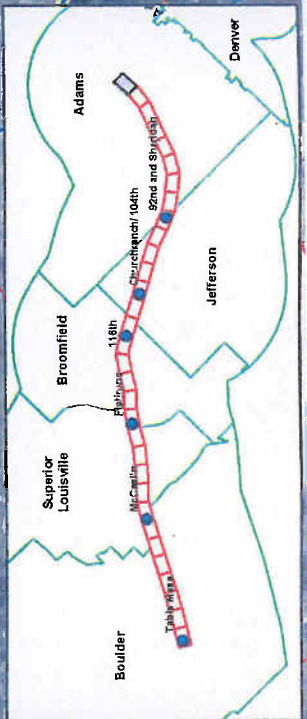


US 36 CORRIDOR  
Environmental Impact Statement

**PFO** **PEM** **Other Waters** **Study Area** **Boundary**

**PSS** **PEMPSS** **Segment** **Boundaries** **Sheet** **Boundaries**

0 25 50 100 150 200 Feet





# US 36 EIS

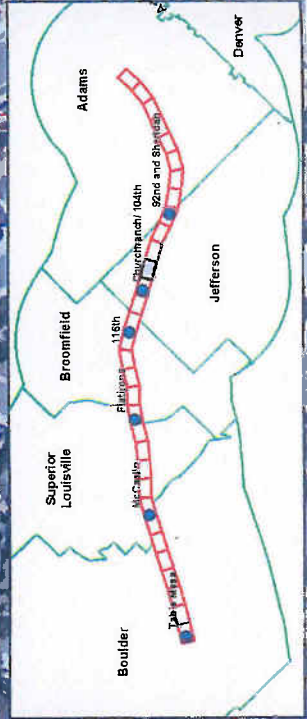
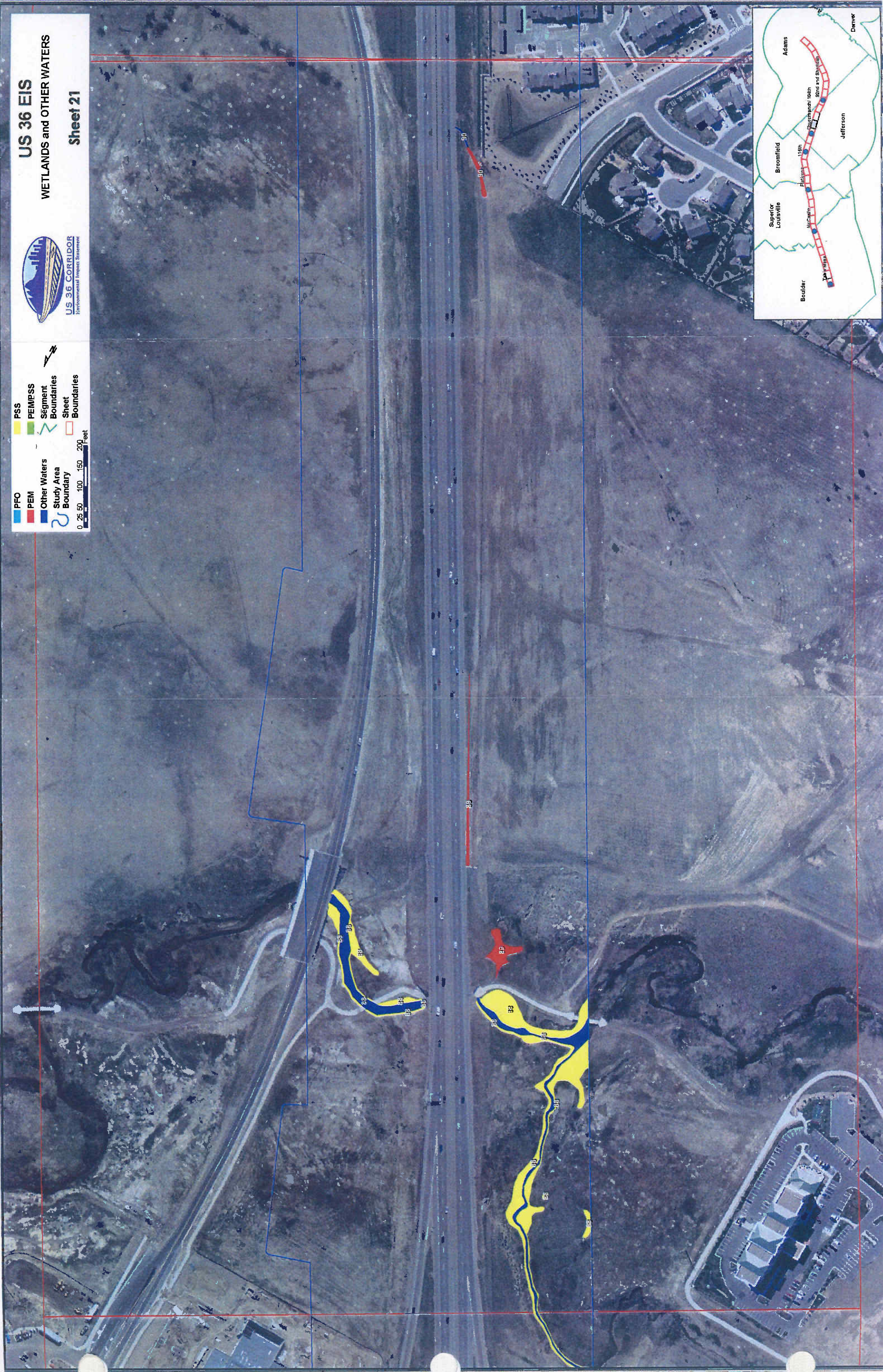
## WETLANDS and OTHER WATERS

Sheet 21



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries
- 0 25 50 100 150 200 Feet







# US 36 EIS

## WETLANDS and OTHER WATERS

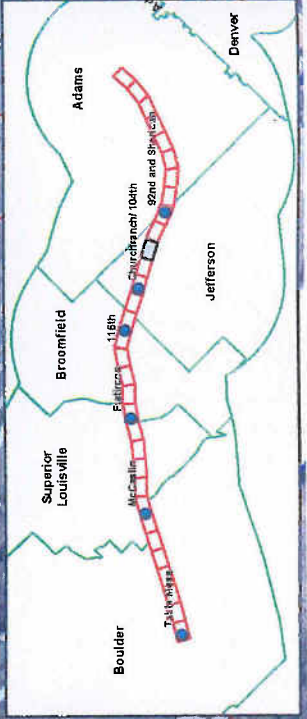
Sheet 22



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMP-SS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

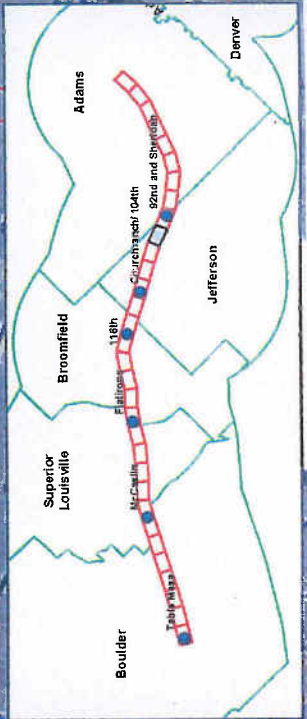
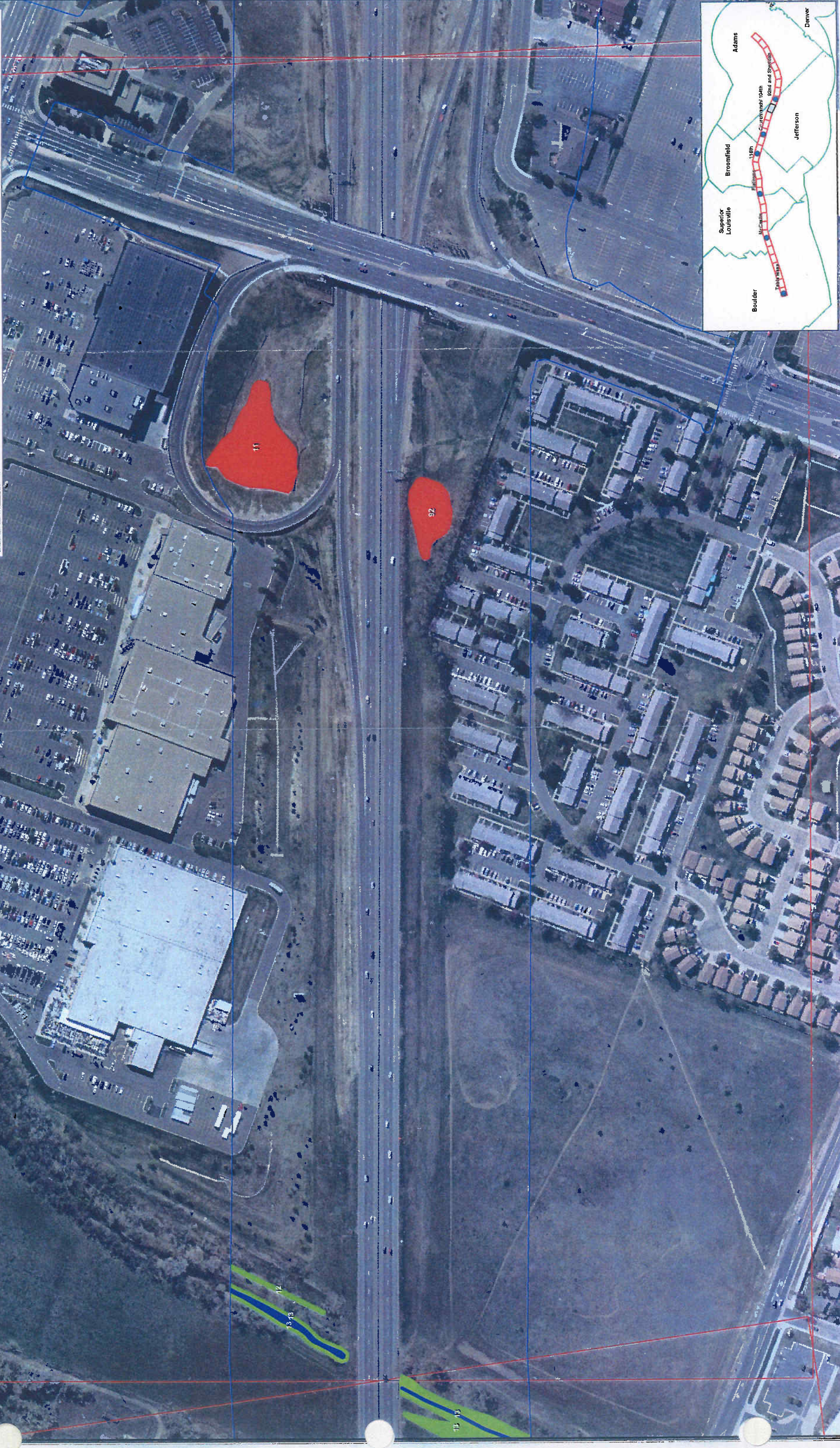
## WETLANDS and OTHER WATERS

Sheet 23



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Other Waters Boundaries
- Sheet Boundaries





# US 36 EIS

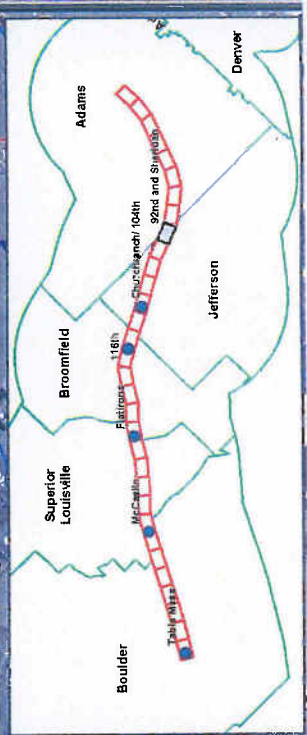
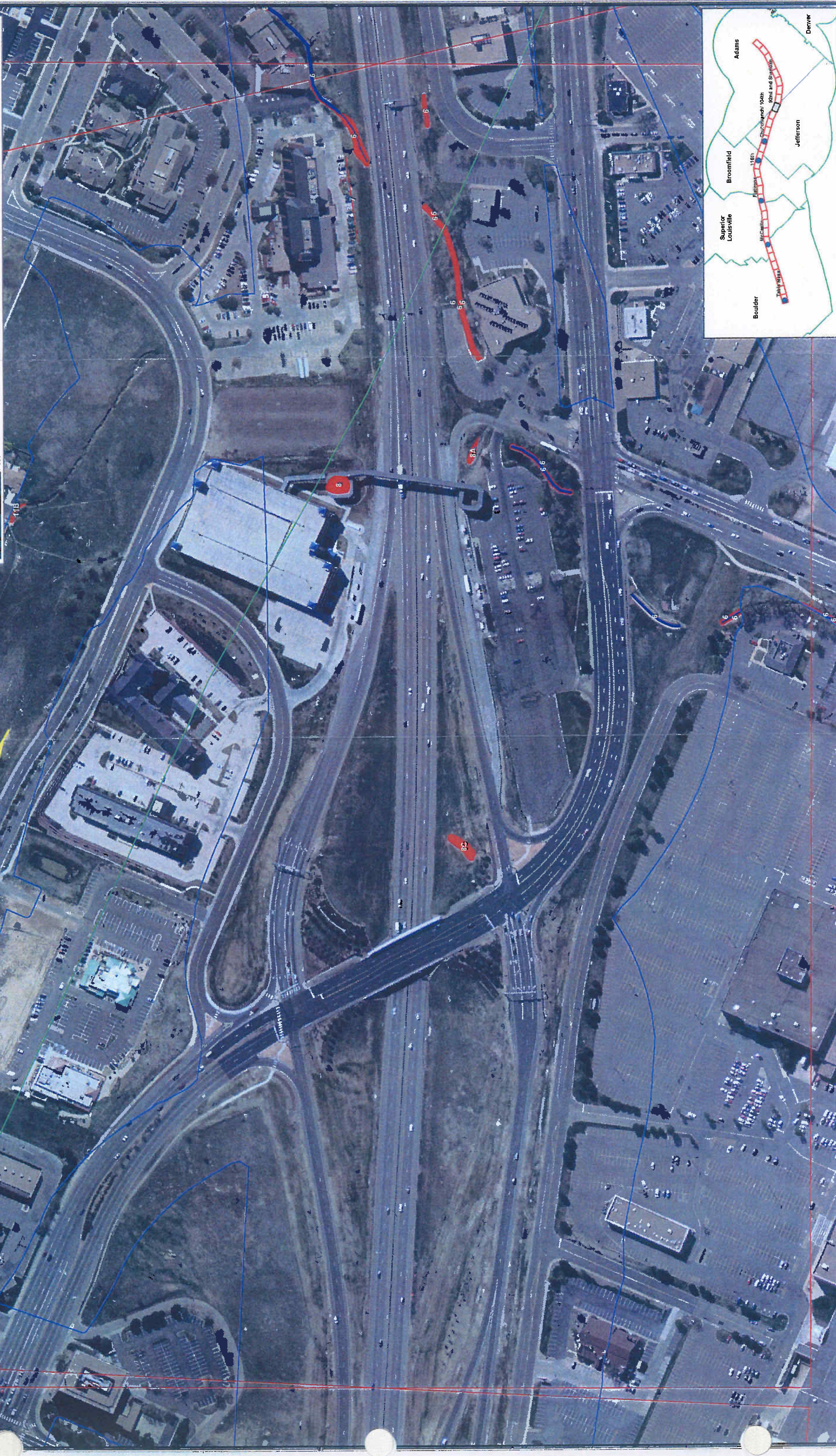
## WETLANDS and OTHER WATERS

Sheet 24



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundary
	Sheet Boundary

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

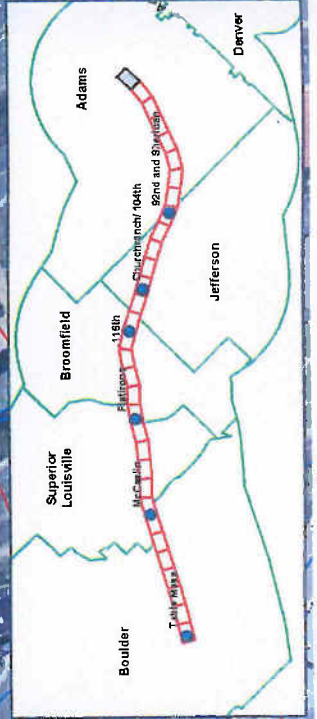
### Sheet 24A



**Legend:**

- PFO (Blue line)
- PEM (Red line)
- Other Waters (Blue line)
- Study Area Boundary (Blue line)
- PSS (Yellow line)
- PEM/PSS Segment Boundaries (Green line)
- Sheet Boundaries (Red line)
- Boundaries (Red line)

Scale: 0 25 50 100 150 200 Feet







# US 36 EIS

## WETLANDS and OTHER WATERS

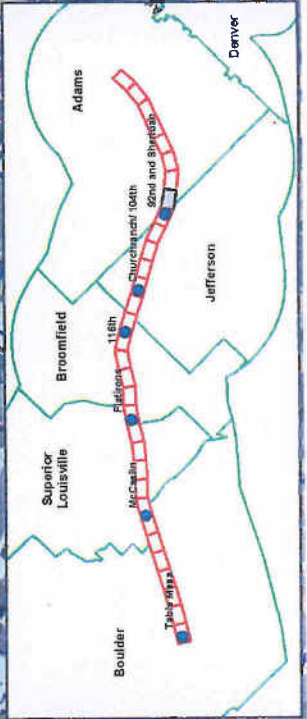
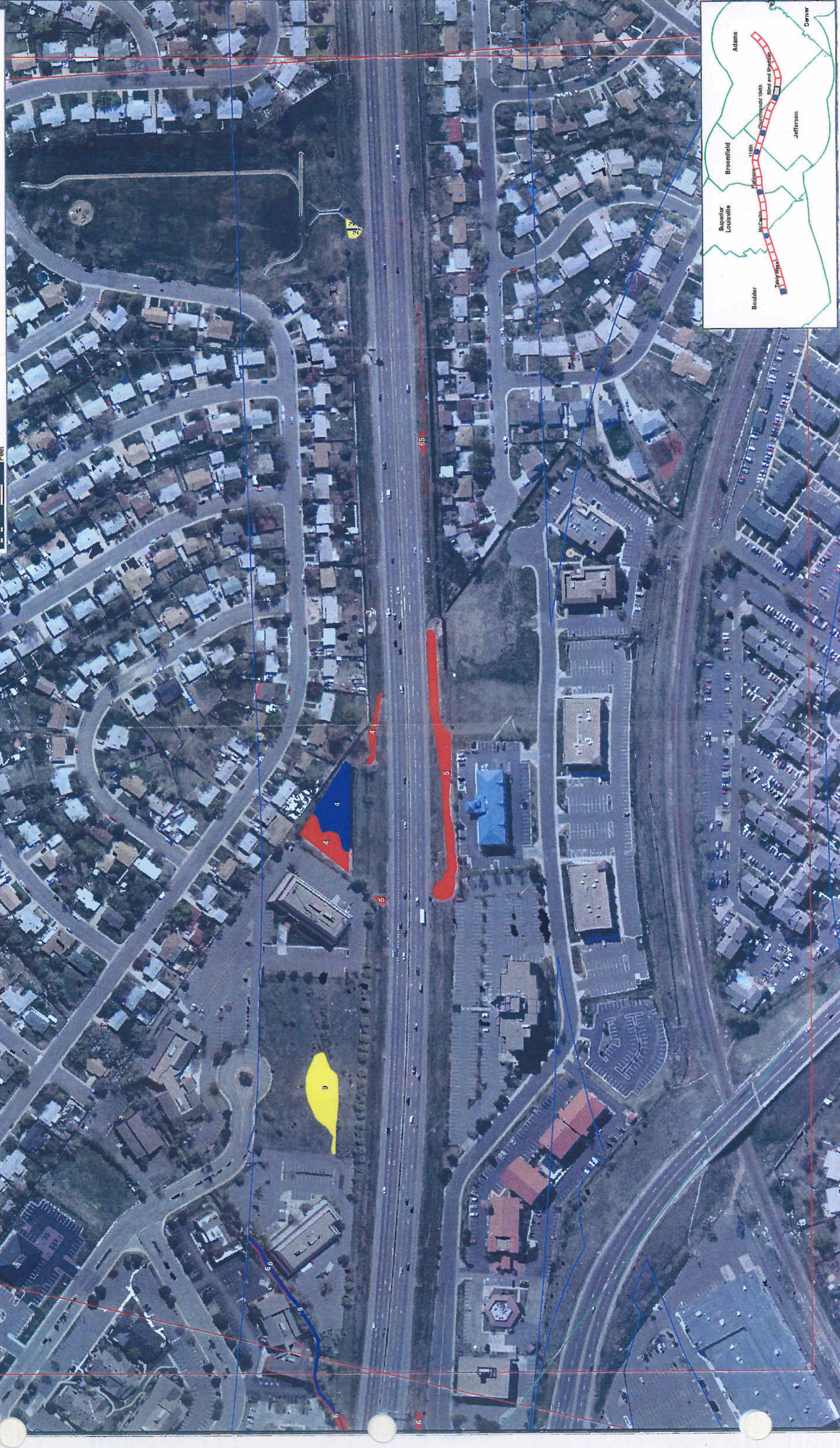
### Sheet 25



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundary
	Sheet Boundary
	Boundary

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

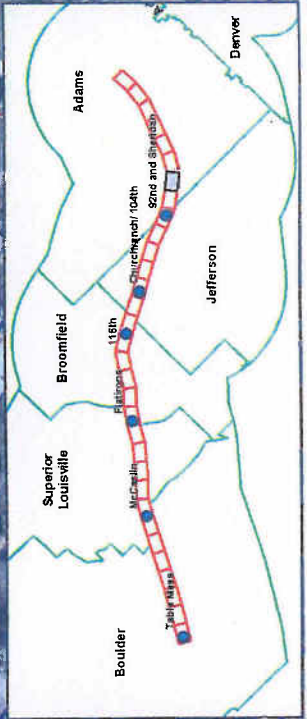
Sheet 26



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 feet





# US 36 EIS

## WETLANDS and OTHER WATERS

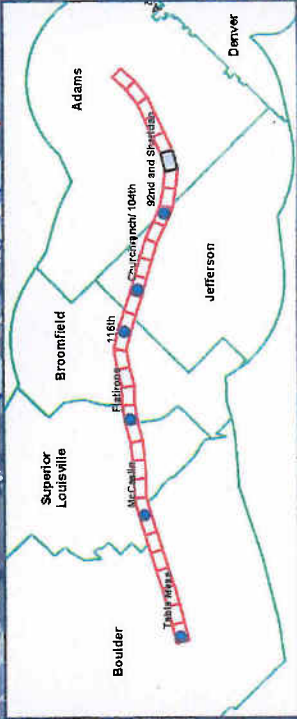
### Sheet 27



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area
- Boundary
- PSS
- PEM/ESS
- Segment
- Boundaries
- Sheet
- Boundaries

0 25 50 100 150 200 Feet





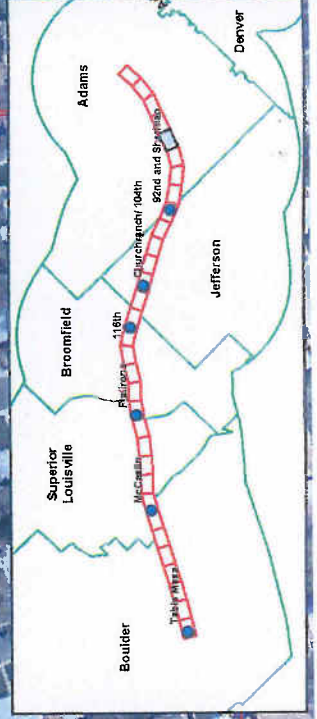
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 28



- PFO
- PEM
- Other Waters
- Study Area
- Boundary
- PSS
- PEM/PSS
- Segment
- Boundaries
- Sheet
- Boundaries







# US 36 EIS

WETLANDS and OTHER WATERS

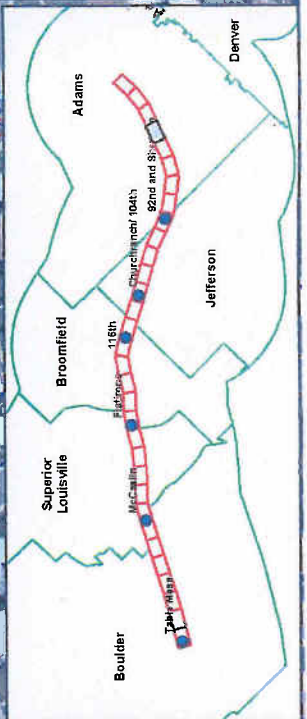
Sheet 29



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries
	Boundaries

0 25 50 100 150 200 Feet





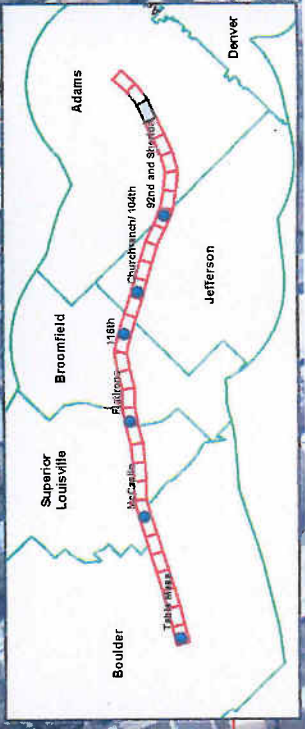
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 30



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries





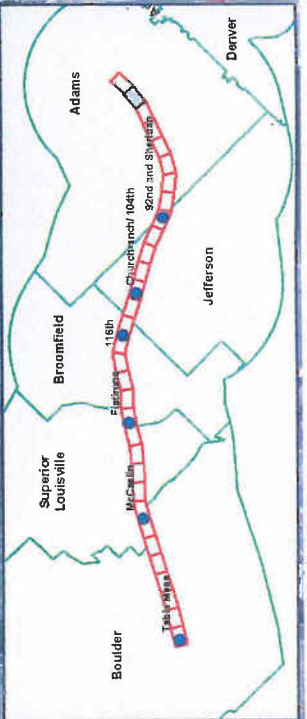
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 31



US 36 CORRIDOR  
Environmental Impact Statement

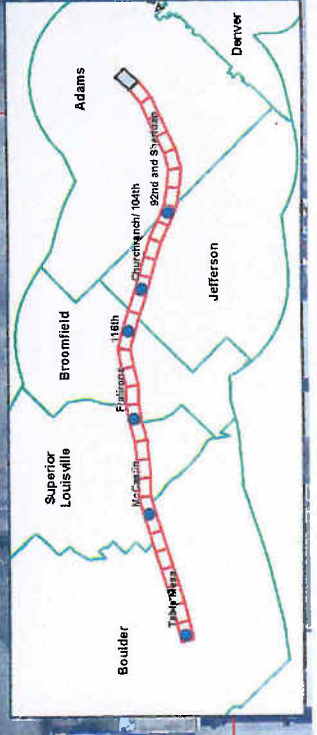




**US 36 EIS**  
**WETLANDS and OTHER WATERS**  
**Sheet 32**



	PFO		PEM
	Other Waters		Study Area
	Boundary		Sheet
	Boundaries		0 25 50 100 150 200 Feet







**Appendix A2**  
**Maps of Wetlands and Other Waters Along the BNSF**



# US 36 EIS

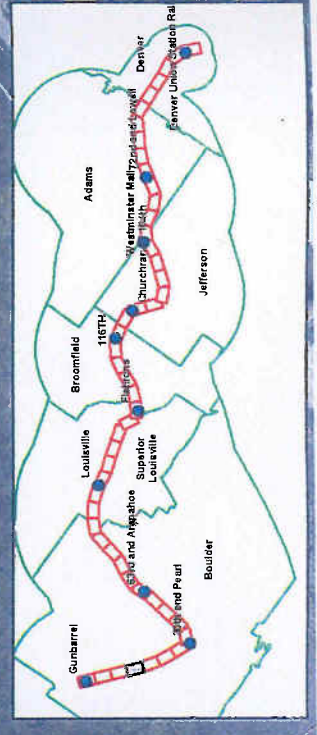
## WETLANDS and OTHER WATERS

### Sheet 4



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries
	Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

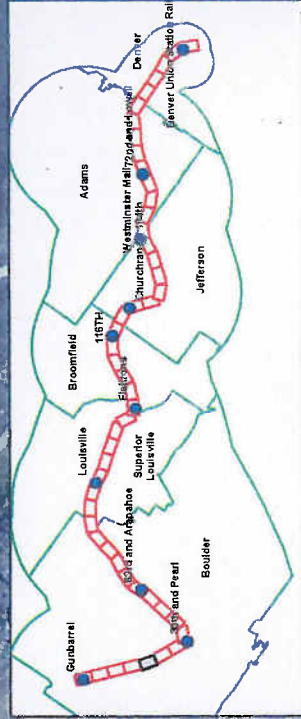
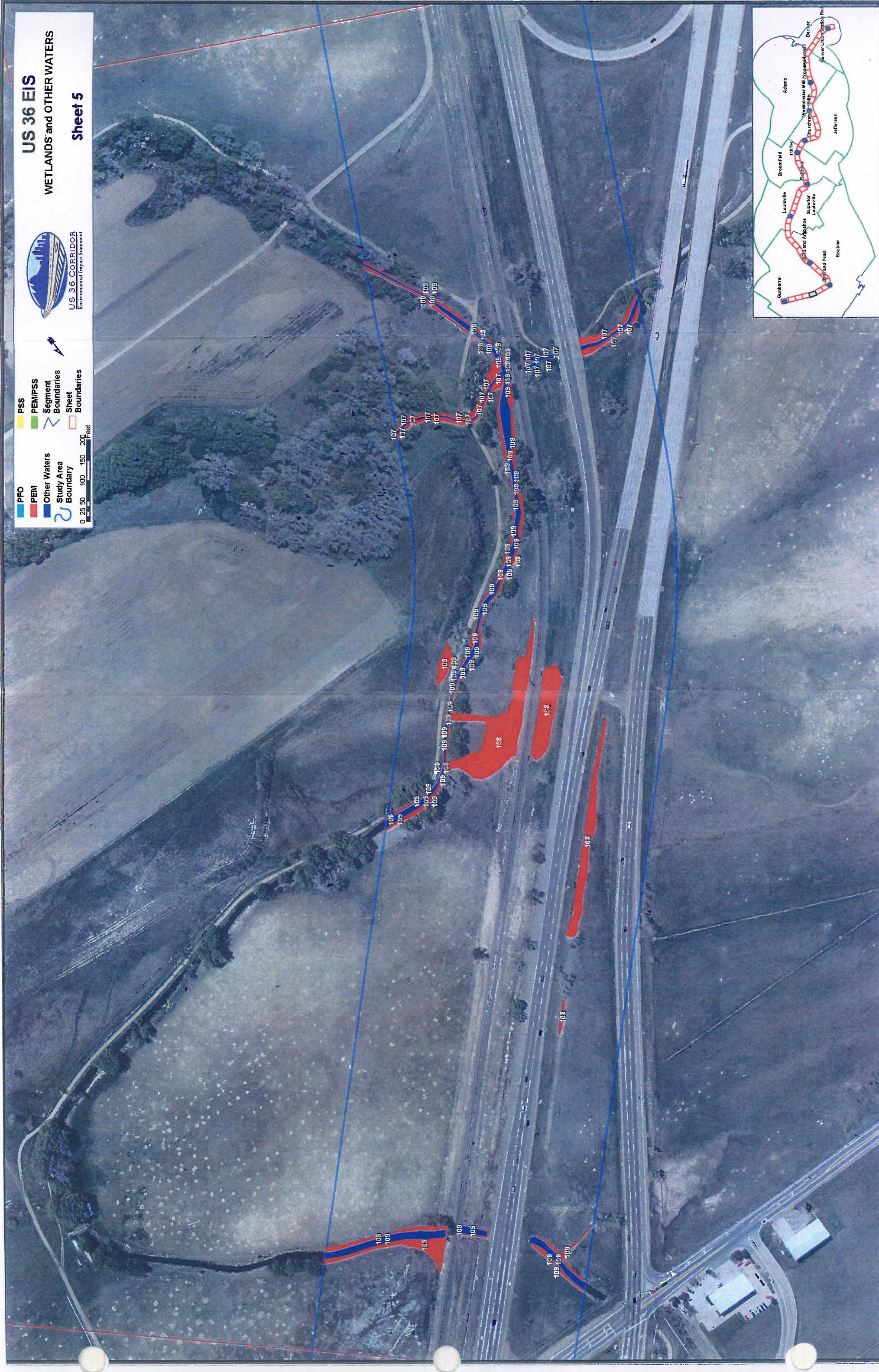
### Sheet 5



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area
	Boundary
	PSS
	PEM/PSS
	Segment
	Boundary
	Sheet
	Boundary

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

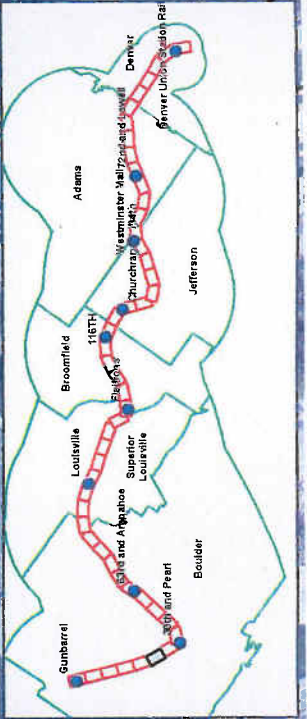
Sheet 6



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area
	Boundary
	PSS
	PEM/PSS
	Segment
	Boundaries
	Sheet
	Boundaries

0 25 50 100 150 200 Feet







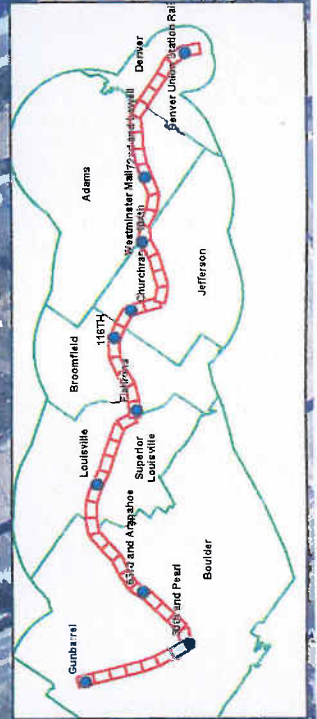
# US 36 EIS

WETLANDS and OTHER WATERS

Sheet 7



- PFO
- PEM
- Other Waters
- Study Area
- Boundary
- PSS
- PEM/PSS
- Segment
- Boundaries
- Sheet
- Boundaries





# US 36 EIS

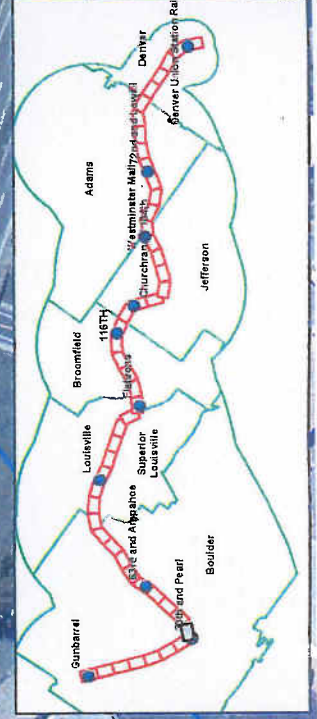
## WETLANDS and OTHER WATERS

### Sheet 8



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

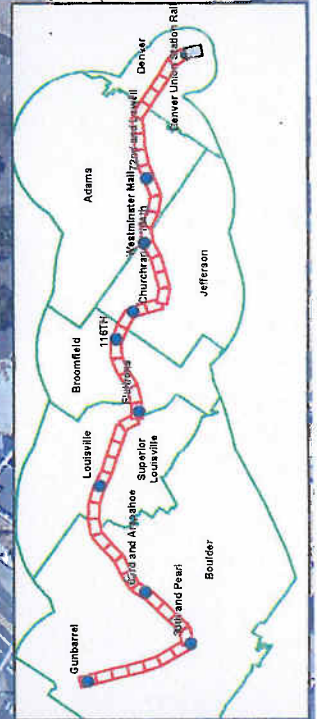
## WETLANDS and OTHER WATERS

Sheet 8A



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet Boundaries





# US 36 EIS

## WETLANDS and OTHER WATERS

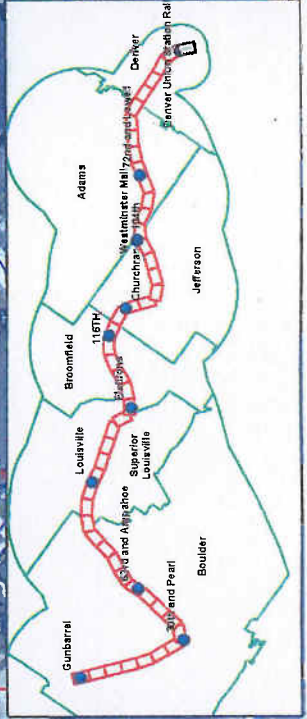
### Sheet 8B



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries

0 25 50 100 150 200 Feet







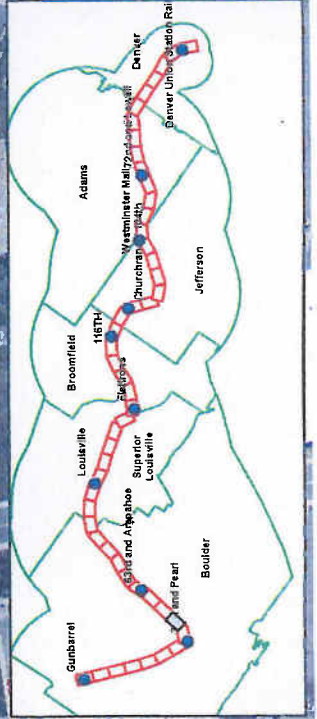
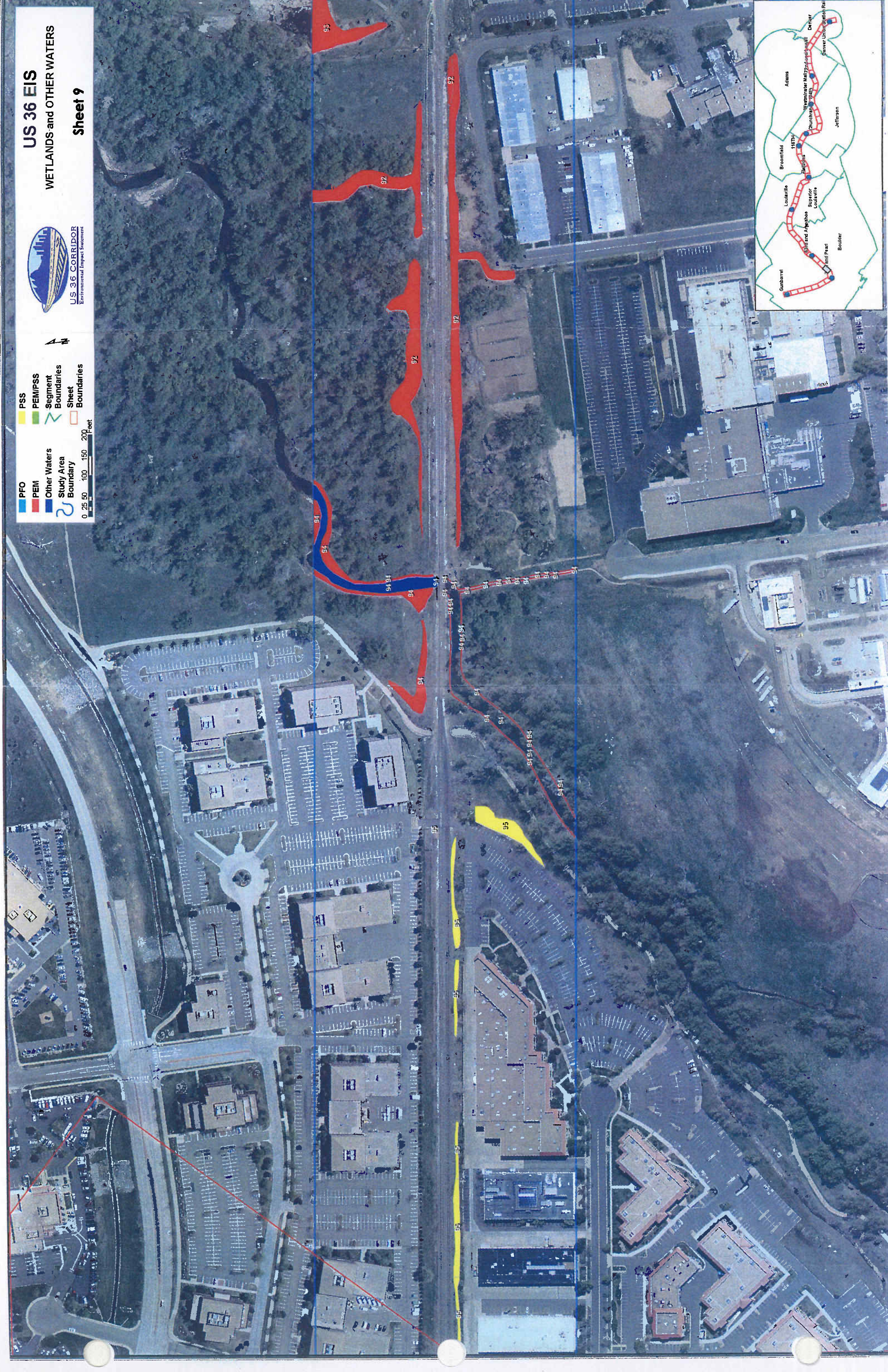
# US 36 EIS

WETLANDS and OTHER WATERS

Sheet 9



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS Segment Boundaries
- Boundaries
- Sheet
- Boundaries

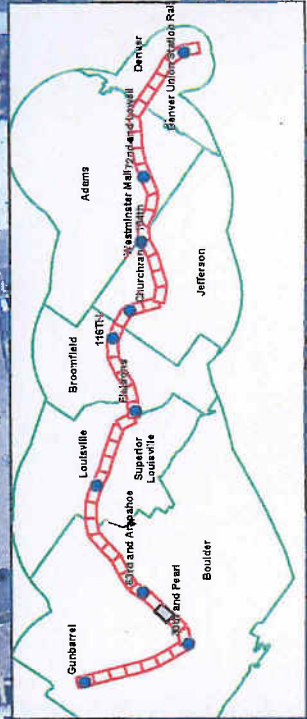
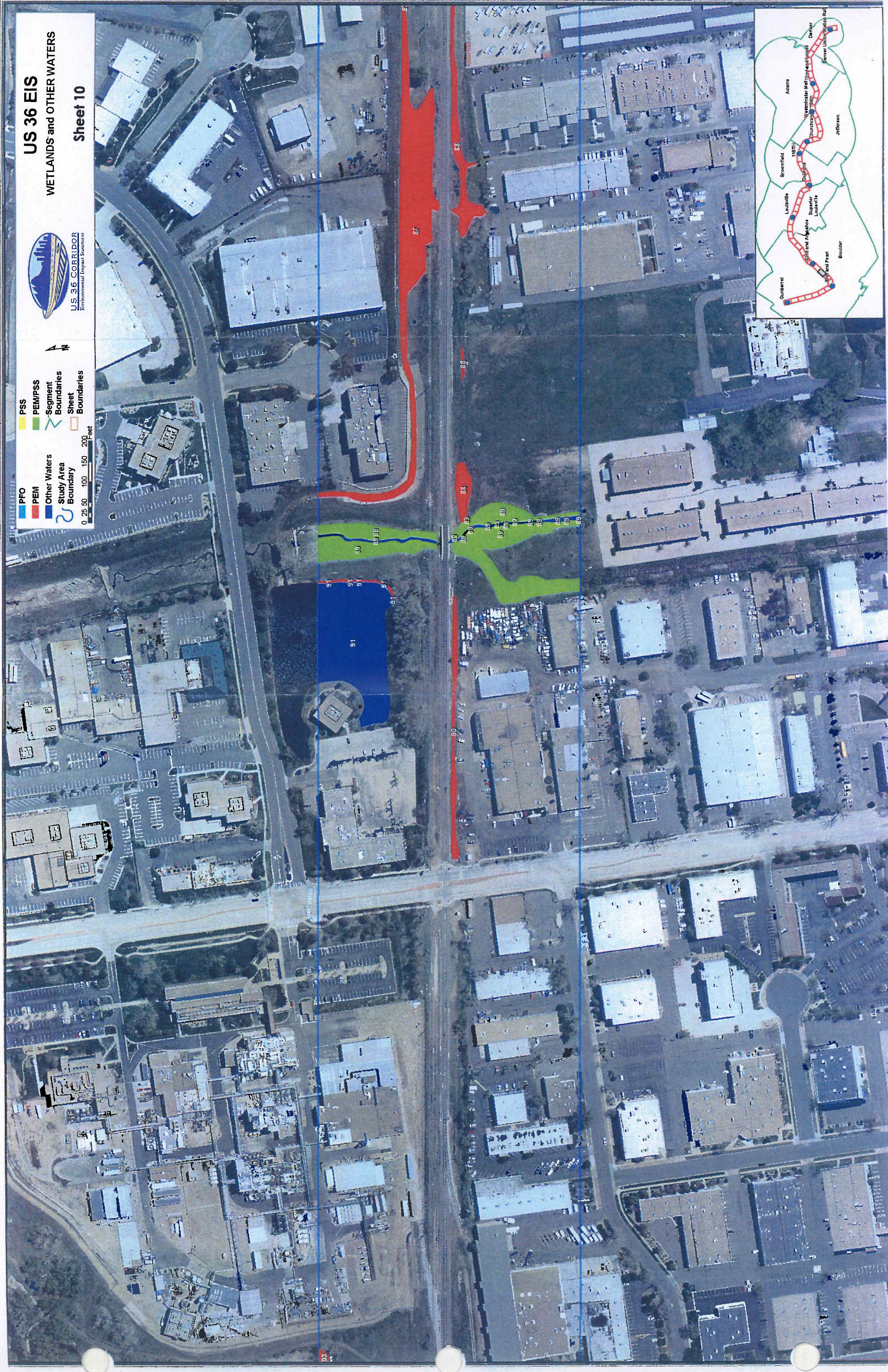
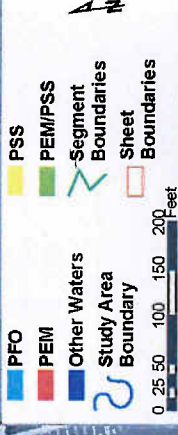




# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 10



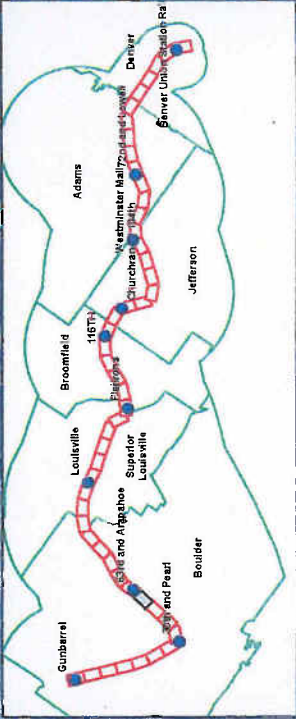


**US 36 EIS**  
**- WETLANDS and OTHER WATERS**  
**Sheet 11**



	PFO
	PEM
	Other Waters
	Study Area
	Boundary
	PSS
	PEM/PSS
	Segment
	Boundaries
	Sheet
	Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 12

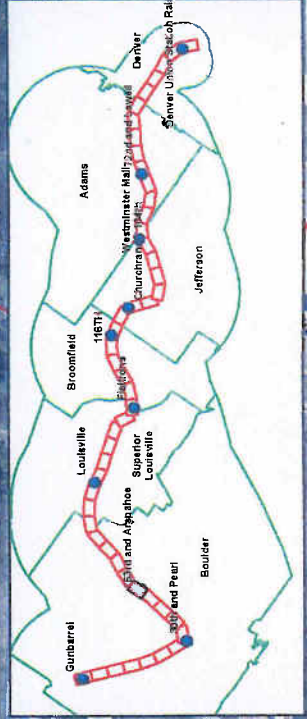


**Legend:**

- PFO (blue line)
- PEM (red line)
- Other Waters (blue area)
- Study Area Boundary (dashed blue line)
- PSS (yellow line)
- PEM/PSS (green line)
- Segment Boundaries (dashed green line)
- Sheet Boundaries (dashed red line)

**Scale:** 0, 25, 50, 100, 150, 200 Feet

**North Arrow:** N









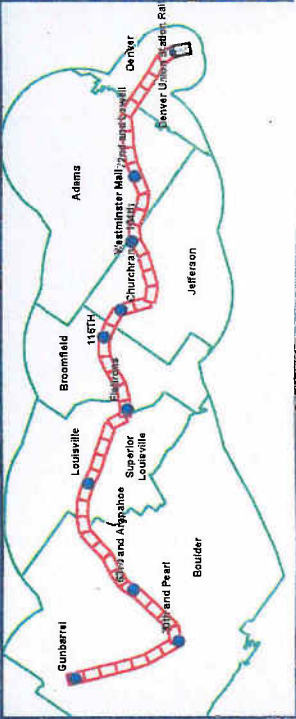


**US 36 EIS**  
**WETLANDS and OTHER WATERS**  
**Sheet 13A**



	PFO
	PEM
	Other Waters
	Study Area
	Boundary
	PSS
	PEM/PSS
	Segment
	Boundaries
	Sheet
	Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 14

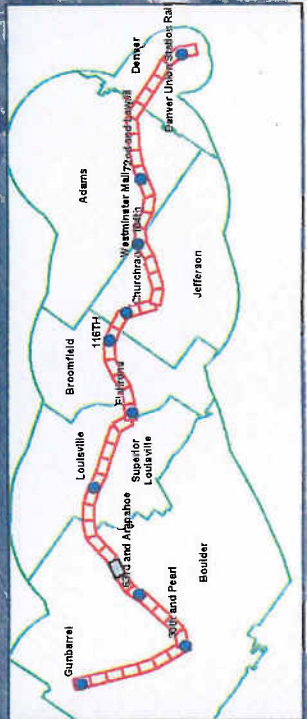


US 36 CORRIDOR  
Environmental Impact Statement

**PFO** **PEM** **Other Waters** **Study Area Boundary**

**PSS** **PEM/PSS Segment Boundaries** **Sheet Boundaries**

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

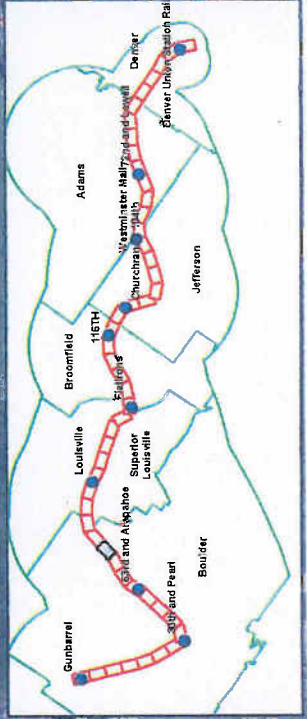
### Sheet 15



**Legend:**

- PFO (Blue line)
- PEM (Red line)
- Other Waters (Blue line)
- Study Area Boundary (Blue line)
- PSS (Yellow line)
- PEM/PSS Segment Boundaries (Green line)
- Sheet Boundaries (Orange line)

Scale: 0, 25, 50, 100, 150, 200 Feet







# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 16

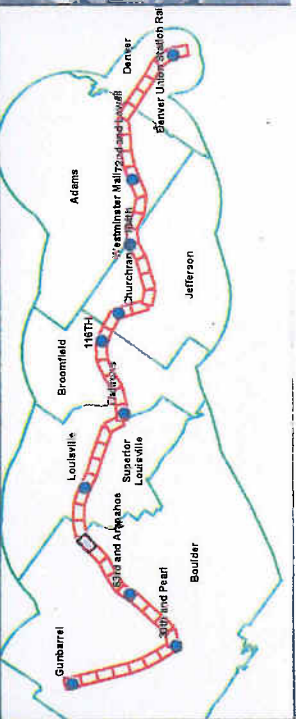


**PFO** (Blue line)  
**PEM** (Red line)  
**Other Waters** (Blue line)  
**Study Area Boundary** (Blue line)

**PSS** (Yellow line)  
**PEM/PSS Segment** (Green line)  
**Boundaries** (Green line)  
**Sheet Boundaries** (Red line)

Scale: 0, 25, 50, 100, 150, 200 Feet

North Arrow





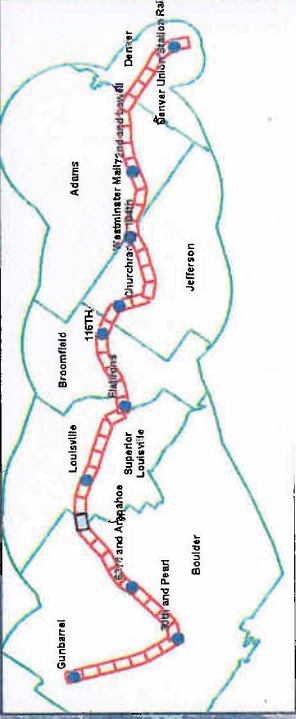
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 17



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment
- Boundaries
- Sheet
- Boundaries





# US 36 EIS

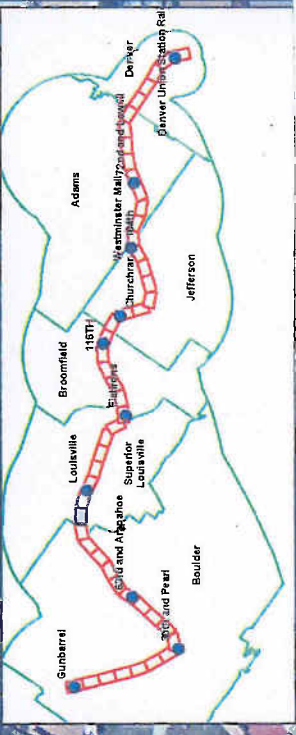
## WETLANDS and OTHER WATERS

Sheet 18



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet

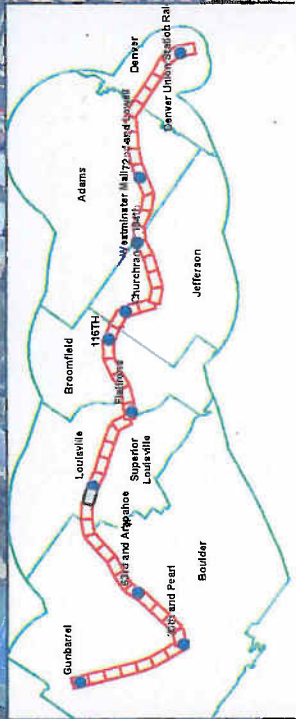




**US 36 EIS**  
**WETLANDS and OTHER WATERS**  
**Sheet 19**



- PFO
- PEM
- Other Waters
- PSS
- PEM/PSS
- Segment Boundaries
- Study Area Boundary
- Sheet Boundaries
- Boundaries







# US 36 EIS

## WETLANDS and OTHER WATERS

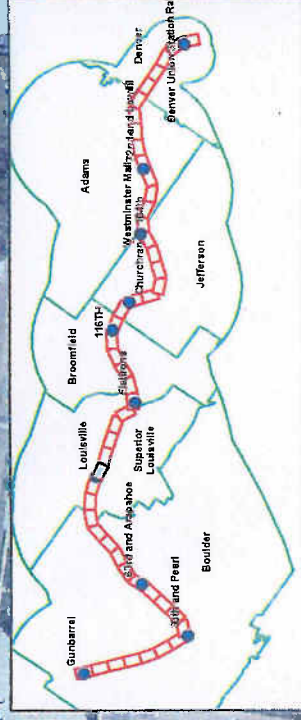
Sheet 20



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Boundaries
- Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

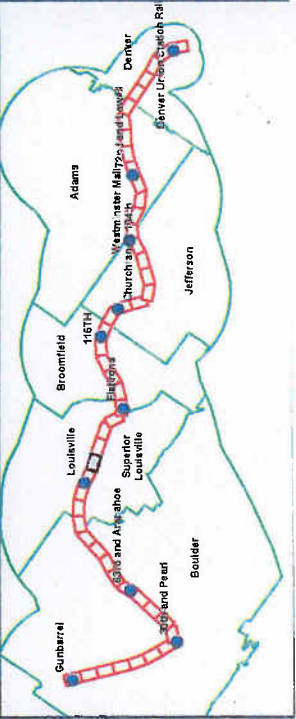
## WETLANDS and OTHER WATERS

Sheet 21



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

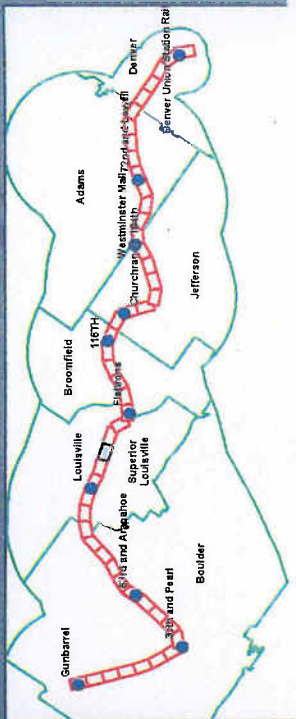
### Sheet 22



U.S. 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





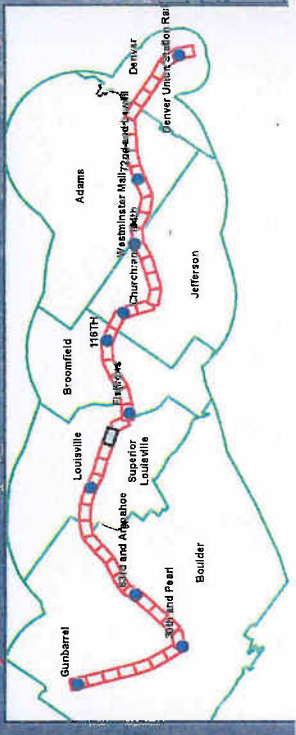
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 23



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMPSS
- Segment Boundaries
- Sheet Boundaries











# US 36 EIS

## WETLANDS and OTHER WATERS

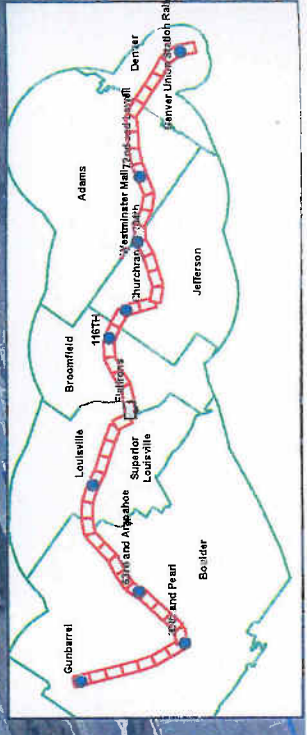
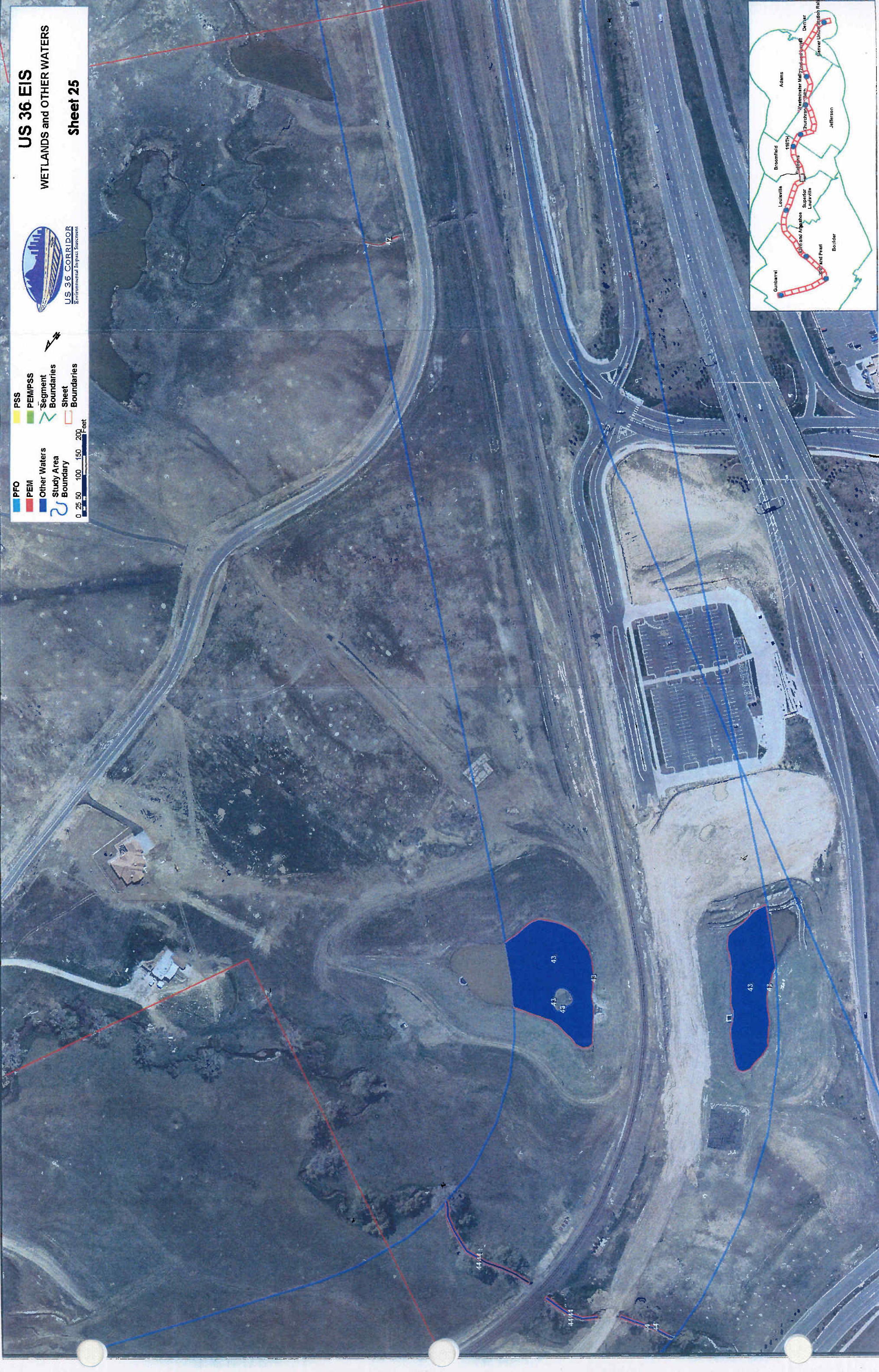
### Sheet 25



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 25A

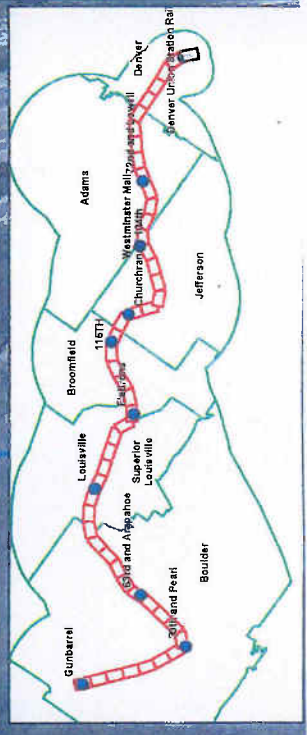


US 36 CORRIDOR  
Environmental Impact Statement

**Legend:**

- PFO (Blue line)
- PEM (Red line)
- Other Waters (Blue area)
- Study Area Boundary (Blue outline)
- PSS (Yellow area)
- PEM/PSS Segment Boundaries (Green outline)
- Sheet Boundaries (Red outline)
- Boundaries (Black outline)

Scale: 0, 25, 50, 100, 150, 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

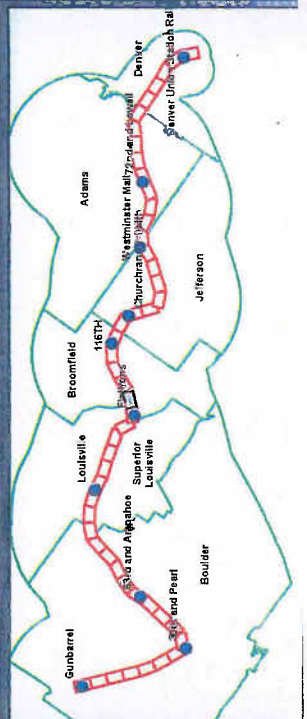
Sheet 26



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEMPSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet







# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 27

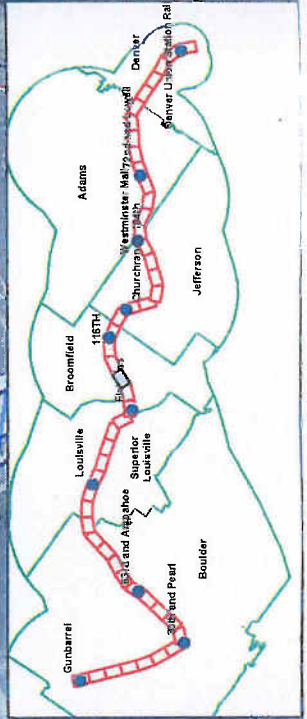


US 36 CORRIDOR  
Environmental Impact Statement

**PFO** (Blue line)  
**PEM** (Red line)  
**Other Waters** (Blue line)  
**Study Area Boundary** (Blue line)

**PSS** (Yellow line)  
**PEM/PSS** (Green line)  
**Segment Boundaries** (Green line)  
**Sheet Boundaries** (Red line)

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

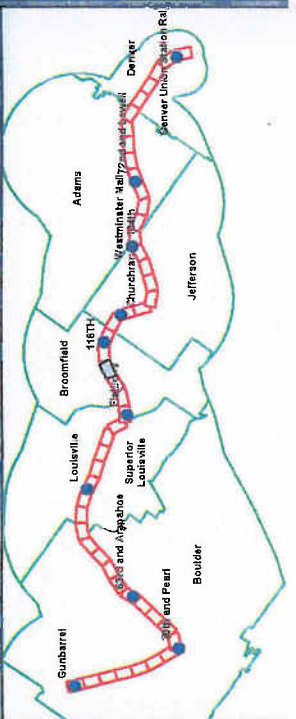
Sheet 28



**PFO** **PEM** **Other Waters** **Study Area Boundary**

**PSS** **PEM/PSS** **Segment Boundaries** **Sheet Boundaries**

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

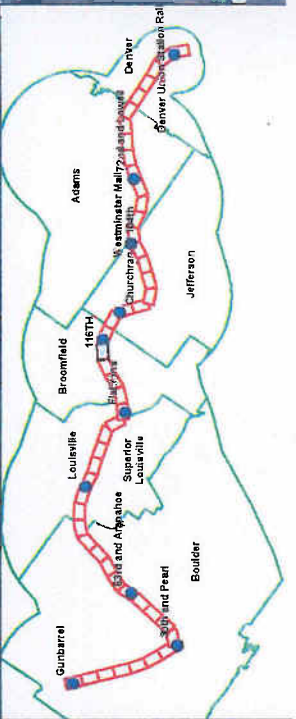
### Sheet 29



**PFO** PFO  
**PEM** PEM  
**Other Waters** Other Waters  
**Study Area Boundary** Study Area Boundary

**PSS** PSS  
**PEM/PSS** PEM/PSS  
**Segment Boundaries** Segment Boundaries  
**Sheet Boundaries** Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

WETLANDS and OTHER WATERS

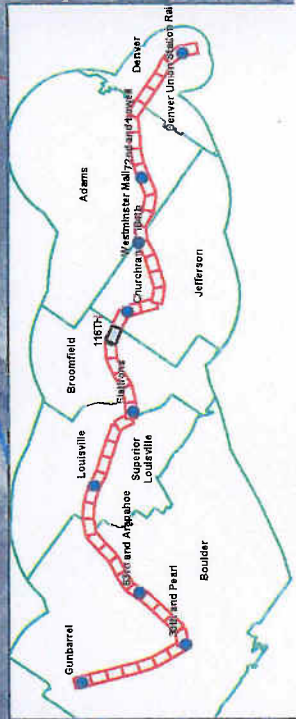
Sheet 30



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet







# US 36 EIS

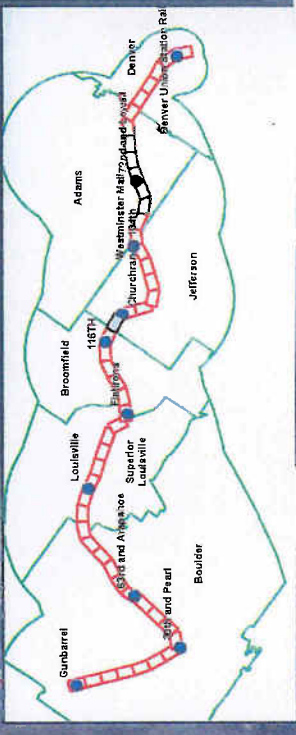
## WETLANDS and OTHER WATERS

Sheet 31



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

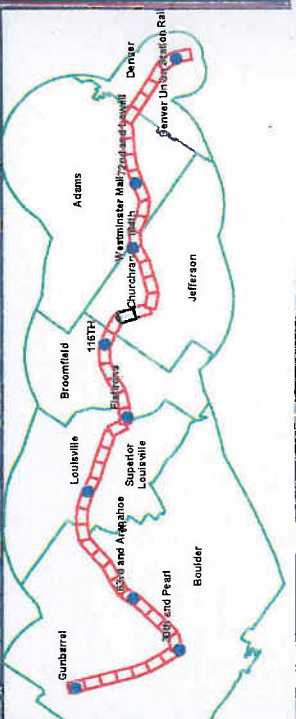
## WETLANDS and OTHER WATERS

Sheet 32



U.S. 36 CORRIDOR  
Environmental Impact Statement

- PFO
  - PEM
  - Other Waters
  - Study Area Boundary
  - PSS
  - PEM/PSS
  - Segment Boundaries
  - Sheet Boundaries
  - Boundaries
- 0 25 50 100 150 200 feet





# US 36 EIS

## WETLANDS and OTHER WATERS

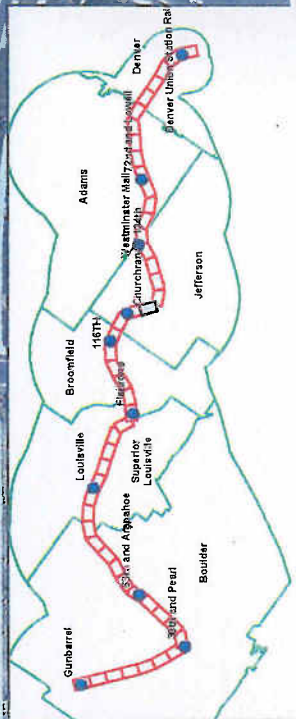
Sheet 33



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





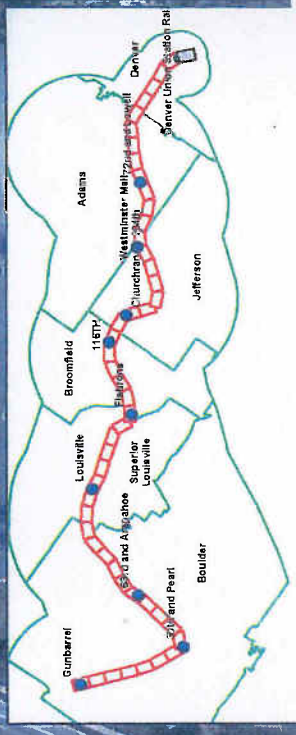
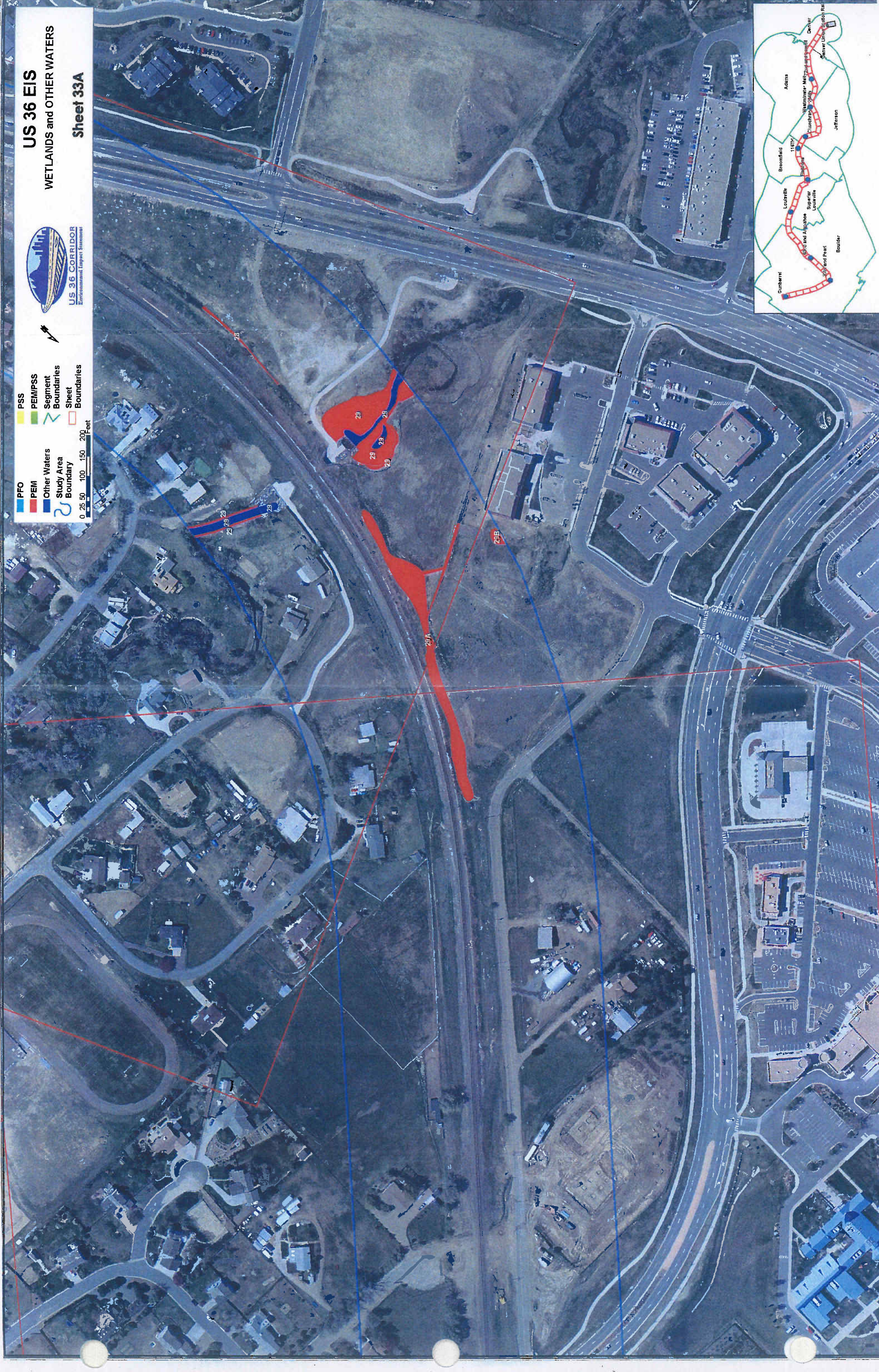
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 33A



	PFO
	PEM
	Other Waters
	Study Area Boundary
	Segment Boundaries
	PEM/PSS
	PSS
	0 25 50 100 150 200 Feet
	Boundaries
	Sheet
	Boundaries







# US 36 EIS

## WETLANDS and OTHER WATERS

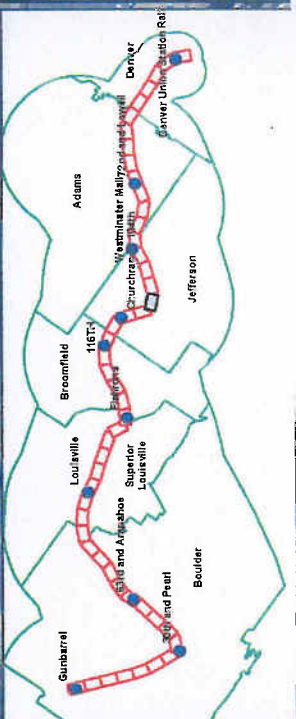
Sheet 34



U.S. 36 CORRIDOR  
Environmental Impact Statement

PFO	PSS
PEM	PEM/PSS
Other Waters	Segment
Study Area	Boundaries
Boundary	Sheet
Boundary	Boundaries

0 25 50 100 150 200 feet





# US 36 EIS

WETLANDS and OTHER WATERS

Sheet 35

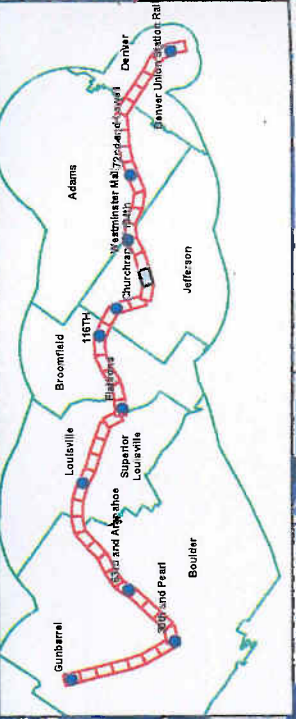
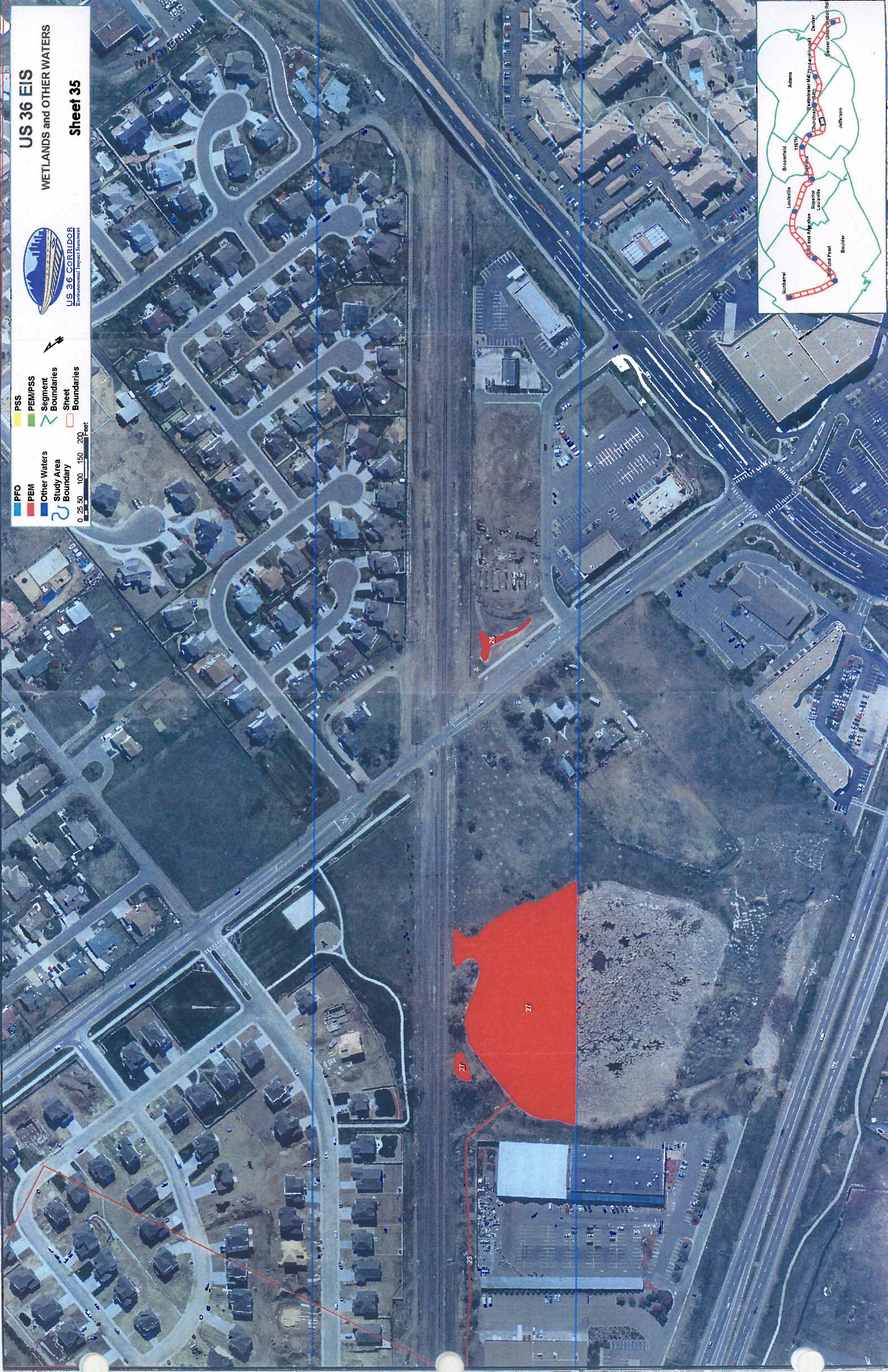


US 36 CORRIDOR  
Environmental Impact Statement

**PFO** **PEM** **Other Waters** **Study Area Boundary**

**PSS** **PEM/PSS** **Segment Boundaries** **Sheet Boundaries**

0 25 50 100 150 200 Feet





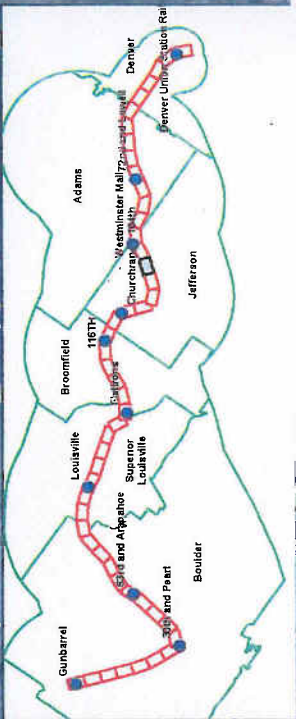
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 36



- PFO
  - PEM
  - Other Waters
  - Study Area Boundary
  - PSS
  - PEM/PSS
  - Segment Boundaries
  - Sheet Boundaries
- 0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 37

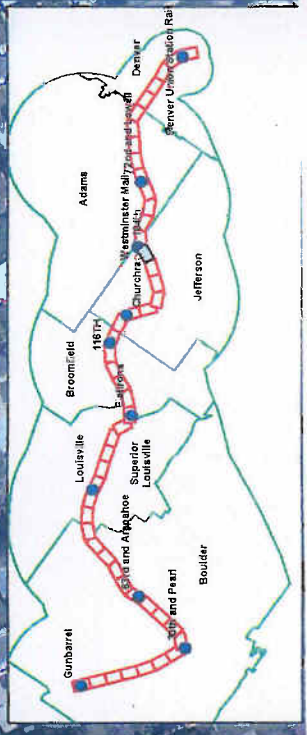


US 36 CORRIDOR  
Environmental Impact Statement

**Legend:**

- PFO: Blue line
- PEM: Red line
- Other Waters: Blue line
- Study Area Boundary: Blue line
- PSS: Yellow line
- PEM/PSS Segment Boundaries: Green line
- Sheet Boundaries: Red line

Scale: 0, 25, 50, 100, 150, 200 Feet







# US 36 EIS

WETLANDS and OTHER WATERS

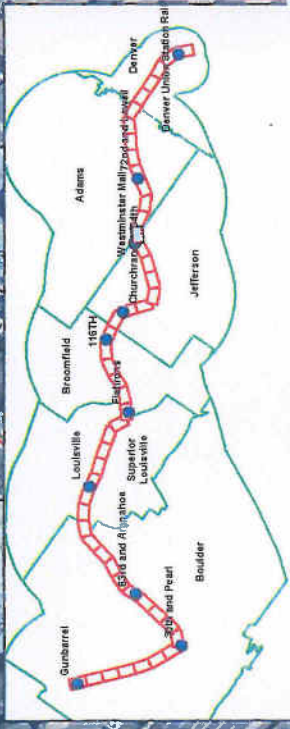
Sheet 38



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

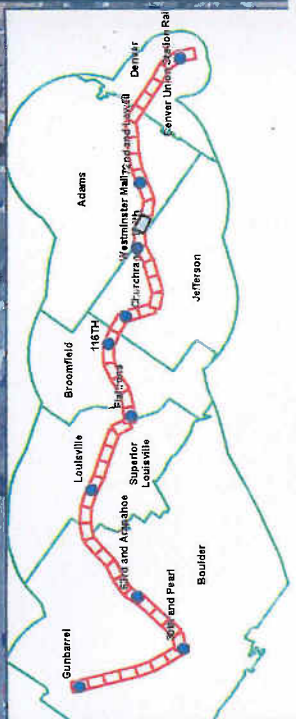
Sheet 39



US 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Wetland Boundaries
	Sheet Boundaries
	Boundaries

0 25 50 100 150 200 Feet





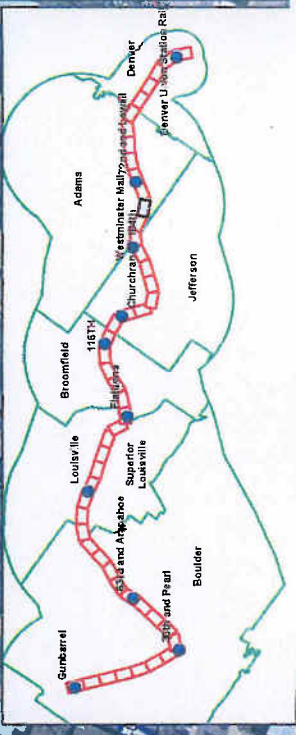
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 40



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet Boundaries
- Boundaries





# US 36 EIS

## WETLANDS and OTHER WATERS

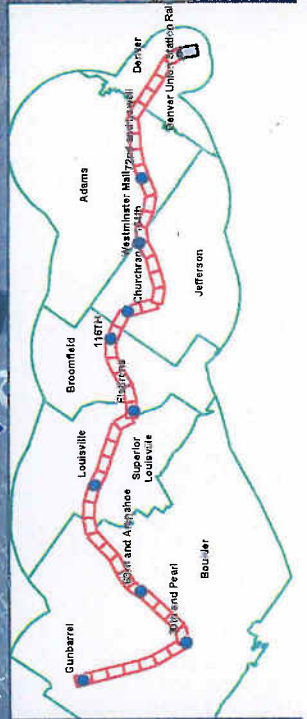
Sheet 51



US 36 CORRIDOR  
Environmental Impact Statement

-  PFO
-  PEIM
-  Other Waters
-  Study Area Boundary
-  PSS
-  PEMFSS
-  Segment Boundaries
-  Sheet Boundaries
-  Boundaries

0 25 50 100 150 200 Feet







# US 36 EIS

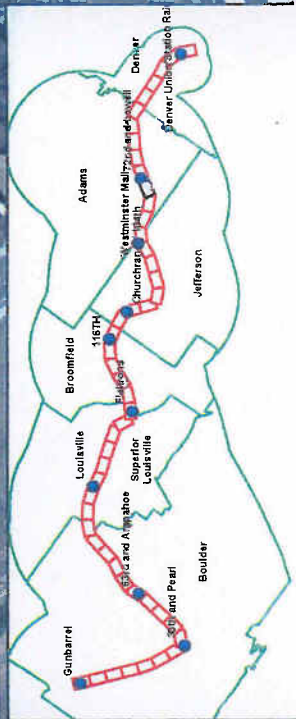
WETLANDS and OTHER WATERS

Sheet 41



	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS Segment Boundaries
	Sheet Boundaries

0 25 50 100 150 200 Feet





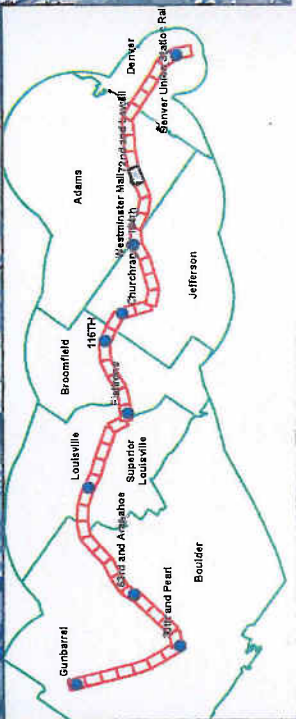
# US 36 EIS

## WETLANDS and OTHER WATERS

### Sheet 42



- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEMIPSS
- Segment Boundaries
- Other Waters Boundaries
- Sheet Boundaries





# US 36 EIS

## WETLANDS and OTHER WATERS

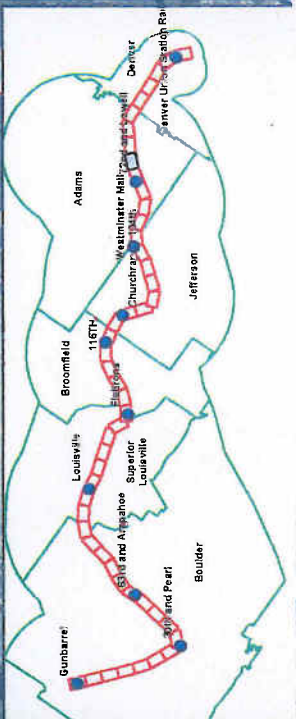
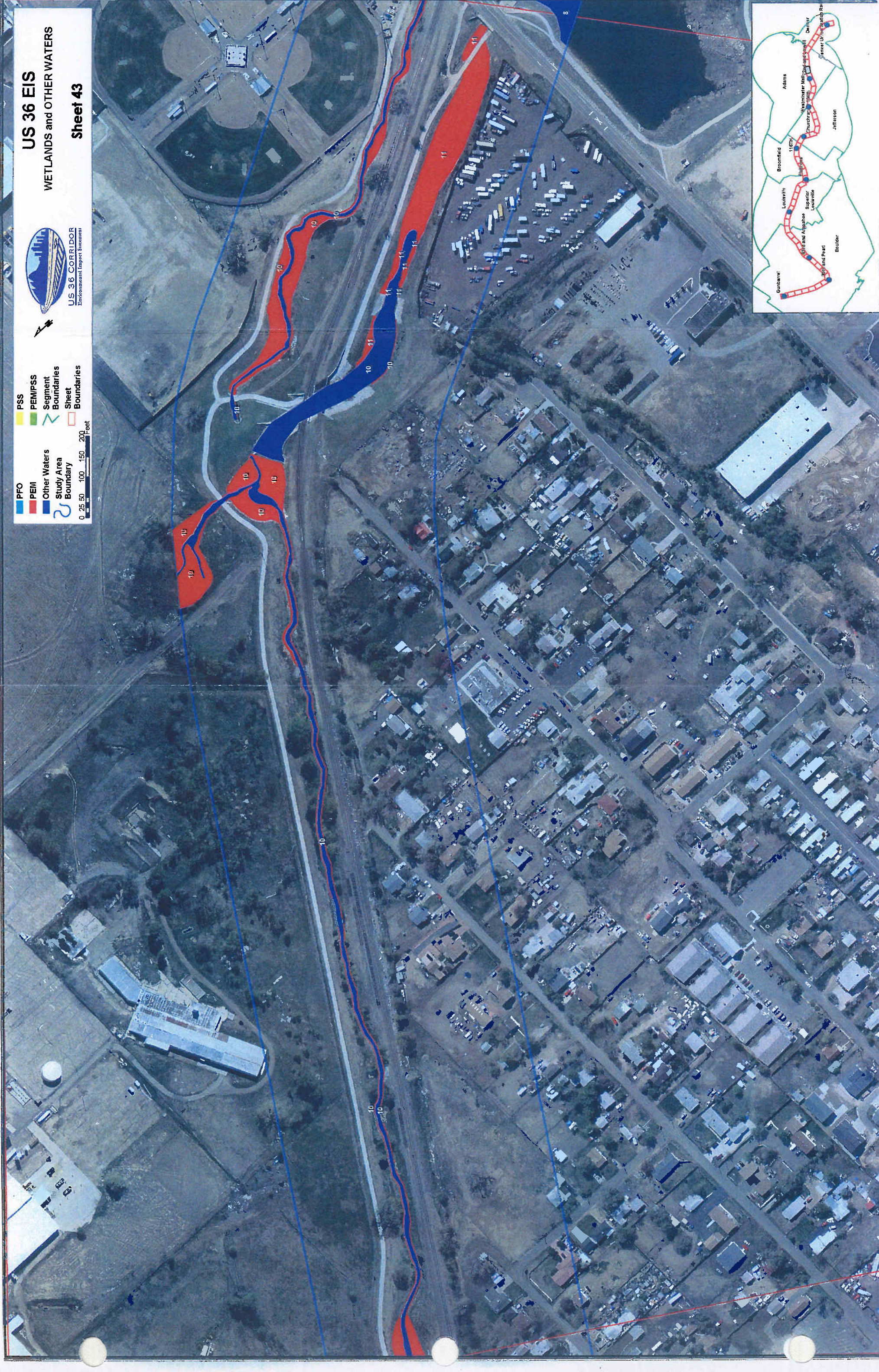
Sheet 43



U.S. 36 CORRIDOR  
Environmental Impact Statement

	PFO
	PEM
	Other Waters
	Study Area Boundary
	PSS
	PEM/PSS
	Segment Boundaries
	Boundaries
	Sheet Boundaries

0 25 50 100 150 200 feet











# US 36 EIS

## WETLANDS and OTHER WATERS

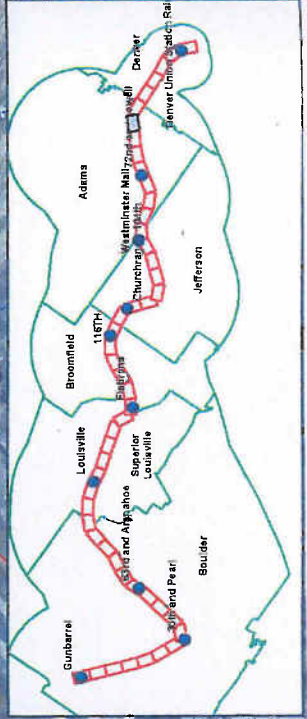
### Sheet 45



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet Boundaries
- Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

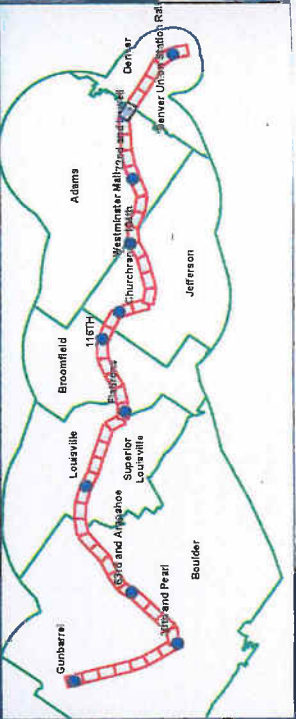
## WETLANDS and OTHER WATERS

### Sheet 46



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area Boundary
- PSS
- PEM/PSS
- Segment Boundaries
- Sheet Boundaries
- Boundaries





# US 36 EIS

## WETLANDS and OTHER WATERS

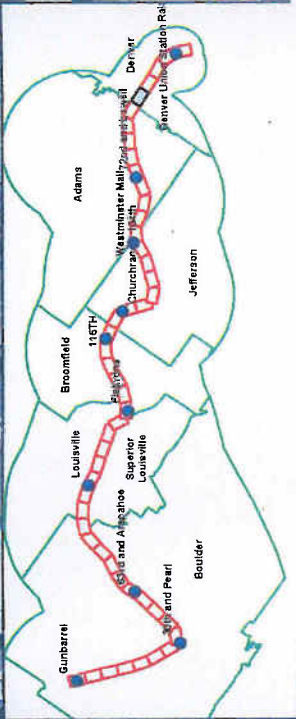
### Sheet 47



U.S. 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEIM
- Other Waters
- Study Area Boundary
- PSS
- PEIMPSS
- Segment Boundaries
- Boundaries
- Sheet
- Boundaries

0 25 50 100 150 200 Feet





# US 36 EIS

## WETLANDS and OTHER WATERS

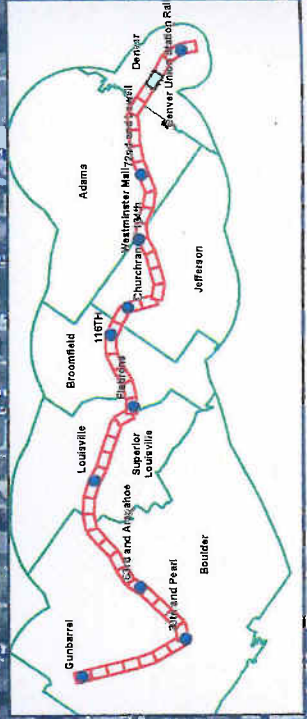
Sheet 48



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- Other Waters
- Study Area
- Boundary
- PSS
- PEM/PSS
- Segment
- Boundaries
- Sheet
- Boundaries

0 25 50 100 150 200 Feet







# US 36 EIS

## WETLANDS and OTHER WATERS

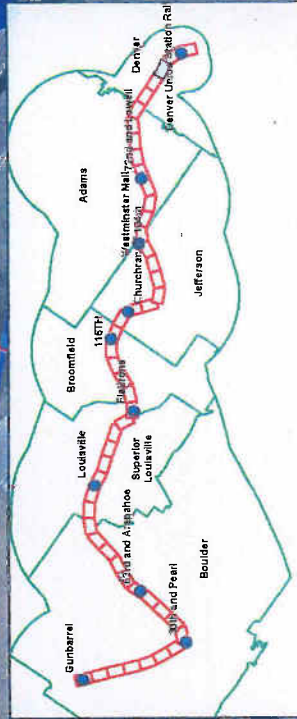
Sheet 49



US 36 CORRIDOR  
Environmental Impact Statement

- PFO
- PEM
- PSS
- PEMPSS
- Other Waters
- Segment Boundaries
- Study Area Boundary
- Sheet Boundaries
- Boundaries

0 25 50 100 150 200 Feet





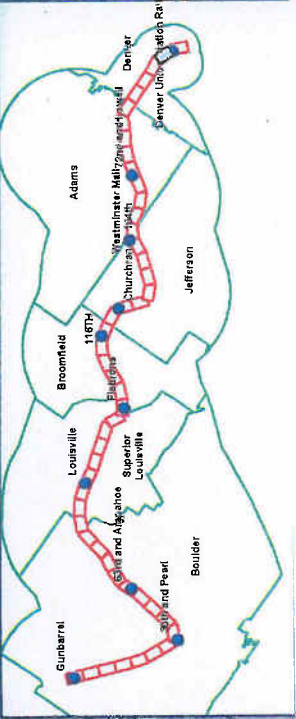
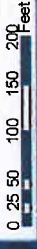
# US 36 EIS

## WETLANDS and OTHER WATERS

Sheet 50



- PFO
- PEM
- Other Waters
- Study Area
- Boundary
- PSS
- PEM/PSS
- Segment
- Boundaries
- Sheet
- Boundaries





**Appendix B1**  
**Wetland Data Tables for US 36**



US 36  
Adams County Segment

Segment Summary:  
Number of Wetlands: 13  
Number of Wetlands with High-Rated Functions: 3  
Acres of Wetlands: 1.74  
Percent Natural Wetlands: 0  
Percent Irrigation-Related Wetlands: 39  
Percent Stormwater-Related Wetlands: 61

Wetland ID	1	2	3	4	5	6	7	9	11B	11C	65	66	67
Size (acres)	0.16	0.02	0.00	0.19	0.35	0.63	0.01	0.24	0.01	0.06	0.03	0.01	0.04
Cowardin Classification	PEM	FSS	PFO										
	100	20	100	80	100	80	100	100	100	100	100	100	100
		80		20		20							
Carex Associations				X			X						
<i>Carex emoryi</i>													
<i>Carex nebrascensis</i>													
<i>Distichlis spicata</i>												X	
<i>Eleocharis palustris</i>													
<i>Hordeum jubatum</i>													
<i>Juncus balticus</i>													
<i>Phalaris arundinacea</i>													
<i>Populus deltoides</i> - <i>Salix amygdaloides</i> / <i>Salix exigua</i>													
<i>Salix exigua</i> / Barren Ground													
<i>Salix exigua</i> / Mesic graminoid													
<i>Schoenoplectus acutus</i> - <i>Schoenoplectus tabernaemontani</i> / <i>Scirpus validus</i>													
<i>Schoenoplectus maritimus</i> / <i>Scirpus paludosus</i>													
<i>Schoenoplectus purpureus</i> / <i>Scirpus pungens</i>													
<i>Spartina patens</i>													
<i>Spartina patens</i> - <i>Typha latifolia</i>													X
Other Associations													
<i>Carex lanuginosa</i>													
Mixed Wetland Forbs													
Mixed Wetland Graminoids													
Mixed Wetland Herbaceous			X										
<i>Rumex crispus</i>													
<i>Salix amygdaloides</i> / Mixed Wetland Forbs													
<i>Salix exigua</i> / Mixed Wetland Forbs													
<i>Salix exigua</i> / Mixed Wetland Graminoids													
<i>Salix exigua</i> / Mixed Wetland Herbaceous					X								
High-Rated Functions													
Listed/Proposed T&E Species Habitat													
CO Natural Heritage Program Species Habitat													
General Wildlife Habitat													
General Fish / Aquatic Habitat													
Flood Attenuation													
Short and Long Term Surface Water Storage													
Sediment / Nutrient / Toxicant Removal													X
Shoreline Stabilization													
Production Export / Food Chain Support													
Groundwater Discharge / Recharge													
Uniqueness													
Recreation / Education Potential													
Notes <sup>1</sup>													
Hydrology (Primary Source)													
Stormwater	X												X
Irrigation		X											
Natural													
Jurisdictional?													
Photograph Number(s)	1	2	3	4.5	6	7, 8, 12, 13 (6/3)	9	11	23	24	42	45	46
	(6/3)	(6/3)	(6/3)	(6/3)	(6/3)	(6/3)	(6/3)	(6/3)	(7/16)	(7/16)	(6/9)	(6/9)	(6/9)
Sheet Number(s)	28	25	25	25	25	24, 24A, 25, 26, 27	24	25	24	24	25	27	32
Date of Visit(s)	6/3	6/3	6/3	6/3	6/3	6/3, 7/16	6/3	6/3	7/16	7/16	6/9	6/9	6/9, 6/28
Notes						Allen Ditch							

<sup>1</sup> Abbreviations/Acronyms: PMJM = Preble's meadow jumping mouse, NLF = Northern leopard frog, CGS = Common garter snake, ULT = Ute ladies' tresses orchid, CBP = Colorado butterfly plant, ATC = American toad, Fish = Common shiner, brassy minnow













US 36

Superior/Louisville Segment

Segment Summary:  
 Number of Wetlands: 23  
 Number of Wetlands with High-Rated Functions: 8  
 Acres of Wetlands: 6.59  
 Percent Natural Wetlands: 74  
 Percent Irrigation-Related Wetlands: 11  
 Percent Stormwater-Related Wetlands: 15

Wetland ID	31	32	39	40	41	42	43	44	45	46	47	48	49	71	72	73	74	75	76	77	78	79	1-5
Size (acres)	0.01	0.07	0.27	0.04	0.06	0.04	0.31	0.06	0.12	0.56	0.34	0.20	0.01	0.03	0.06	0.03	0.07	4.13	0.07	0.02	0.05	0.02	0.02
Cowardin Classification	PEM1	100	100	100	100	100	100	100	100	30	100	100	100	90	100	20	50	90	100	100	100	100	100
	PSS	10	10							70													
	PFO																						
Carsey Associations																							
<i>Carex emoryi</i>								X										X					
<i>Carex nebrascensis</i>																							
<i>Distichlis spicata</i>																							X
<i>Eleocharis palustris</i>					X																		
<i>Hordeum jubatum</i>																							X
<i>Juncus balticus</i>																							
<i>Phalaris arundinacea</i>																							
<i>Populus deltoides</i> - <i>Salix amygdaloides</i> / <i>Salix exigua</i>										X													
<i>Salix exigua</i> / Barren Ground																							
<i>Salix exigua</i> / Mesic graminoid																							
<i>Schoenoplectus tabernaemontani</i> ( <i>Scirpus validus</i> )																							
<i>Schoenoplectus maritimus</i> ( <i>Scirpus paludosus</i> )											X												
<i>Schoenoplectus purgens</i> ( <i>Scirpus purgens</i> )																							
<i>Spartina pectinata</i>																							
<i>Typha angustifolia</i> - <i>Typha latifolia</i>	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Other Associations																							
<i>Carex lanuginosa</i>																							
Mixed Wetland Forbs																							X
Mixed Wetland Graminoids			X																				
Mixed Wetland Herbaceous									X														
<i>Rumex crispus</i>																	X						
<i>Salix amygdaloides</i> / Mixed Wetland Forbs																							
<i>Salix exigua</i> / Mixed Wetland Forbs																							
<i>Salix exigua</i> / Mixed Wetland Graminoids			X							X													
<i>Salix exigua</i> / Mixed Wetland Herbaceous																							
High-Rated Functions																							
Listed/Proposed T&E Species Habitat																							
CO Natural Heritage Program Species Habitat																							
General Wildlife Habitat																							
General Fish / Aquatic Habitat																							
Flood Attenuation																							
Short and Long Term Surface Water Storage																							
Sediment / Nutrient / Toxicant Removal																							
Sediment / Shoreline Stabilization																							
Production Export / Food Chain Support																							
Groundwater Discharge / Recharge																							
Uniqueness																							
Recreation / Education Potential																							
Notes <sup>1</sup>																							
Hydrology (Primary Source)																							
Stormwater	X	X																					X
Irrigation																							X
Natural																							X
Jurisdictional?	N	N	N	N	N	N	N	N	N	Y	N	Y	Y	Y	N	N	N	Y	N	N	N	N	N
Photograph Number(s)	36 (6/4)	37 (6/4)	44, 45 (6/4)	46 (6/4)	47 (6/4)	48 (6/4)	50 (6/4)	49, 51 (6/4)	52 (6/4)	53, 54, 55, 64, 63 (6/4)	57 (6/4)	58 (6/4)	59 (6/4)	65 (6/10)	67 (6/10)	69 (6/10)	71 (6/10)	73, 74, 75, 76, 77, 79 (6/10)	78 (6/10)	83 (6/10)	87 (6/10)	88 (6/10)	9 (7/2)
Sheet Number(s)	13	13	12	12	11, 12B	11	10	10	9, 10	8, 9	8	6, 7	6	8	8, 9	9	10	10, 11, 12, 12B	11, 12B	12	12	12, 13	8
Date of Visit(s)	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/4	6/10	6/10	6/10	6/10, 7/2, 7/15	6/10	6/10	6/10	6/10, 7/15	7/2
Notes			Rock Creek				Old Pond			Coal Creek							Young Saam	Rock Creek					Road Side Ditch

<sup>1</sup> Abbreviations/Acronyms: PMJM = Preble's meadow jumping mouse, NLF = Northern leopard frog, CGS = Common garter snake, ULT = Ute ladies' tresses orchid, CBP = Colorado butterfly plant, ATC = American toothcup, Fish = Common shiner, brassy minnow









**Appendix B2**  
**Wetland Data Tables for the BNSF**



**BNSF Railroad  
Denver Segment**

Segment Summary:  
 Number of Wetlands: 1  
 Number of Wetlands with High-Rated Functions: 1  
 Acres of Wetlands: 0.23  
 Percent Natural Wetlands: 100  
 Percent Irrigation-Related Wetlands: 0  
 Percent Stormwater-Related Wetlands: 0

Wetland ID	112
Size (acres)	0.23
Cowardin Classification (Percent)	
PEM	80
PSS	20
PFO	

Carsey Associations
Carex emoryi
Carex nebrascensis
Distichlis spicata
Eriochloa palustris
Hordeum jubatum
Phalaris arundinacea
Populus deltoides - Salix amygdaloides / Salix exigua
Salix exigua / Mesic Graminoid
Salix exigua / Barren Ground
Schoenoplectus acutus - Schoenoplectus tabernaemontani (Scripus validus)
Schoenoplectus maritimus (Scripus pallidus)
Schoenoplectus purgens (Scripus purgens)
Spartina pectinata
Typha angustifolia - Typha latifolia

Other Associations
Carex lanuginosa
Mixed Wetland Forbs
Mixed Wetland Graminoids
Mixed Wetland Herbaceous
Rumex crispus
Salix amygdaloides / Mixed Wetland Forbs
Salix exigua / Mixed Wetland Forbs
Salix exigua / Mixed Wetland Graminoids

High-Rated Functions	
Listed/Proposed T&E Species Habitat	X
CO Natural Heritage Program Species Habitat	X
General Wildlife Habitat	
General Fish / Aquatic Habitat	
Flood Attenuation	
Short and Long Term Surface Water Storage	
Sediment / Nutrient / Toxicant Removal	X
Sediment / Shoreline Stabilization	
Production Export / Food Chain Support	
Groundwater Discharge / Recharge	
Uniqueness	
Recreation / Education Potential	
Notes <sup>1</sup>	NLF, CGS

Hydrology (Primary Source)	
Stormwater	
Irrigation	
Natural	
	X
	Y

Jurisdictional?	
	X
	Y

Photograph Number(s)
1, 2, 3 (5/28)

Sheet Number(s)
49

Date of Visit(s)
5/28

Notes
South Platte River

<sup>1</sup> Abbreviations/Acronyms: PM, JM = Preble's meadow jumping mouse, NLF = Northern leopard frog, CGS = Common garter snake, ULT = Ute ladies' tresses orchid, CBP = Colorado butterfly plant, ATC = American toadtoad, Fish = Common shiner, brassy minnow







**BNSF Railroad  
Westminster Segment**

Segment Summary:  
 Number of Wetlands: 13  
 Number of Wetlands with High-Rated Functions: 8  
 Acres of Wetlands: 7.70  
 Percent Natural Wetlands: 45  
 Percent Irrigation-Related Wetlands: 5  
 Percent Stormwater-Related Wetlands: 50

Wetland ID	22	23	24	25	26	27	28	29	29A	29B	30	31	32
Size (acres)	0.04	0.29	0.02	0.12	0.07	2.89	0.41	0.56	0.57	0.02	0.37	1.96	0.38
Cowardin Classification (Percent)	PEM 100	80 20	100 0	25 75	100 0	95 5	60 40	85 15	100 0	100 0	30 70	100 0	100 0
Cowardin Classification	PEM	PSS	PTD										
Cowardin Associations													
Carex emoryi	X												
Carex nebrascensis													
Distichlis spicata													
Eleocharis palustris			X										
Hordeum jubatum													
Phalaris arundinacea							X						
Populus deltoides - (Salix amygdaloides) / Salix exigua													
Salix exigua / Barren Ground													
Salix exigua / Mesic graminoid	X												
Schoenoplectus acutus - Schoenoplectus tabernaemontani (Scirpus validus)													
Schoenoplectus maritimus (Scirpus paludosus)													
Schoenoplectus pungens (Scirpus pungens)													
Spartina pectinata													
Typha angustifolia - Typha latifolia	X												
Other Associations													
Carex lanuginosa													
Mixed Wetland Forbs													
Mixed Wetland Graminoids				X									
Mixed Wetland Herbaceous													
Rumex crispus													
Salix amygdaloides / Mixed Wetland Forbs													
Salix exigua / Mixed Wetland Forbs													
Salix exigua / Mixed Wetland Graminoids	X												
Salix exigua / Mixed Wetland Herbaceous													
High-Rated Functions													
Listed/Proposed T&E Species Habitat													
CO Natural Heritage Program Species Habitat													
General Wildlife Habitat													
General Fish / Aquatic Habitat													
Flood Attenuation													
Short and Long Term Surface Water Storage													
Sediment / Nutrient / Toxicant Removal													
Production Export / Food Chain Support													
Groundwater Discharge / Recharge													
Uniqueness													
Recreation / Education Potential													
Notes													
Hydrology (Primary Source)													
Stormwater	X												
Irrigation		X											
Natural													
Jurisdictional?													
Photograph Number(s)													
35 (5/18)	36, 37 (5/18)	38 (5/18)	39, 40, 41 (5/18)	42 (5/18)	43, 44 (5/18)	45, 46, 47, 48, 49, 50, 51 (5/18)	52, 53 (5/18)	54 (5/18)	55 (5/18)	56, 57 (5/18)	58 (5/18)		
Sheet Number(s)	37	36, 37	36	36	35	34, 35	33A, 34	33A, 34	32	31, 32	31		
Date of Visit(s)	5/18	5/18	5/18	5/18	5/18	5/18	5/18, 6/28	5/18	5/18	5/18	5/18	5/18	5/18
Notes		Allen Ditch		Farmer's Highline Canal			Big Dry Creek		Storm-water Pond	Wainut Creek	Lower Church Lake		

<sup>1</sup> Abbreviations/Acronyms: PMJM = Preble's meadow jumping mouse, NLF = Northern leopard frog, CGS = Common garter snake, ULT = Ute ladies' tresses orchid, ATC = American toothcup, Fish = Common shiner, brassy minnow





**BNSF Railroad  
Broomfield Segment**

Segment Summary:  
 Number of Wetlands: 11  
 Number of Wetlands with High-Rated Functions: 7  
 Acres of Wetlands: 5.82  
 Percent Natural Wetlands: 57  
 Percent Irrigation-Related Wetlands: 2  
 Percent Stormwater-Related Wetlands: 41

Wetland ID	33	34	35	36	37	38	39	40	41	111	111A
Size (acres)	1.10	0.01	0.40	0.53	0.11	1.88	0.39	1.08	0.22	0.09	0.01
Cowardin Classification (Percent)	PEM	100	100	100	95	80	100	100	100	100	60
	PSS				5	20					40
	PFO										
<b>Carsey Associations</b>											
	<i>Carex emoryi</i>	X									
	<i>Carex nebrascensis</i>										
	<i>Distichlis spicata</i>										
	<i>Eleocharis palustris</i>										
	<i>Hordeum jubatum</i>								X	X	
	<i>Phalaris arundinacea</i>										
	<i>Populus deltoides</i> - <i>Salix amygdaloides</i> / <i>Salix exigua</i>										X
	<i>Salix exigua</i> / Barren Ground										
	<i>Salix exigua</i> / Mestic Graminoid										
	<i>Schoenoplectus acutus</i> - <i>Schoenoplectus tabernaemontani</i> / <i>Scirpus validus</i>										
	<i>Schoenoplectus maritimus</i> ( <i>Scirpus paludosus</i> )										
	<i>Schoenoplectus purpureus</i> ( <i>Scirpus pungens</i> )										
	<i>Spartina rectinata</i>										
	<i>Typha angustifolia</i> - <i>Typha latifolia</i>	X									
<b>Other Associations</b>											
	<i>Carex lanuginosa</i>										
	Mixed Wetland Forbs										
	Mixed Wetland Graminoids							X			
	Mixed Wetland Herbaceous										
	<i>Rumex crispus</i> Herbaceous Vegetation										
	<i>Salix amygdaloides</i> / Mixed Wetland Forbs										
	<i>Salix exigua</i> / Mixed Wetland Forbs										
	<i>Salix exigua</i> / Mixed Wetland Graminoids										
	<i>Salix exigua</i> / Mixed Wetland Herbaceous										
<b>High-Rated Functions</b>											
	Listed/Proposed T&E Species Habitat										
	CO Natural Heritage Program Species Habitat										
	General Wildlife Habitat										
	General Fish / Aquatic Habitat										
	Flood Attenuation										
	Short and Long Term Surface Water Storage										
	Sediment / Nutrient / Toxicant Removal										
	Sediment / Shoreline Stabilization										
	Production Export / Food Chain Support										
	Groundwater Discharge / Recharge										
	Uniqueness										
	Recreation / Education Potential										
	Notes <sup>1</sup>										
<b>Hydrology (Primary Source)</b>											
	Stormwater			X							
	Irrigation		X								
	Natural	X									
<b>Jurisdictional<sup>1</sup></b>											
		N	N	N	N	N	N	N	N	Y	N
		59.60	61	62	63.64	66	67.68	69	71	72	34.35
		(5/18)	(5/18)	(5/18)	(5/18)	(5/18)	(5/19)	(5/19)	(5/19)	(5/19)	(6/2)
<b>Photograph Number(s)</b>											
		30	29	28	27.28	27	26.27	26	26	27	27
<b>Sheet Number(s)</b>											
		5/18	5/18	5/18	5/18	5/18	5/19	5/19	5/19	6/2	6/2
<b>Date of Visit(s)</b>											
<b>Notes</b>											
										Rock Creek Trib.	Storm- water Pond

<sup>1</sup> Abbreviations/Acronyms: PMJM = Preble's meadow jumping mouse, NLF = Northern leopard frog, CGS = Common garter snake, ULT = Ute ladies' tresses orchid, CBP = Colorado butterfly plant, ATC = American toothcup, Fish = Common shiner, brassy minnow



**BNSF Railroad  
Superior/Louisville Segment**

Segment Summary:  
 Number of Wetlands: 17  
 Number of Wetlands with High-Rated Functions: 7  
 Acres of Wetlands: 2,54  
 Percent Natural Wetlands: 38  
 Percent Irrigation-Related Wetlands: 17  
 Percent Stormwater-Related Wetlands: 45

Wetland ID	41	42	43	44	44B	45	46	47	48	49	50	51	52	53	54	55	56
Size (acres)	0.11	0.01	0.11	0.08	0.15	0.06	0.52	0.10	0.24	0.02	0.04	0.01	0.30	0.13	0.05	0.29	0.32
Cowardin Classification (Percent)	PEM: 100	100	100	60	100	100	100	100	100	100	100	100	100	95	100	60	100
	PSS			40									5		40		100
	PFO																
<b>Carex Associations</b>									X	X							
<i>Carex emoryi</i>																	
<i>Carex nebrascensis</i>																	
<i>Distichlis spicata</i>					X			X									
<i>Eleocharis palustris</i>																	
<i>Hordeum jubatum</i>														X			
<i>Phalaris arundinacea</i>																	X
<i>Populus deltoides</i> - <i>Salix amygdaloides</i> / <i>Salix exigua</i>																	
<i>Salix exigua</i> / Barren Ground																	
<i>Salix exigua</i> / Mesic graminoid																	
<i>Schoenoplectus acutus</i> - <i>Schoenoplectus tabernaemontani</i> ( <i>Scirpus validus</i> )						X											
<i>Schoenoplectus maritimus</i> ( <i>Scirpus meludocus</i> )																	
<i>Schoenoplectus pungens</i> ( <i>Scirpus pungens</i> )																	
<i>Spartina pectinata</i>																	
<i>Typha angustifolia</i> - <i>Typha latifolia</i>							X										X
<b>Other Associations</b>																	
<i>Carex lanuginosa</i>																	
Mixed Wetland Forbs													X				
Mixed Wetland Graminoids																	
Mixed Wetland Herbaceous						X											
<i>Rumex crispus</i>												X					
<i>Salix amygdaloides</i> / Mixed Wetland Forbs																	
<i>Salix exigua</i> / Mixed Wetland Forbs																	
<i>Salix exigua</i> / Mixed Wetland Graminoids																	
<i>Salix exigua</i> / Mixed Wetland Herbaceous																	
<b>High-Rated Functions</b>																	
Listed/Proposed T&E Species Habitat																	
CO Natural Heritage Program Species Habitat																	
General Wildlife Habitat						X											
General Fish / Aquatic Habitat																	
Flood Attenuation																	
Short and Long Term Surface Water Storage																	
Sediment / Nutrient / Toxicant Removal																	
Production Export / Food Chain Support																	
Groundwater Discharge / Recharge																	
Uniqueness																	
Recreation / Education Potential																	
Notes <sup>1</sup>						NLF, CGS											NLF, CGS
<b>Hydrology (Primary Source)</b>																	
Stormwater																	
Irrigation																	
Natural																	
<b>Jurisdictional?</b>																	
<b>Photograph Number(s)</b>																	
<b>Sheet Number(s)</b>																	
<b>Date of Visit(s)</b>																	
<b>Notes</b>																	

<sup>1</sup> Abbreviations/Acronyms: PMIM = Preble's meadow jumping mouse, NLF = Northern leopard frog, CGS = Common garter snake, UL T = Ute ladies' tresses orchid, CBP = Colorado butterfly plant, ATC = American toothcup, Fish = Common shiner, brassy minnow







**Appendix B3**  
**Other Waters Data Tables for US 36**





US 36

Adams County Segment

		2	4	6	67C
<b>Other Water</b>					
Size (acres)		0.00	0.23	0.40	0.04
Type of Feature					
Pond/Reservoir					
Perennial Stream					
Intermittent Stream					
Stormwater Detention/Retention Pond		X			
Irrigation Ditch/Canal				X	X
Stormwater Ditch		X			
Jurisdictional?		N	N	Y	N
Photograph Number(s)		NA	5 (6/3)	7, 8, 12, 13 (6/3)	NA
Sheet Number(s)		25	25	24, 24A, 25, 26, 27	31
Date of Visit(s)		6/3	6/3	6/3	6/9
Notes				Allen Ditch	



US 36

Westminster Segment

Other Water									
Size (acres)	6	13	16	88	90				
Type of Feature	0.40	0.19	0.60	0.42	0.00				
Pond/Reservoir			X						
Perennial Stream				X					
Intermittent Stream									
Stormwater Detention/Retention Pond									
Irrigation Ditch/Canal	X	X							
Stormwater Ditch					X				
Jurisdictional?	Y	Y	N	Y	N				
Photograph Number(s)	7, 8, 12, 13 (6/3)	NA	NA	18, 19 (6/3) 111, 112 (6/10)	114 (6/10)				
Sheet Number(s)	24, 24A, 25, 26, 27	22, 23	19	20, 20A, 21	21				
Date of Visit(s)	6/3	6/3	6/3	6/3, 6/10	6/10				
Notes	Allen Ditch	Farmer's Highline Canal	Lower Church Lake	Walnut/ Big Dry Creek					



US 36

Broomfield Segment

Other Water									
Size (acres)	27	34	81	82	84	86			
Type of Feature	0.14	0.01	1.94	1.29	0.35	0.38			
Pond/Reservoir					X				
Perennial Stream		X							
Intermittent Stream									
Stormwater Detention/Retention Pond			X	X					
Irrigation Ditch/Canal	X								X
Stormwater Ditch									
Jurisdictional?	Y	Y	N	N	N	Y			
Photograph Number(s)	31 (6/4)	34 (6/4)	91 (6/10)	94, 96, 99 (6/10)	97, 98 (6/10)	103, 104, 106 (6/10)			
Sheet Number(s)	15	14	14	15	15, 16, 16A	16, 16A, 16B, 17			
Date of Visit(s)	6/4	6/4	6/10	6/10	6/10	6/10			
Notes	Community Ditch	Rock Creek Tributary		Two Stormwater Ponds and Ditch	Old Farm Pond and Ditch	Unnamed Ditch			



US 36

Superior-Louisville Segment

		39	44	45	46	49	74	75	76
<b>Other Water</b>									
Size (acres)		0.05	0.10	0.03	0.47	0.03	0.34	0.50	0.38
Type of Feature									
Pond/Reservoir							X		
Perennial Stream		X			X			X	
Intermittent Stream									
Stormwater Detention/Retention Pond									X
Irrigation Ditch/Canal			X	X		X			
Stormwater Ditch									
Jurisdictional?		Y	Y	N	Y	Y	N	Y	N
Photograph Number(s)		44 (6/4)	49, 51 (6/4)	NA	53, 54 (6/4)	58 (6/4)	71 (6/10)	79, 80, 81 (6/10)	78 (6/10)
Sheet Number(s)		12	10	9	9	6	10	11, 12, 12B	11, 12B
Date of Visit(s)		6/4	6/4	6/4	6/4	6/4	6/10	6/10	6/10
Notes		Rock Creek			Coal Creek		Old Farm Pond	Rock Creek	





US 36

Boulder Segment

Other Water		23	47A	49	50	51	52	53	54	55	56	57	59	60	61	62	63A	69	70
Size (acres)		0.24	0.24	0.01	0.02	0.17	0.14	0.35	0.00	0.17	0.14	0.20	0.50	0.15	0.02	0.02	0.57	0.06	0.01
Type of Feature		X											X				X		
Pond/Reservoir																			
Perennial Stream																			
Intermittent Stream					X														
Stormwater Detention/Retention Pond			X																
Irrigation Ditch/Canal				X														X	
Stormwater Ditch																			
Jurisdictional?		N	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
Photograph Number(s)		NA	NA	58 (6/4)	59 (6/4)	60 (6/4)	61 (6/4)	62 (6/4)	1 (6/9)	2, 3 (6/9)	4, 6 (6/9)	NA	11, 12, 13 (6/9)	19 (6/9)	18, 23 (6/9)	20 (6/9)	22 (6/9)	58 (6/10)	NA
Sheet Number(s)		1, 1A	7	6	5	4, 5	4	3, 4	3	2, 3	2	2	2	2	2	1, 1A	1, 1A	4	4
Date of Visit(s)		6/9	6/4, 6/10	6/4	6/4	6/4	6/4	6/4	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/9	6/10	6/10
Notes						Davidson Ditch	Goodhue Ditch					South Boulder Canyon Ditch	South Boulder Creek					Goodhue Ditch	



**Appendix B4**  
**Other Waters Data Tables for the BNSF**



# BNSF Railroad

## Denver Segment

<b>Other Water</b>	112
<b>Size (acres)</b>	1.48
<b>Type of Feature</b>	
Pond/Reservoir	
Perennial Stream	X
Intermittent Stream	
Stormwater Detention/Retention Pond	
Irrigation Ditch/Canal	
Stormwater Ditch	
<b>Jurisdictional?</b>	Y
<b>Photograph Number(s)</b>	1, 3 (5/28)
<b>Sheet Number(s)</b>	49, 50
<b>Date of Visit(s)</b>	5/28
<b>Notes</b>	



# BNSF Railroad

## Adams County Segment

Other Water		2	4	6	7	8	9	10	11	13	18	20
Size (acres)		0.16	1.89	0.04	1.25	4.19	0.07	1.84	0.14	0.01	0.25	0.12
Type of Feature			X		X	X	X	X	X		X	
Pond/Reservoir												
Perennial Stream					X							
Intermittent Stream												
Stormwater Detention/Retention Pond												
Irrigation Ditch/Canal	X									X		X
Stormwater Ditch												
Jurisdictional?		Y	Y	N	Y	Y	N	Y	Y	N	Y	N
Photograph Number(s)		2 (5/17)	5 (5/17)	6 (5/17)	7, 8, 9 (5/17)	10 (5/17)	12 (5/17)	13, 16, 17 (5/17) 21, 22 (5/18)	14, 15 (5/17)	19 (5/17)	27, 28 (5/18)	30, 31 (5/18)
Sheet Number(s)		45	44	44	44	43, 44	44	42, 43, 44	42, 43	42	39, 40	38
Date of Visit(s)		5/17	5/17	5/17	5/17	5/17	5/17	5/17, 5/18	5/17	5/17	5/18	5/18
Notes		Fisher Ditch	Old Gravel Pond		Clear Creek	Old Gravel Pond	Old Gravel Pond	Little Dry Creek	Little Dry Creek		Little Dry Creek	





# BNSF Railroad

## Westminster Segment

		23	25	29	30	31
<b>Other Water</b>						
<b>Size (acres)</b>		0.27	0.06	0.20	0.04	7.88
<b>Type of Feature</b>						
	Pond/Reservoir					X
	Perennial Stream			X	X	
	Intermittent Stream					
	Stormwater Detention/Retention Pond					
	Irrigation Ditch/Canal	X	X			
	Stormwater Ditch					
<b>Jurisdictional?</b>		Y	Y	Y	Y	N
<b>Photograph Number(s)</b>		36, 37 (5/18)	39, 40, 41 (5/18)	52, 53 (5/18)	NA	56, 57 (5/18)
<b>Sheet Number(s)</b>		36, 37	36	33A, 34	32	31, 32
<b>Date of Visit(s)</b>		5/18	5/18	5/18	5/18	5/18
<b>Notes</b>		Allen Ditch	Farmer's Highline Canal	Big Dry Creek	Walnut Creek	Lower Church Lake



# BNSF Railroad

## Broomfield Segment

Other Water		41	111
Size (acres)		0.05	0.31
Type of Feature			
Pond/Reservoir			
Perennial Stream	X		
Intermittent Stream			
Stormwater Detention/Retention Pond			
Irrigation Ditch/Canal			X
Stormwater Ditch			
Jurisdictional?		Y	Y
Photograph Number(s)		NA	34, 35 (6/2)
Sheet Number(s)		26	27
Date of Visit(s)		5/19	5/18, 6/2
Notes		Rock Creek Tributary	Community Ditch



# BNSF Railroad

## Superior-Louisville Segment

		41	43	44	46	48	52	52A	53	53A	54	55
<b>Other Water</b>												
Size (acres)		0.05	1.80	0.07	0.46	0.06	0.09	0.04	0.10	0.06	0.08	0.02
Type of Feature												
Pond/Reservoir					X					X		
Perennial Stream		X		X			X					
Intermittent Stream												
Stormwater Detention/Retention Pond			X			X		X			X	X
Irrigation Ditch/Canal												
Stormwater Ditch												
Jurisdictional?		Y	N	Y	N	Y	Y	N	Y	N	Y	N
Photograph Number(s)		NA	74, 75 (5/19)	76 (5/19)	79 (5/19)	82 (5/19)	88, 89 (5/19)	87 (5/19)	91 (5/19) 1 (5/20)	90 (5/19)	2 (5/20)	NA
Sheet Number(s)		26	25, 25A	25, 25A	24	23	21	21	19	20	19	18
Date of Visit(s)		5/19	5/19	5/19	5/19	5/19	5/19	5/19	5/19, 5/20	5/19	5/20	5/20
Notes		Rock Creek Tributary	Includes two ponds	Rock Creek	Private Pond	Goodhue Ditch	Coal Creek			Private Pond	Highline Lateral Ditch	



# BNSF Railroad

## Boulder Segment

Other Water		57	59	60	61	62	64	65	67	71	72	73	76	77	82	83	85	86	89	91	94	97	99	103	107	109
Size (acres)		0.18	0.11	0.27	0.03	0.19	0.20	0.36	0.12	0.01	0.42	0.27	9.19	0.23	1.16	0.02	0.13	0.91	0.11	1.13	0.75	0.17	0.05	0.44	0.11	0.38
Type of Feature								X				X					X		X		X				X	
Jurisdictional?		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Photograph Number(s)		6 (5/20)	9, 10 (5/20)	11, 12, 13 (5/20)	NA	15 (5/20)	20 (5/20)	22, 23 (5/20)	25 (5/20)	3 (5/24)	2, 6 (5/24)	7 (5/24)	NA	12, 14 (5/24)	18 (5/24)	19 (5/24)	23, 24, 25 (5/24)	26 (5/24)	33 (5/24)	36 (5/24)	41, 42 (5/24)	4, 5 (6/2)	7, 8 (6/2)	12, 13, 15 (6/2)	21, 22, 24, 25 (6/2)	23, 26, 30 (6/2)
Sheet Number(s)		16, 17	16	16	16	15	14	14	14	13, 13A	13, 13A	12, 13	12, 13	12	11	11	11	11	10	10	8B, 9	8, 8A	8, 8A	7	5	5
Date of Visit(s)		5/20	5/20	5/20	5/20	5/20	5/20	5/20	5/20	5/24	5/24	5/24	5/24	5/24	5/24	5/24	5/24	5/24	5/24	5/24	5/24, 6/2	6/2	6/2	6/2	6/2	6/2
Notes			Marshallville Ditch	South Boulder Canyon Ditch		McGinn Ditch	New Dry Creek Ditch	Dry Creek	Cottonwood Ditch No. 2	Enter-prise Ditch	Enter-prise Ditch	Private Pond	Hillcrest reservoir	East Boulder Ditch	South Boulder Diversion		South Boulder Creek		Unnamed Drainage		Boulder Creek	Boulder and Lefthand Ditch	Unnamed Drainage	Boulder and Whiterock Ditch	Fourmile Creek	Boulder and Whiterock Ditch





**Appendix C1**  
**Dominant Wetland Vegetation Tables for US 36**







US 36

Westminster Segment

		Wetland ID													
		6	8	8A	8C	11	12	13	14	16	88	89	90	91	92
COMMON NAME	SCIENTIFIC NAME	Dominant Plant Species													
Redtop	<i>Agrostis gigantea</i>	X													
Creeping Bentgrass	<i>Agrostis stolonifera</i>		X							X					
Northern Water Plantain	<i>Alisma triviale</i>														
Grey Alder	<i>Alnus incana</i>					X									
Indian Hemp	<i>Apocynum cannabinum</i>														
Showy Milkweed	<i>Asclepias speciosa</i>									X					
Smooth Brome	<i>Bromus inermis</i>										X				
Japanese Brome	<i>Bromus japonicus</i>													X	
Whiteloop	<i>Cardaria draba</i>														
Emory's Sedge	<i>Carex emoryi</i>		X												
Woolly Sedge	<i>Carex lanuginosa</i>														
Nebraska Sedge	<i>Carex nebrascensis</i>														
Pointed Broom Sedge	<i>Carex scoparia</i>													X	
Canada Thistle	<i>Cirsium arvense</i>													X	
Poison Hemlock	<i>Conium maculatum</i>													X	
Golden Tickseed	<i>Coreopsis tinctoria</i>				X										
Common Teasel	<i>Dipsacus fullonum</i>														
Barnyard Grass	<i>Echinochloa crusgalli</i>													X	
Creeping Spikerush	<i>Eleocharis palustris</i>														
Slender Wheatgrass	<i>Elymus trachycaulus</i>		X				X								
Willowherb	<i>Epilobium ciliatum</i>														
Meadow Fescue	<i>Festuca pratensis</i>														
American Mannagrass	<i>Glyceria grandis</i>														
Fox-tail Barley	<i>Hordeum jubatum</i>				X										
Jointleaf Rush	<i>Juncus articulatus</i>														
Baltic Rush	<i>Juncus balticus</i>														
Three-stamen Rush	<i>Juncus ensifolius</i>														
Slender Rush	<i>Juncus tenuis</i>														
Torrey's Rush	<i>Juncus torreyi</i>														
Mexican-fireweed	<i>Kochia scoparia</i>														
Common Duckweed	<i>Lemna minor</i>														
Yellow Sweetclover	<i>Melilotus officinalis</i>														
Switchgrass	<i>Panicum virgatum</i>														
Reedcanary Grass	<i>Phalaris arundinacea</i>														
Timothy	<i>Phleum pratense</i>														
Narrowleaf Plantain	<i>Plantago lanceolata</i>														
Canada Bluegrass	<i>Poa compressa</i>														
Kentucky Bluegrass	<i>Poa pratensis</i>														
Curlytop Knotweed	<i>Polygonum lapathifolium</i>														
Gmelin's Buttercup	<i>Ranunculus gmelinii</i>														
Woods Rose	<i>Rosa woodsii</i>														
Curly Dock	<i>Rumex crispus</i>												X		
Arrowleaf Arrowhead	<i>Sagittaria cuneata</i>														
Peach-leaf Willow	<i>Salix amygdaloides</i>												X		
Sandbar Willow	<i>Salix exigua</i>		X						X	X	X				X
Crack Willow	<i>Salix fragilis</i>														
Small-fruit Bulrush	<i>Scirpus microcarpus</i>														
Cloaked Bulrush	<i>Scirpus pallidus</i>		X												
Cosmopolitan Bulrush	<i>Scirpus paludosus</i>												X		
Three-square Bulrush	<i>Scirpus pungens</i>														
Soft-stem Bulrush	<i>Scirpus validus</i>														
Prairie Cordgrass	<i>Spartina pectinata</i>														
Middle-size Sandspurry	<i>Spergularia media</i>														
Red Clover	<i>Trifolium pratense</i>					X									
Narrow-leaf Cattail	<i>Typha angustifolia</i>		X				X			X				X	X
Broad-leaf Cattail	<i>Typha latifolia</i>		X							X				X	X









Dominant Plant Species		Wetland ID																							
COMMON NAME	SCIENTIFIC NAME	31	32	39	40	41	42	43	44	45	46	47	48	49	51	72	73	74	75	76	77	78	79	1-5	
Redtop	<i>Agrostis gigantea</i>			X																					
Creeping Bentgrass	<i>Agrostis stolonifera</i>									X															
Northern Water Plantain	<i>Alisma triviale</i>																								
Grey Alder	<i>Alnus incana</i>																								
Indian Hemp	<i>Apocynum cannabinum</i>																								
Showy Milkweed	<i>Asclepias speciosa</i>					X																			
Smooth Brome	<i>Bromus inermis</i>																								
Japanese Brome	<i>Bromus japonicus</i>																								
Whitetop	<i>Cardaria draba</i>																								
Emory's Sedge	<i>Carex emoryi</i>								X																
Woolly Sedge	<i>Carex lanuginosa</i>									X															
Nebraska Sedge	<i>Carex nebrascensis</i>																		X						
Pointed Broom Sedge	<i>Carex scoparia</i>																				X				
Canada Thistle	<i>Cirsium arvense</i>												X												
Poison Hemlock	<i>Conium maculatum</i>																								
Golden Tickseed	<i>Coreopsis tinctoria</i>													X											
Common Teasel	<i>Dipsacus fullonum</i>																								
Barnyard Grass	<i>Echinochloa crusgalli</i>																		X						
Creeping Spikerush	<i>Eleocharis palustris</i>																						X		
Slender Wheatgrass	<i>Elymus trachycaulus</i>																								
Willowherb	<i>Epilobium ciliatum</i>																								
Meadow Fescue	<i>Festuca pratensis</i>																								
American Mannagrass	<i>Glyceria grandis</i>																								
Fox-tail Bailey	<i>Hordeum jubatum</i>																								
Jointleaf Rush	<i>Juncus articulatus</i>																								
Baltic Rush	<i>Juncus balticus</i>																								
Three-stamen Rush	<i>Juncus ensifolius</i>																								
Slender Rush	<i>Juncus tenuis</i>																								
Torrey's Rush	<i>Juncus torreyi</i>																								
Mexican-fireweed	<i>Kochia scoparia</i>																								
Common Duckweed	<i>Lemna minor</i>																								
Yellow Sweetclover	<i>Melilotus officinalis</i>																								
Switchgrass	<i>Panicum virgatum</i>																								
Reedcanary Grass	<i>Phalaris arundinacea</i>																								
Timothy	<i>Phleum pratense</i>																								
Narrowleaf Plantain	<i>Plantago lanceolata</i>																								
Canada Bluegrass	<i>Poa compressa</i>																								
Kentucky Bluegrass	<i>Poa pratensis</i>																								
Curlytop Knotweed	<i>Polygonum lapathifolium</i>																								
Gmelin's Buttercup	<i>Ranunculus gmelinii</i>																								
Woods Rose	<i>Rosa woodsii</i>																								
Curly Dock	<i>Rumex crispus</i>																								
Arrowhead	<i>Sagittaria cuneata</i>																								
Peach-leaf Willow	<i>Salix amygdaloides</i>																								
Sandbar Willow	<i>Salix exigua</i>																								
Crack Willow	<i>Salix fragilis</i>																								
Small-fruit Bulrush	<i>Scirpus microcarpus</i>																								
Cloaked Bulrush	<i>Scirpus pallidus</i>																								
Cosmopolitan Bulrush	<i>Scirpus paludosus</i>																								
Three-square Bulrush	<i>Scirpus pungens</i>																								
Soft-stem Bulrush	<i>Scirpus validus</i>																								
Prairie Cordgrass	<i>Spartina pectinata</i>																								
Middle-size Sandspurry	<i>Spergularia media</i>																								
Red Clover	<i>Trifolium pratense</i>																								
Narrow-leaf Cattail	<i>Typha angustifolia</i>																								
Broad-leaf Cattail	<i>Typha latifolia</i>																								



Dominant Plant Species																										
COMMON NAME	SCIENTIFIC NAME	47	48	49	51	52	53	54	55	56	57	58	59	60	61	62	63	63A	64	68	69	70	71	1-4	1-6	
Redtop	<i>Agrostis gigantea</i>					X																				
Creeping Bentgrass	<i>Agrostis stolonifera</i>					X																				
Northern Water Plantain	<i>Alisma triviale</i>					X																				
Grey Alder	<i>Alnus incana</i>																									
Indian Hemp	<i>Apocynum cannabinum</i>																									
Showy Milkweed	<i>Asclepias speciosa</i>					X																				
Smooth Brome	<i>Bromus inermis</i>																									
Japanese Brome	<i>Bromus japonicus</i>																									
Whitetop	<i>Cardaria draba</i>					X																				
Emory's Sedge	<i>Carex emoryi</i>					X																				
Woolly Sedge	<i>Carex lanuginosa</i>					X																				
Nebraska Sedge	<i>Carex nebrascensis</i>					X																				
Pointed Broom Sedge	<i>Carex scoparia</i>					X																				
Canada Thistle	<i>Cirsium arvense</i>					X																				
Poison Hemlock	<i>Conium maculatum</i>																									
Golden Tickseed	<i>Coreopsis tinctoria</i>																									
Common Teasel	<i>Dipsacus fullonum</i>					X																				
Barnyard Grass	<i>Echinochloa crusgalli</i>					X																				
Creeping Spikerush	<i>Eleocharis palustris</i>					X																				
Slender Wheatgrass	<i>Elymus trachycaulus</i>					X																				
Willowherb	<i>Epilobium ciliatum</i>					X																				
Meadow Fescue	<i>Festuca pratensis</i>																									
American Mannagrass	<i>Glyceria grandis</i>																									
Fox-tail Barley	<i>Hordeum jubatum</i>																									
Jointleaf Rush	<i>Juncus articulatus</i>					X																				
Baltic Rush	<i>Juncus balticus</i>					X																				
Three-stamen Rush	<i>Juncus ensifolius</i>					X																				
Slender Rush	<i>Juncus tenuis</i>																									
Torrey's Rush	<i>Juncus torreyi</i>																									
Mexican-fireweed	<i>Kochia scoparia</i>																									
Common Duckweed	<i>Lemna minor</i>																									
Yellow Sweetclover	<i>Melilotus officinalis</i>																									
Switchgrass	<i>Panicum virgatum</i>																									
Reedcanary Grass	<i>Phalaris arundinacea</i>																									
Timothy	<i>Pheum pratense</i>																									
Narrowleaf Plantain	<i>Plantago lanceolata</i>																									
Canada Bluegrass	<i>Poa compressa</i>																									
Kentucky Bluegrass	<i>Poa pratensis</i>					X																				
Curlytop Knotweed	<i>Polygonum lapathifolium</i>																									
Gmelin's Buttercup	<i>Ranunculus gmelinii</i>																									
Woods Rose	<i>Rosa woodsii</i>																									
Curly Dock	<i>Rumex crispus</i>																									
Arrowhead	<i>Sagittaria cuneata</i>																									
Peach-leaf Willow	<i>Salix amygdaloides</i>																									
Sandbar Willow	<i>Salix exigua</i>					X																				
Crack Willow	<i>Salix fragilis</i>					X																				
Small-fruit Bulrush	<i>Scirpus microcarpus</i>																									
Cloaked Bulrush	<i>Scirpus pallidus</i>																									
Cosmopolitan Bulrush	<i>Scirpus paludosus</i>																									
Three-square Bulrush	<i>Scirpus pungens</i>																									
Soft-stem Bulrush	<i>Scirpus validus</i>																									
Prairie Cordgrass	<i>Spartina pectinata</i>																									
Middle-size Sandspurry	<i>Spergularia media</i>																									
Red Clover	<i>Trifolium pratense</i>																									
Narrow-leaf Cattail	<i>Typha angustifolia</i>																									
Broad-leaf Cattail	<i>Typha latifolia</i>					X																				



**Appendix C2**  
**Dominant Wetland Vegetation Tables for the BNSF**



**BNSF Railroad  
Denver Segment**

**Wetland ID 112**

COMMON NAME	Dominant Plant Species	SCIENTIFIC NAME
Quackgrass		<i>Agropyron repens</i>
Redtop		<i>Agrostis gigantea</i>
Creeping Bentgrass		<i>Agrostis stolonifera</i>
Yellow Rocket		<i>Barbarea vulgaris</i>
Smooth Brome		<i>Bromus inermis</i>
Emory's Sedge	X	<i>Carex emoryi</i>
Woolly Sedge		<i>Carex lanuginosa</i>
Nebraska Sedge		<i>Carex nebrascensis</i>
Common Teasel		<i>Dipsacus fullonum</i>
Creeping Thistle		<i>Cirsium arvense</i>
Poison Hemlock		<i>Conium maculatum</i>
Golden Tickseed		<i>Coreopsis tinctoria</i>
Inland Saltgrass		<i>Distichlis spicata</i>
Barnyard Grass		<i>Echinochloa crusgalli</i>
Russian Olive		<i>Elaeagnus angustifolia</i>
Creeping Spikerush	X	<i>Eleocharis palustris</i>
Willowherb		<i>Epilobium ciliatum</i>
Blistar Buttercup		<i>Hecatonia scelerata</i>
Dame's Rocket		<i>Hesperis matronalis</i>
Fox-tail Barley		<i>Hordeum jubatum</i>
Touch Me Not		<i>Impatiens sp.</i>
Baltic Rush		<i>Juncus balticus</i>
Slender Rush		<i>Juncus tenuis</i>
Common Duckweed		<i>Lemna minor</i>
Watercress		<i>Nasturtium officinale</i>
Reedcanary Grass	X	<i>Phalaris arundinacea</i>
Timothy		<i>Phleum pratense</i>
Common Reed		<i>Phragmites australis</i>
Kentucky Bluegrass		<i>Poa pratensis</i>
Plains Cottonwood		<i>Populus deltoides</i>
Gmelin's Buttercup		<i>Ranunculus gmelinii</i>
Curly Dock		<i>Rumex crispus</i>
Peach-leaf Willow		<i>Salix amygdaloides</i>
Sandbar Willow	X	<i>Salix exigua</i>
Small-fruit Bulrush		<i>Scirpus microcarpus</i>
Cloaked Bulrush		<i>Scirpus pallidus</i>
Cosmopolitan Bulrush		<i>Scirpus paludosus</i>
Three-square Bulrush		<i>Scirpus pungens</i>
Soft-stem Bulrush		<i>Scirpus validus</i>
Prairie Cordgrass		<i>Spartina pectinata</i>
Seaside Arrowgrass		<i>Triglochin maritimum</i>
Narrow-leaf Cattail		<i>Typha angustifolia</i>
Broad-leaf Cattail		<i>Typha latifolia</i>
American Speedwell		<i>Veronica americana</i>
Pink Water Speedwell		<i>Veronica catenata</i>





**BNSF Railroad  
Adams County Segment**

**Wetland ID** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21

Dominant Plant Species																						
COMMON NAME	SCIENTIFIC NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Quackgrass	<i>Agropyron repens</i>																					
Redtop	<i>Agrostis gigantea</i>									X												
Creeping Bentgrass	<i>Agrostis stolonifera</i>														X							
Yellow Rocket	<i>Barbarea vulgaris</i>																					
Smooth Brome	<i>Bromus inermis</i>							X	X						X							
Emory's Sedge	<i>Carex emoryii</i>					X				X	X	X							X			
Woolly Sedge	<i>Carex lanuginosa</i>																	X				
Nebraska Sedge	<i>Carex nebrascensis</i>																					
Common Teasel	<i>Dipsacus fullonum</i>						X															
Creeping Thistle	<i>Cirsium arvense</i>																					
Poison Hemlock	<i>Conium maculatum</i>																					
Golden Tickseed	<i>Coreopsis tinctoria</i>																					
Inland Saltgrass	<i>Distichlis spicata</i>						X															
Barnyard Grass	<i>Echinochloa crusgalli</i>																					X
Russian Olive	<i>Elaeagnus angustifolia</i>																					
Creeping Spikegrass	<i>Eleocharis palustris</i>									X												
Willowherb	<i>Epilobium ciliatum</i>												X									
Blister Buttercup	<i>Hecatonia scelerata</i>																					
Dame's Rocket	<i>Hesperis matronalis</i>																					
Fox-tail Barley	<i>Hordeum jubatum</i>																					
Touch Me Not	<i>Impatiens sp.</i>																					X
Baltic Rush	<i>Juncus balticus</i>																					
Slender Rush	<i>Juncus tenuis</i>																					
Common Duckweed	<i>Lemna minor</i>																					
Watercress	<i>Nasturtium officinale</i>									X												
Reedcanary Grass	<i>Phalaris arundinacea</i>			X	X		X	X	X	X	X		X						X			
Timothy	<i>Phleum pratense</i>																					
Common Reed	<i>Phragmites australis</i>							X														
Kentucky Bluegrass	<i>Poa pratensis</i>																					
Plains Cottonwood	<i>Populus deltoides</i>																					
Gmelin's Buttercup	<i>Ranunculus gmelinii</i>												X									
Curly Dock	<i>Rumex crispus</i>																		X			
Peach-leaf Willow	<i>Salix amygdaloides</i>																					
Sandbar Willow	<i>Salix exigua</i>				X			X	X		X							X				X
Small-fruit Bulrush	<i>Scirpus microcarpus</i>																					
Cloaked Bulrush	<i>Scirpus pallidus</i>																					
Cosmopolitan Bulrush	<i>Scirpus paludosus</i>																X					
Three-square Bulrush	<i>Scirpus pungens</i>										X					X						
Soft-stem Bulrush	<i>Scirpus validus</i>																					
Prairie Cordgrass	<i>Spartina pectinata</i>																					
Seaside Arrowgrass	<i>Triglochin maritimum</i>						X															
Narrow-leaf Cattail	<i>Typha angustifolia</i>																					
Broad-leaf Cattail	<i>Typha latifolia</i>				X				X		X										X	X
American Speedwell	<i>Veronica americana</i>										X											
Pink Water Speedwell	<i>Veronica catenata</i>																					



# BNSF Railroad

## Westminster Segment

### Wetland ID

Dominant Plant Species		22	23	24	25	26	27	28	29	29A	29B	30	31	32
COMMON NAME	SCIENTIFIC NAME													
Quackgrass	<i>Agropyron repens</i>													
Redtop	<i>Agrostis gigantea</i>													
Creeping Bentgrass	<i>Agrostis stolonifera</i>		X											
Yellow Rocket	<i>Barbarea vulgaris</i>													
Smooth Brome	<i>Bromus inermis</i>		X											
Emory's Sedge	<i>Carex emoryi</i>				X									
Woolly Sedge	<i>Carex lanuginosa</i>							X						
Nebraska Sedge	<i>Carex nebrascensis</i>													
Common Teasel	<i>Dipsacus fullonum</i>									X				
Creeping Thistle	<i>Cirsium arvense</i>													
Poison Hemlock	<i>Conium maculatum</i>													
Golden Tickseed	<i>Coreopsis tinctoria</i>													
Inland Saltgrass	<i>Distichlis spicata</i>													
Barnyard Grass	<i>Echinochloa crusgalli</i>													
Russian Olive	<i>Elaeagnus angustifolia</i>							X						
Creeping Spikerush	<i>Eleocharis palustris</i>			X										
Willowherb	<i>Epilobium ciliatum</i>													
Blister Buttercup	<i>Hecatonlia scelerata</i>													
Dame's Rocket	<i>Hesperis matronalis</i>									X				
Fox-tail Barley	<i>Hordeum jubatum</i>													
Touch Me Not	<i>Impatiens sp.</i>													
Baltic Rush	<i>Juncus balticus</i>													
Slender Rush	<i>Juncus tenuis</i>													
Common Duckweed	<i>Lemna minor</i>													
Watercress	<i>Nasturtium officinale</i>													
Reedcanary Grass	<i>Phalaris arundinacea</i>			X							X		X	
Timothy	<i>Phleum pratense</i>													
Common Reed	<i>Phragmites australis</i>													
Kentucky Bluegrass	<i>Poa pratensis</i>								X					
Plains Cottonwood	<i>Populus deltoides</i>													
Gmelin's Buttercup	<i>Ranunculus gmelinii</i>					X				X				
Curly Dock	<i>Rumex crispus</i>													
Peach-leaf Willow	<i>Salix amygdaloides</i>								X	X				
Sandbar Willow	<i>Salix exigua</i>				X						X			
Small-fruit Bulrush	<i>Scirpus microcarpus</i>											X		
Cloaked Bulrush	<i>Scirpus pallidus</i>													
Cosmopolitan Bulrush	<i>Scirpus paludosus</i>										X			
Three-square Bulrush	<i>Scirpus pungens</i>								X				X	
Soft-stem Bulrush	<i>Scirpus validus</i>													
Prairie Cordgrass	<i>Spartina pectinata</i>													
Seaside Arrowgrass	<i>Triglochin maritimum</i>													
Narrow-leaf Cattail	<i>Typha angustifolia</i>						X						X	
Broad-leaf Cattail	<i>Typha latifolia</i>		X			X	X	X			X		X	X
American Speedwell	<i>Veronica americana</i>													
Pink Water Speedwell	<i>Veronica catenata</i>													



**BNSF Railroad**  
**Broomfield Segment**

		Wetland ID										
		33	34	35	36	37	38	39	40	41	111	111A

Dominant Plant Species		SCIENTIFIC NAME										
COMMON NAME	SCIENTIFIC NAME											
Quackgrass	<i>Agropyron repens</i>											
Redtop	<i>Agrostis gigantea</i>											
Creeping Bentgrass	<i>Agrostis stolonifera</i>											
Yellow Rocket	<i>Barbarea vulgaris</i>											
Smooth Brome	<i>Bromus inermis</i>											
Emory's Sedge	<i>Carex emoryi</i>	X	X	X	X							
Woolly Sedge	<i>Carex lanuginosa</i>											
Nebraska Sedge	<i>Carex nebrascensis</i>											
Common Teasel	<i>Dipsacus fullonum</i>											
Creeping Thistle	<i>Cirsium arvense</i>											
Poison Hemlock	<i>Conium maculatum</i>											
Golden Tickseed	<i>Coreopsis tinctoria</i>											
Inland Saltgrass	<i>Distichlis spicata</i>											
Barnyard Grass	<i>Echinochloa crusgalli</i>											
Russian Olive	<i>Elaeagnus angustifolia</i>							X				
Creeping Spikegrass	<i>Eleocharis palustris</i>			X								
Willowherb	<i>Epilobium ciliatum</i>											
Blister Buttercup	<i>Hecatonia scelerata</i>											
Dame's Rocket	<i>Hesperis matronalis</i>											
Fox-tail Barley	<i>Hordeum jubatum</i>											
Touch Me Not	<i>Impatiens sp.</i>						X					
Baltic Rush	<i>Juncus balticus</i>											
Slender Rush	<i>Juncus tenuis</i>											
Common Duckweed	<i>Lemna minor</i>											
Watercress	<i>Nasturtium officinale</i>											
Reedcanary Grass	<i>Phalaris arundinacea</i>							X		X	X	
Timothy	<i>Phleum pratense</i>											
Common Reed	<i>Phragmites australis</i>											
Kentucky Bluegrass	<i>Poa pratensis</i>											
Plains Cottonwood	<i>Populus deltoides</i>											
Gmelin's Buttercup	<i>Ranunculus gmelinii</i>		X									
Curly Dock	<i>Rumex crispus</i>											
Peach-leaf Willow	<i>Salix amygdaloides</i>											
Sandbar Willow	<i>Salix exigua</i>						X			X	X	
Small-fruit Bulrush	<i>Scirpus microcarpus</i>											
Cloaked Bulrush	<i>Scirpus pallidus</i>											
Cosmopolitan Bulrush	<i>Scirpus paludosus</i>											
Three-square Bulrush	<i>Scirpus pungens</i>			X								
Soft-stem Bulrush	<i>Scirpus validus</i>			X								
Prairie Cordgrass	<i>Spartina pectinata</i>											
Seaside Arrowgrass	<i>Triglochin maritimum</i>											
Narrow-leaf Cattail	<i>Typha angustifolia</i>					X				X	X	
Broad-leaf Cattail	<i>Typha latifolia</i>	X		X	X	X	X	X	X	X	X	X
American Speedwell	<i>Veronica americana</i>											
Pink Water Speedwell	<i>Veronica catenata</i>											



**BNSF Railroad  
Superior/Louisville Segment**

**Wetland ID** 41 42 43 44 44B 45 46 47 48 49 50 51 52 53 54 55 56

COMMON NAME	Dominant Plant Species																
	SCIENTIFIC NAME																
Quackgrass																	
Redtop																	
Creeping Bentgrass																	
Yellow Rocket																	
Smooth Brome																	
Emory's Sedge																	
Woolly Sedge																	
Nebraska Sedge																	
Common Teasel																	
Creeping Thistle																	
Poison Hemlock																	
Golden Tickseed																	
Inland Saltgrass																	
Barnyard Grass																	
Russian Olive																	
Creeping Spikegrass																	
Willowherb																	
Blister Buttercup																	
Dame's Rocket																	
Fox-tail Barley																	
Touch Me Not																	
Baltic Rush																	
Slender Rush																	
Common Duckweed																	
Watercress																	
Reedcanary Grass																	
Timothy																	
Common Reed																	
Kentucky Bluegrass																	
Plains Cottonwood																	
Gmelin's Buttercup																	
Curly Dock																	
Peach-leaf Willow																	
Sandbar Willow																	
Small-fruit Bulrush																	
Cloaked Bulrush																	
Cosmopolitan Bulrush																	
Three-square Bulrush																	
Soft-stem Bulrush																	
Prairie Cordgrass																	
Seaside Arrowgrass																	
Narrow-leaf Cattail																	
Broad-leaf Cattail																	
American Speedwell																	
Pink Water Speedwell																	
Agropyron repens																	
Agrostis gigantea																	
Agrostis stolonifera																	
Barbarea vulgaris																	
Bromus inermis																	
Carex emoryii																	
Carex lanuginosa																	
Carex nebrascensis																	
Dipsacus fullonum																	
Cirsium arvense																	
Conium maculatum																	
Coreopsis tinctoria																	
Distichlis spicata																	
Echinochloa crusgalli																	
Elaeagnus angustifolia																	
Eleocharis palustris																	
Epilobium ciliatum																	
Hecatonia scelerata																	
Hesperis matronalis																	
Hordeum jubatum																	
Impatiens sp.																	
Juncus balticus																	
Juncus tenuis																	
Lemna minor																	
Nasturtium officinale																	
Phalaris arundinacea																	
Phleum pratense																	
Phragmites australis																	
Poa pratensis																	
Populus deltoides																	
Ranunculus gmelinii																	
Rumex crispus																	
Salix amygdaloides																	
Salix exigua																	
Scirpus microcarpus																	
Scirpus pallidus																	
Scirpus paludosus																	
Scirpus pungens																	
Scirpus validus																	
Spartina pectinata																	
Triglochin maritimum																	
Typha angustifolia																	
Typha latifolia																	
Veronica americana																	
Veronica catenata																	





**BNSF Railroad  
Boulder Segment**

		Wetland ID																											
		57	58	59	60	61	62	63	64	65	65A	66	67	68	69	71	72	73	74	75	76	77	78	79	80	81	82	83	84

Dominant Plant Species		SCIENTIFIC NAME																												
COMMON NAME	SCIENTIFIC NAME	57	58	59	60	61	62	63	64	65	65A	66	67	68	69	71	72	73	74	75	76	77	78	79	80	81	82	83	84	
Quackgrass	<i>Agropyron repens</i>																													
Redtop	<i>Agrostis gigantea</i>																													
Creeping Bentgrass	<i>Agrostis stolonifera</i>																													
Yellow Rocket	<i>Barbarea vulgaris</i>																													
Smooth Brome	<i>Bromus inermis</i>	X	X	X	X																									
Emory's Sedge	<i>Carex emoryi</i>	X	X																											
Woolly Sedge	<i>Carex lanuginosa</i>					X																								
Nebraska Sedge	<i>Carex nebrascensis</i>																													
Common Teasel	<i>Dipsacus fullonum</i>																													
Creeping Thistle	<i>Cirsium arvense</i>																													
Poison Hemlock	<i>Conium maculatum</i>																													
Golden Tickseed	<i>Coreopsis tinctoria</i>																													
Inland Saltgrass	<i>Distichlis spicata</i>																													
Barnyard Grass	<i>Echinochloa crusgalli</i>																													
Russian Olive	<i>Elaeagnus angustifolia</i>																													
Creeping Spikerush	<i>Eleocharis palustris</i>																													
Willowherb	<i>Epilobium ciliatum</i>																													
Blister Buttercup	<i>Hecatonia scelerata</i>																													
Dame's Rocket	<i>Hesperis matronalis</i>																													
Fox-tail Barley	<i>Hordeum jubatum</i>																													
Touch-Me-Not	<i>Impatiens sp.</i>																													
Baltic Rush	<i>Juncus balticus</i>																													
Slender Rush	<i>Juncus tenuis</i>																													
Common Duckweed	<i>Lemna minor</i>									X																				
Watercress	<i>Nasturtium officinale</i>																													
Reedcanary Grass	<i>Phalaris arundinacea</i>																													
Timothy	<i>Phleum pratense</i>																													
Common Reed	<i>Phragmites australis</i>																													
Kentucky Bluegrass	<i>Poa pratensis</i>																													
Plains Cottonwood	<i>Populus deltoides</i>																													
Gmelin's Buttercup	<i>Ranunculus gmelinii</i>																													
Curly Dock	<i>Rumex crispus</i>																													
Peach-leaf Willow	<i>Salix amygdaloides</i>																													
Sandbar Willow	<i>Salix exigua</i>						X	X																						
Small-fruit Bulrush	<i>Scirpus microcarpus</i>																													
Cloaked Bulrush	<i>Scirpus pallidus</i>																													
Cosmopolitan Bulrush	<i>Scirpus paludosus</i>																													
Three-square Bulrush	<i>Scirpus pungens</i>																													
Soft-stem Bulrush	<i>Scirpus validus</i>																													
Prairie Cordgrass	<i>Spartina pectinata</i>																													
Seaside Arrowgrass	<i>Triglochin maritimum</i>																													
Narrow-leaf Cattail	<i>Veronica americana</i>						X	X																						
Broad-leaf Cattail	<i>Typha latifolia</i>					X	X	X																						
American Speedwell	<i>Veronica americana</i>							X	X																					
Pink Water Speedwell	<i>Veronica catenata</i>																													



**BNSF Railroad  
Boulder Segment**

		Wetland ID																											
		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110		
COMMON NAME	DOMINANT PLANT SPECIES	SCIENTIFIC NAME																											
Quackgrass																													
Redtop																													
Creeping Bentgrass																													
Yellow Rocket																													
Smooth Brome																													
Emily's Sedge		X	X	X	X																								
Woolly Sedge			X	X																									
Nebraska Sedge																													
Common Teasel																													
Creeping Thistle																													
Poison Hemlock																													
Golden Tickseed																													
Inland Saltgrass																													
Barnyard Grass																													
Russian Olive																													
Creeping Spikerush																													
Willowherb																													
Blister Buttercup																													
Dame's Rocket																													
Fox-tail Barley																													
Touch-Me-Not																													
Baltic Rush																													
Slender Rush																													
Common Duckweed																													
Watercress																													
Reedcanary Grass																													
Timothy																													
Common Reed																													
Kentucky Bluegrass																													
Plains Cottonwood																													
Gmelin's Buttercup																													
Curly Dock																													
Peach-leaf Willow																													
Sandbar Willow																													
Small-fruit Bulrush																													
Cloaked Bulrush																													
Cosmopolitan Bulrush																													
Three-square Bulrush																													
Soft-stem Bulrush																													
Prairie Cordgrass																													
Seaside Arrowgrass																													
Narrow-leaf Cattail																													
Broad-leaf Cattail																													
American Speedwell																													
Pink Water Speedwell																													



**Appendix D**  
**Observed Wetland Vegetation Table**



**Plants Identified in Wetlands  
for the US 36 EIS Project**

Common Name	Scientific Name	Indicator Status <sup>1</sup>	Dominant in US 36 Wetlands	Dominant in BNSF Wetlands
Quackgrass	<i>Agropyron repens</i>	FAC		X
Redtop	<i>Agrostis gigantea</i>	FACW	X	X
Bentgrass, Creeping	<i>Agrostis stolonifera</i>	FAC+	X	X
Water Plantain, Northern	<i>Alisma triviale</i>	OBL	X	
Alder, Grey	<i>Alnus incana</i>	NO (FACW)	X	
Leadplant	<i>Amorpha fruticosa</i>	OBL		
Indian hemp	<i>Apocynum cannabinum</i>	FAC	X	
Milkweed, Swamp	<i>Asclepias incarnata</i>	OBL		
Milkweed, Showy	<i>Asclepias speciosa</i>	FAC	X	
Rocket, Yellow	<i>Barbarea vulgaris</i>	FAC		X
Brome, Smooth	<i>Bromus inermis</i>	NL	X	X
Whitetop	<i>Cardaria draba</i>	NL	X	
Sedge, Emory's	<i>Carex emoryi</i>	OBL	X	X
Sedge, Woolly	<i>Carex lanuginosa</i>	OBL	X	X
Sedge, Nebraska	<i>Carex nebrascensis</i>	OBL	X	X
Sedge, Pointed Broom	<i>Carex scoparia</i>	FACW	X	
Sedge, Fox	<i>Carex vulpinoidea</i>	OBL		
Goosefoot, White	<i>Chenopodium album</i>	FAC		
Thistle, Creeping	<i>Cirsium arvense</i>	FACU	X	X
Hemlock, Poison	<i>Conium maculatum</i>	FACW	X	X
Tickseed, Golden	<i>Coreopsis tinctoria</i>	FAC	X	X
Yellow Bedstraw	<i>Galium verum</i>	NL		
Hound's Tongue	<i>Cynoglossum officinale</i>	NL		
Orchardgrass	<i>Dactylis glomerata</i>	FACU		
Teasel, Common	<i>Dipsacus fullonum</i>	NI	X	X
Teasel, Cutleaf	<i>Dipsacus laciniatus</i>	NL		
Saltgrass, Inland	<i>Distichlis spicata</i>	FACW		
Grass, Barnyard	<i>Echinochloa crusgalli</i>	FACW		X
Olive, Russian	<i>Elaeagnus angustifolia</i>	FAC		X
Spikerush, Creeping	<i>Eleocharis palustris</i>	OBL	X	X
Squirreltail	<i>Elymus longifolius</i>	FACU		
Wheatgrass, Slender	<i>Elymus trachycaulus</i>	FACU	X	
Willowherb, Hairy	<i>Epilobium ciliatum</i>	OBL		
Scouring-rush, Smooth	<i>Equisetum laevigatum</i>	FACW		
Spurge, Leafy	<i>Euphorbia esula</i>	NL		
Fescue, Meadow	<i>Festuca pratensis</i>	FAC	X	
Ash, Green	<i>Fraxinus pensylvanica</i>	FACW		
Velvetweed	<i>Gaura parviflora</i>	NI		
Mannagrass, American	<i>Glyceria grandis</i>	NL	X	
Buttercup, Blister	<i>Hecatonia scelerata</i>	OBL		X
Sunflower, Nuttall's	<i>Helianthus nuttallii</i>	FAC		
Dame's Rocket	<i>Hesperis matronalis</i>	NL		X
Barley, Fox-tail	<i>Hordeum jubatum</i>	FACW	X	
Hydrangea	<i>Hydrangea sp.</i>	NL		





Touch-Me-Not	<i>Impatiens capensis</i>	FACW		X
Rush, Jointleaf	<i>Juncus articulatus</i>	NO (OBL)	X	
Rush, Baltic	<i>Juncus balticus</i>	OBL	X	X
Rush, Three-stamen	<i>Juncus ensifolius</i>	NO (FACW+)	X	
Rush, Slender	<i>Juncus tenuis</i>	FAC	X	
Rush, Torrey's	<i>Juncus torreyi</i>	FACW	X	
Mexican-fireweed	<i>Kochia scoparia</i>	FACU	X	
Duckweed, Common	<i>Lemna minor</i>	OBL	X	
Toadflax, Butter and Eggs	<i>Linaria vulgaris</i>	NL		
Sweetclover, Yellow	<i>Melilotus officinale</i>	FACU		
Mint, Field	<i>Mentha arvensis</i>	FACW		
Muhly, Alkali	<i>Muhlenbergia asperifolia</i>	FACW		
Watercress	<i>Nasturtium officinale</i>	OBL		X
Evening-primrose	<i>Oenothera villosa</i>	FAC		
Switchgrass	<i>Panicum virgatum</i>	FAC	X	
Wheatgrass, Western	<i>Pascopyrum smithii</i>	FACU		
Grass, Reed Canary	<i>Phalaris arundinacea</i>	FACW+	X	X
Timothy	<i>Phleum pratense</i>	FACU	X	X
Reed, Common	<i>Phragmites australis</i>	FACW		X
Plantain, Narrowleaf	<i>Plantago lanceolata</i>	FAC	X	
Bluegrass, Kentucky	<i>Poa pratensis</i>	FACU	X	
Knotweed, Prostrate	<i>Polygonum aviculare</i>	FACW		
Knotweed, Curlytop	<i>Polygonum lapathifolium</i>	OBL	X	
Grass, Annual Rabbit-Foot	<i>Polypogon monspeliensis</i>	OBL		
Cottonwood, Plains	<i>Populus deltoides</i>	FAC		X
Chokecherry	<i>Prunus virginiana</i>	FACU		
Buttercup, Gmelin's	<i>Ranunculus gmelinii</i>	FACW	X	X
Currant, Golden	<i>Ribes aureum</i>	NO (FAC-)		
Rose, Wood's	<i>Rosa woodsii</i>	FACU	X	
Dock, Curly	<i>Rumex crispus</i>	FACW	X	X
Arrowhead, Arumleaf	<i>Sagittaria cuneata</i>	OBL		
Willow, Peach-leaf	<i>Salix amygdaloides</i>	FACW	X	X
Willow, Missouri River	<i>Salix eriocephala</i>	FACW		
Willow, Sandbar	<i>Salix exigua</i>	OBL	X	X
Willow, Crack	<i>Salix fragilis</i>	FAC	X	
Bulrush, Small-fruit	<i>Scirpus microcarpus</i>	OBL	X	X
Bulrush, Cloaked	<i>Scirpus pallidus</i>	OBL	X	X
Bulrush, Cosmopolitan	<i>Scirpus paludosus</i>	NI		X
Bulrush, Three-square	<i>Scirpus pungens</i>	OBL	X	X
Bulrush, Soft-stem	<i>Scirpus validus</i>	OBL	X	X
False Solomon's Seal	<i>Smilacina racemosa</i>	FAC		
Goldenrod, Canada	<i>Solidago canadensis</i>	FACU		
Cordgrass, Prairie	<i>Spartina pectinata</i>	FACW	X	X
Sandspurry, Middle-size	<i>Spergularia media</i>	NO (FACU)	X	
Snowberry	<i>Symphoricarpos occidentalis</i>	NL		
Saltcedar	<i>Tamarix ramosissima</i>	FACW		
Dandelion, Common	<i>Taraxacum officinale</i>	FACU		
Meadow Rue,	<i>Thalictrum polygamum</i>	NO (NO)		
Wheatgrass, Tall	<i>Thinopyrum ponticum</i>	NL		
Clover, Red	<i>Trifolium pratense</i>	FACU	X	
Arrowgrass, Seaside	<i>Triglochin maritimum</i>	OBL		X
Cattail, Narrow-leaf	<i>Typha angustifolia</i>	OBL	X	X
Cattail, Broad-leaf	<i>Typha latifolia</i>	OBL	X	X



Elm, Siberian	<i>Ulmus pumila</i>	NL		
Mullein, Moth	<i>Verbascum blattaria</i>	UPL		
Speedwell, American	<i>Veronica americana</i>	OBL		X
Speedwell, Pink Water	<i>Veronica catenata</i>	OBL		X
Cocklebur	<i>Xanthium strumarium</i>	FAC		

<sup>1</sup> Indicator status based on national indicators for Region 5 developed by Reed (1988). OBL = obligate wetland species, >99% probability of occurring in a wetland; FACW = facultative wetland species, 67-99% probability of occurring in a wetland; FAC = facultative species, 34-66% probability of occurring in a wetland; FACU = facultative upland species, <33% probability of occurring in a wetland. If the species is not included in Reed (1988) then the designation NL, Not Listed, is shown. If insufficient data were available to determine the indicator status of a species, then NI, No Indicator, is shown. If a species does not occur in Region 5 then NO, nonoccurrence, is shown with the indicator status for Region 8 in parenthesis. A positive (+) indicates a frequency of occurrence toward the higher end of the category (more frequently found in wetlands) and a negative (-) indicates a frequency of occurrence toward the lower end of the category (less frequently found in wetlands).



**Appendix E1**  
**Wetland And Other Waters Photographs for May 17, 2004**





Photo 1, Wetland 1



Photo 2, Wetland 2



Photo 3, Wetland 3



Photo 4, Wetland 3





Photo 5, Wetland 4



Photo 6, Wetland 6



Photo 7, Wetland 7



Photo 8, Wetland 7



Photo 9, Wetland 7



Photo 10, Wetland 8



Photo 11, Wetland 7



Photo 12, Wetland 9



Photo 13, Wetland 10



Photo 14, Wetland 11



Photo 15, Wetland 11



Photo 16, Wetland 10



Photo 17, Wetland 10



Photo 18, Wetland 12



Photo 19, Wetland 13



Photo 20, Wetland 14



**Appendix E2**

**Wetland And Other Waters Photographs for May 18, 2004**





Photo 21, Wetland 10



Photo 22, Wetland 10



Photo 23, Wetland 15



Photo 24, Wetland 16



Photo 25, Wetland 16



Photo 26, Wetland 17



Photo 27, Wetland 18

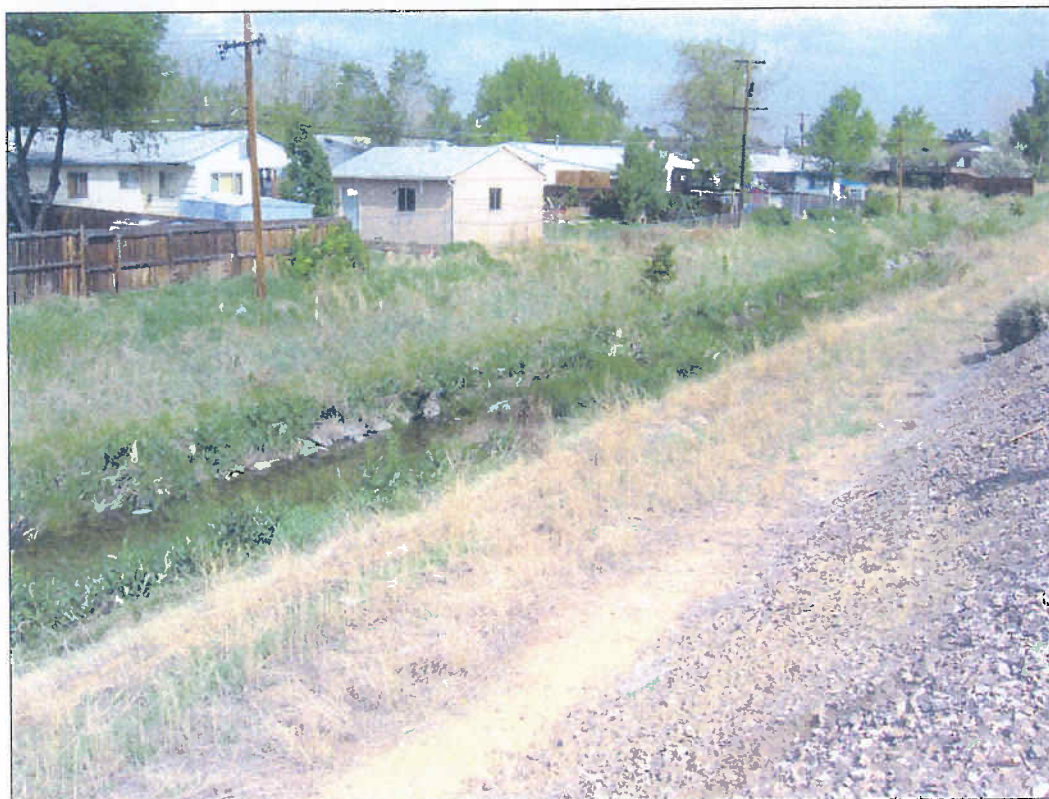


Photo 28, Wetland 18



Photo 29, Wetland 19



Photo 30, Wetland 20



Photo 31, Wetland 20



Photo 32, Wetland 21





Photo 33, Wetland 21



Photo 34, Wetland 20



Photo 35, Wetland 22



Photo 36, Wetland 23



Photo 37, Wetland 23



Photo 38, Wetland 24



Photo 39, Wetland 25



Photo 40, Wetland 25



Photo 41, Wetland 25



Photo 42, Wetland 26



Photo 43, Wetland 27



Photo 44, Wetland 27



Photo 45, Wetland 28



Photo 46, Wetland 28



Photo 47, Wetland 28



Photo 48, Wetland 28





Photo 49, Wetland 28



Photo 50, Wetland 28



Photo 51, Wetland 28



Photo 52, Wetland 29



Photo 53, Wetland 29



Photo 54, Wetland 29A



Photo 55, Wetland 30



Photo 56, Wetland 31



Photo 57, Wetland 31



Photo 58, Wetland 32



Photo 59, Wetland 33



Photo 60, Wetland 33



Photo 61, Wetland 34



Photo 62, Wetland 35



Photo 63, Wetland 36



Photo 64, Wetland 36





Photo 65, Wetland 36



Photo 66, Wetland 37



**Appendix E3**  
**Wetland And Other Waters Photographs for May 19, 2004**





Photo 67, Wetland 38



Photo 68, Wetland 38



Photo 69, Wetland 39



Photo 70, Wetland 38



Photo 71, Wetland 40



Photo 72, Wetland 41



Photo 73, Wetland 42



Photo 74, Wetland 43





Photo 75, Wetland 43

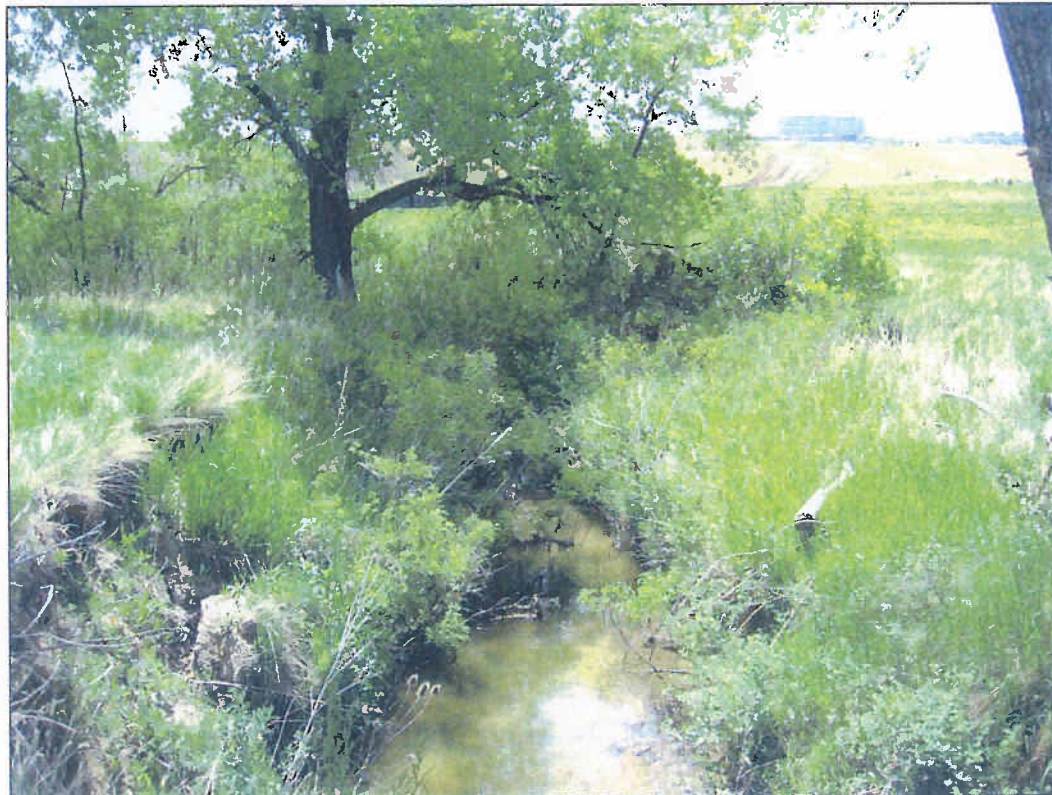


Photo 76, Wetland 44



Photo 77, Wetland 44



Photo 78, Wetland 45



Photo 79, Wetland 46



Photo 80, Wetland 47



Photo 81, Wetland 48



Photo 82, Wetland 48



Photo 83, Wetland 48



Photo 84, Wetland 49



Photo 85, Wetland 50



Photo 86, Wetland 51



Photo 88, Wetland 52

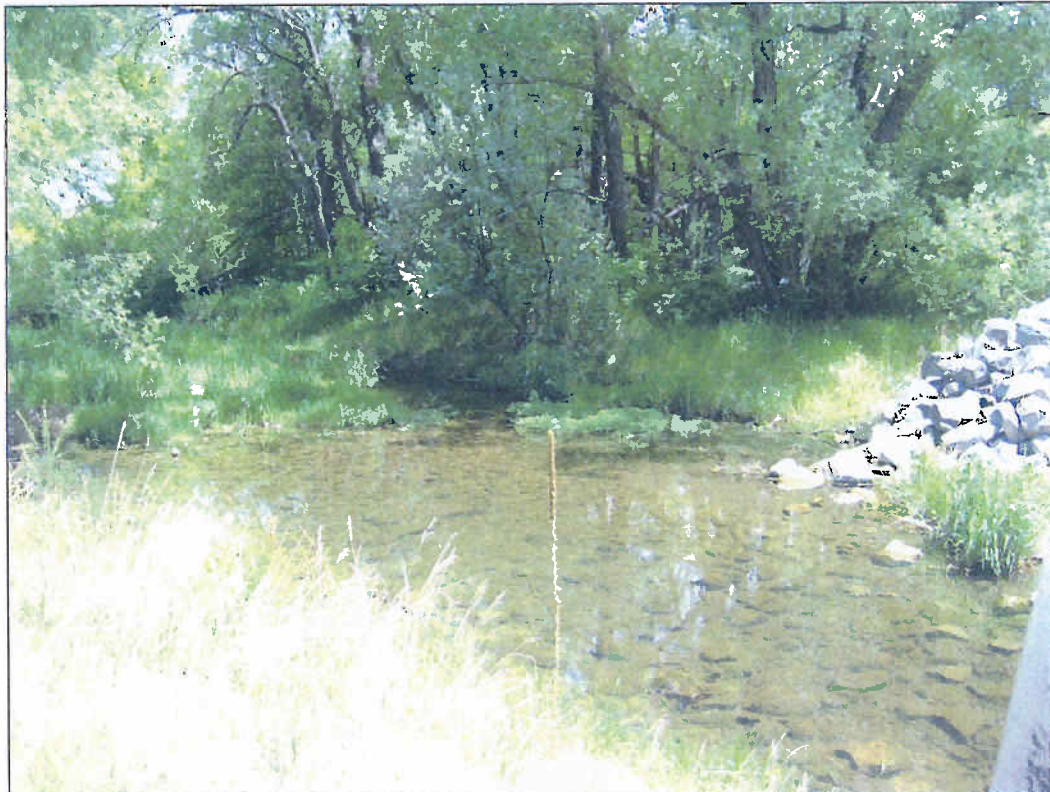


Photo 89, Wetland 52



Photo 90, Other Water 53A



Photo 91, Wetland 53



**Appendix E4**

**Wetland And Other Waters Photographs for May 20, 2004**





Photo 1, Wetland 53



Photo 2



Photo 3, Wetland 55



Photo 4, Wetland 56



Photo 5, Wetland 56



Photo 6, Wetland 57



Photo 7, Wetland 57



Photo 8, Wetland 58



Photo 9, Wetland 59



Photo 10, Wetland 59



Photo 11, Wetland 60



Photo 12, Wetland 60





Photo 13, Wetland 60



Photo 14, Wetland 61



Photo 15, Wetland 62



Photo 16, Wetland 62



Photo 17, Wetland 63



Photo 18, Wetland 63



Photo 19, Wetland 63



Photo 20, Wetland 64



Photo 21, Wetland 64



Photo 22, Wetland 65



Photo 23, Wetland 65



Photo 24, Wetland 66



Photo 25, Wetland 67



Photo 26, Wetland 68





**Appendix E5**

**Wetland And Other Waters Photographs for May 24, 2004**





Photo 1, Wetland 69

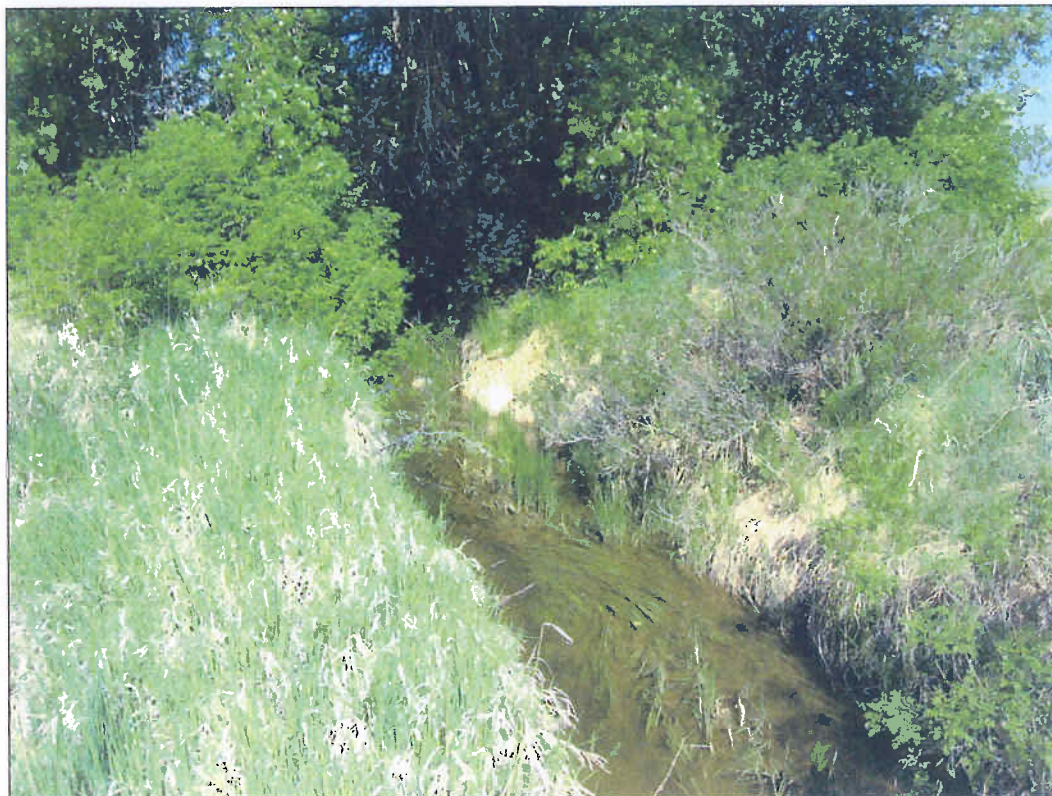


Photo 2, Wetland 72



Photo 3, Wetland 71



Photo 4, Wetland 71



Photo 6, Wetland 72



Photo 7 Wetland 73



Photo 8, Wetland 74

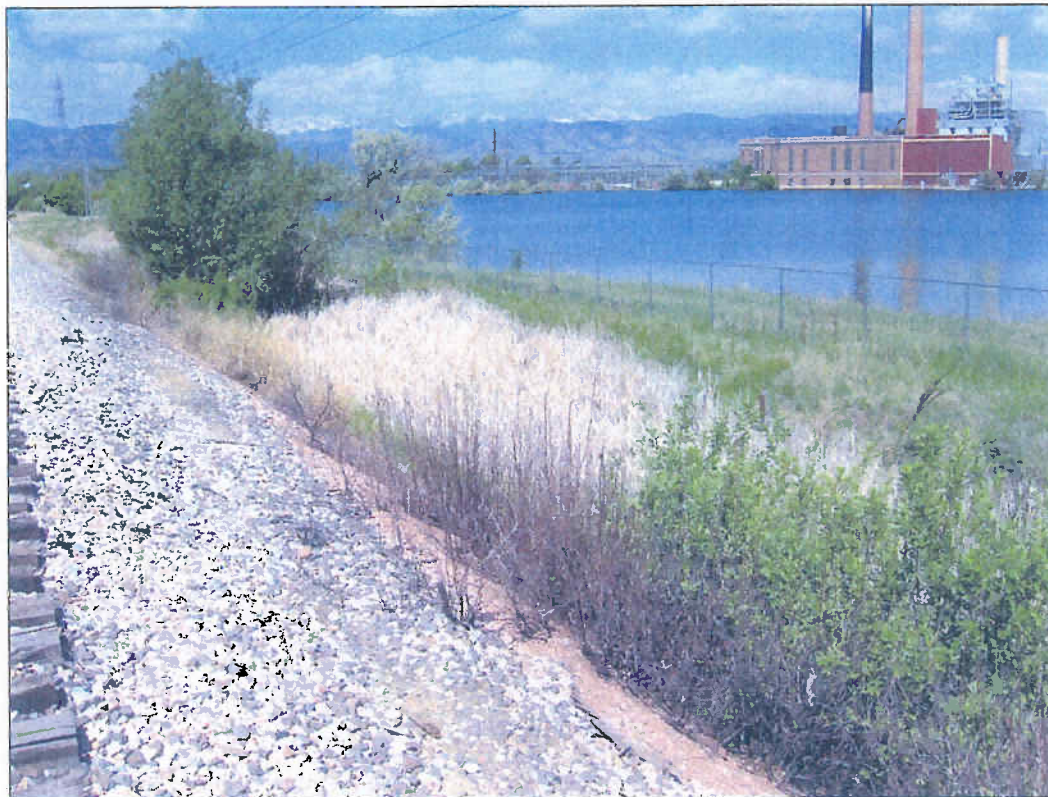


Photo 9, Wetland 75



Photo 10, Wetland 75



Photo 11, Wetland 75



Photo 12, Wetland 77



Photo 13, Wetland 78





Photo 14, Wetland 77



Photo 15, Wetland 79



Photo 16, Wetland 80



Photo 17, Wetland 81



Photo 18, Wetland 82



Photo 19, Wetland 83



Photo 20, Wetland 84



Photo 21, Wetland 84



Photo 22, Wetland 84



Photo23, Wetland 85



Photo 24, Wetland 85

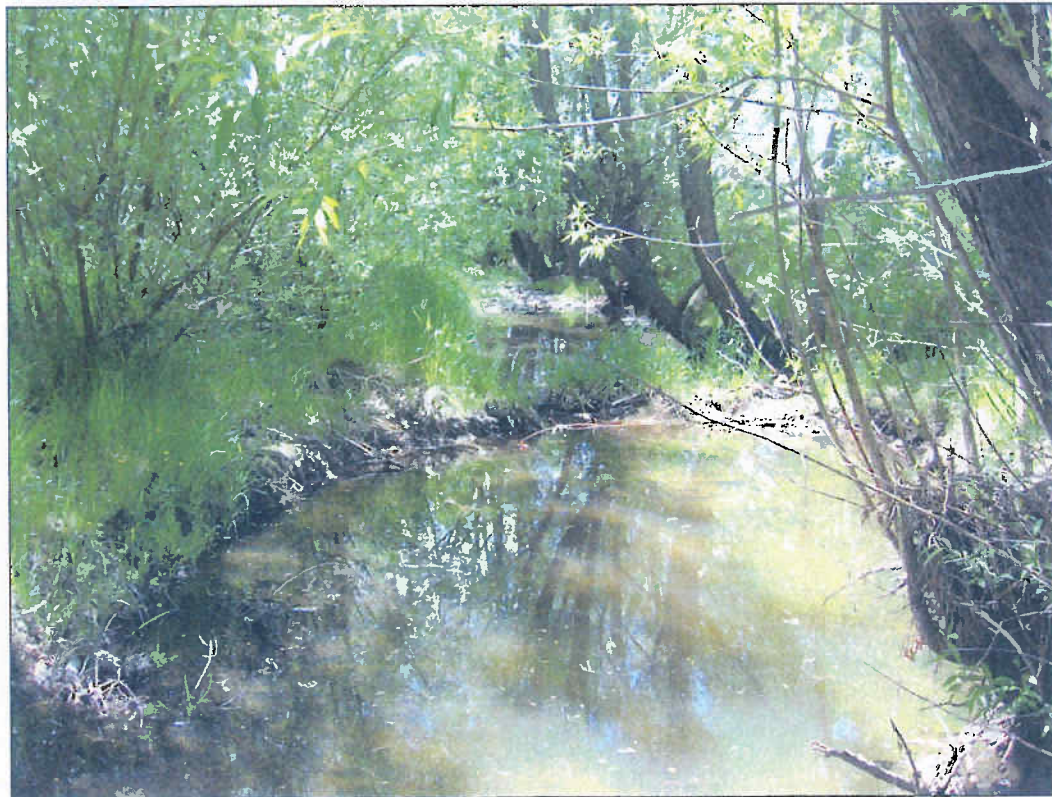


Photo 25, Wetland 85



Photo 26, Wetland 86



Photo 27, Wetland 86



Photo 28, Wetland 87



Photo 29, Wetland 88





Photo 30, Wetland 87



Photo 31, Wetland 88



Photo 32, Wetland 87



Photo 33, Wetland 89



Photo 34, Wetland 89



Photo 35, Wetland 90



Photo 36, Wetland 91



Photo 37, Wetland 93



Photo 38, Wetland 92



Photo 39, Wetland 92



Photo 40, Wetland 92



Photo 41, Wetland 94



Photo 42, Wetland 94





**Appendix E6**

**Wetland And Other Waters Photographs for May 28, 2004**





Photo 1, Wetland 112



Photo 2, Wetland 112



Photo 3, Wetland 112

**Appendix E7**

**Wetland And Other Waters Photographs for June 2, 2004**





Photo 1, Wetland 94

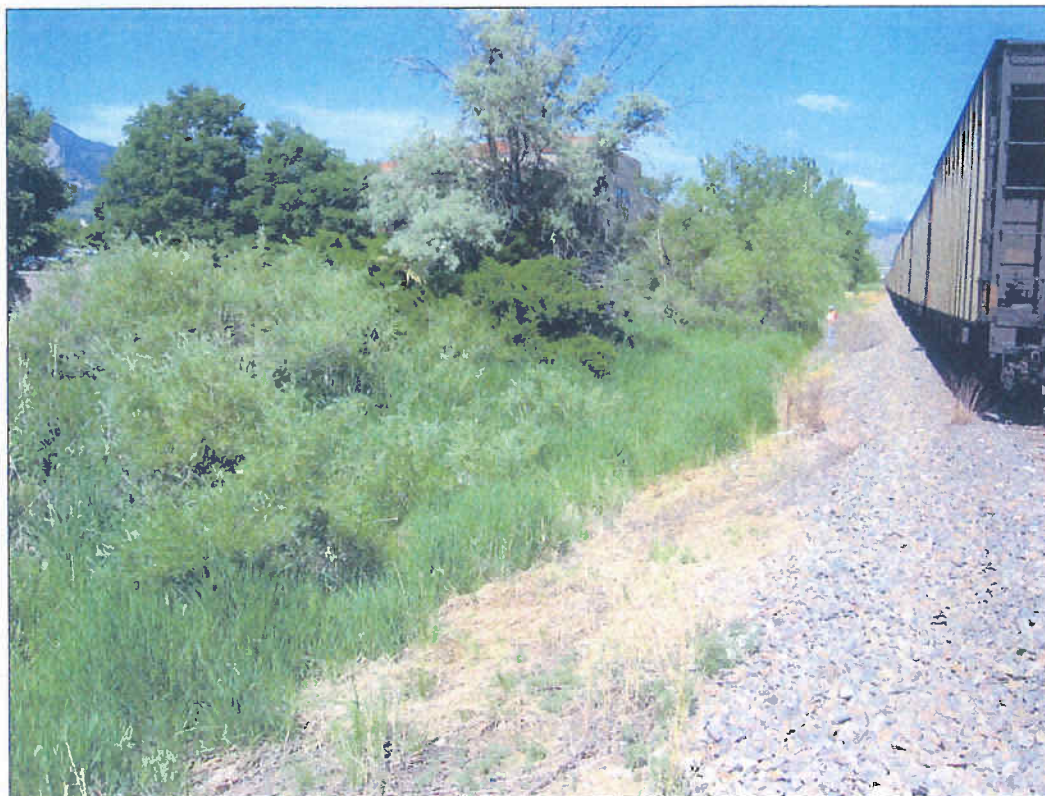


Photo 2, Wetland 95



Photo 3, Wetland 96



Photo 4, Wetland 97





Photo 5, Wetland 97



Photo 6, Wetland 98



Photo 7, Wetland 99



Photo 8, Wetland 99



Photo 9, Wetland 100



Photo 10, Wetland 100



Photo 11, Wetland 101



Photo 12, Wetland 103



Photo 13, Wetland 103



Photo 14, Wetland 102



Photo 15, Wetland 103



Photo 16, Wetland 104



Photo 17, Wetland 104



Photo 18, Wetland 105



Photo 19, Wetland 105



Photo 20, Wetland 106





Photo 21, Wetland 107



Photo 22, Wetland 107



Photo 23, Wetland 109



Photo 24, Wetland 107



Photo 25, Wetland 107



Photo 26, Wetland 109



Photo 27, Wetland 108



Photo 28, Wetland 108



Photo 29, Wetland 108



Photo 30, Wetland 109



Photo 31, Wetland 109



Photo 32, Wetland 110



Photo 33, Wetland 111A



Photo 34, Wetland 111



Photo 35, Wetland 111



**Appendix E8**  
**Wetland And Other Waters Photographs for June 3, 2004**





Photo 1, Wetland 1



Photo 2, Wetland 2



Photo 3 Wetland 3



Photo 4, Wetland 4



Photo 5, Wetland 4



Photo 6, Wetland 5



Photo 7, Wetland 6

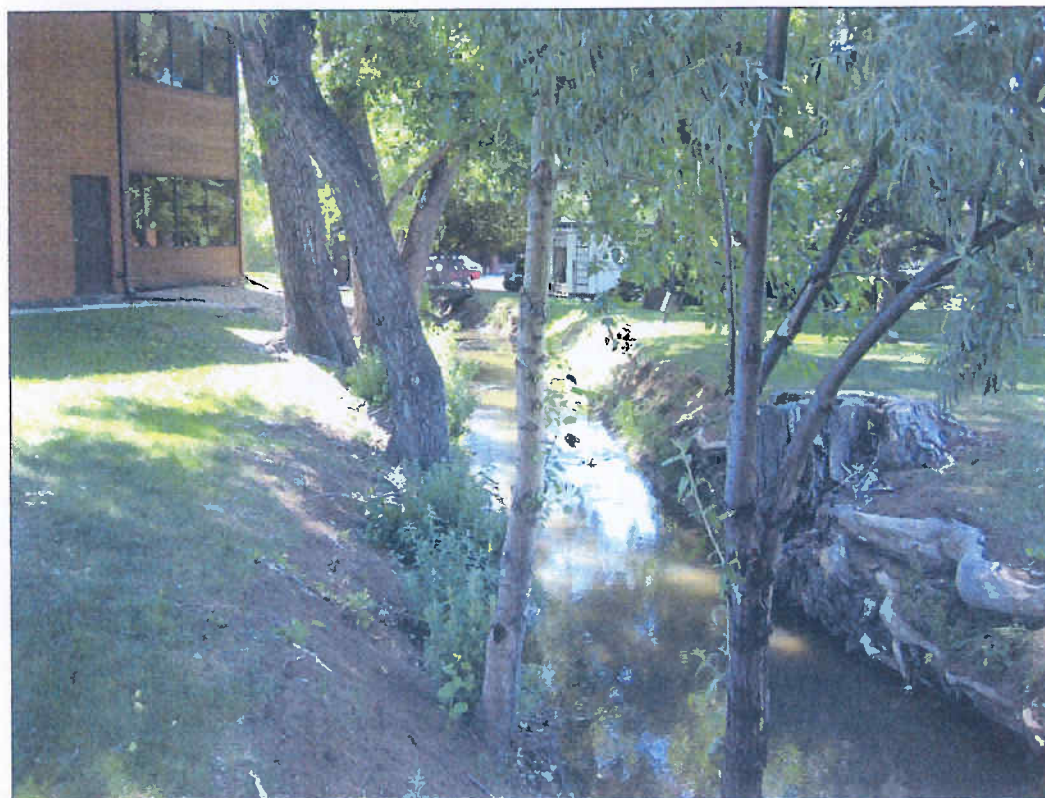


Photo 8, Wetland 6



Photo 9, Wetland 7



Photo 10, Wetland 8



Photo 11, Wetland 9



Photo 12, Wetland 6





Photo 13, Wetland 6



Photo 14, Wetland 11



Photo 15, Wetland 12



Photo 16, Wetland 13



Photo 17, Wetland 14



Photo 18, Wetland 88



Photo 19, Wetland 88



Photo 20, Wetland 16



Photo 21, Wetland 17



Photo 22, Wetland 18



Photo 23, Wetland 19



Photo 24, Wetland 20



Photo 25, Wetland 21



Photo 26, Wetland 22





**Appendix E9**  
**Wetland And Other Waters Photographs for June 4, 2004**





Photo 27, Wetland 23



Photo 28, Wetland 24



Photo 29, Wetland 25



Photo 30, Wetland 26



Photo 31, Wetland 27



Photo 32, Wetland 28



Photo 34, Wetland 30



Photo 36, Wetland 31



Photo 37, Wetland 32



Photo 38, Other Water 34



Photo 39, Wetland 33



Photo 40, Wetland 35





Photo 41, Wetland 36



Photo 42, Wetland 37



Photo 43, Wetland 38



Photo 44, Wetland 39



Photo 45, Wetland 39



Photo 46, Wetland 40



Photo 47, Wetland 41



Photo 48, Wetland 42



Photo 49, Wetland 44



Photo 50, Wetland 43



Photo 51, Wetland 44



Photo 52, Wetland 45



Photo 53, Wetland 46



Photo 54, Wetland 46



Photo 55, Wetland 46



Photo 56, Wetland 47





Photo 57, Wetland 48



Photo 58, Wetland 49



Photo 59, Other Water 50



Photo 60, Wetland 51



Photo 61, Wetland 52



Photo 62, Wetland 53



Photo 63, Wetland 53

**Appendix E10**

**Wetland And Other Waters Photographs for June 9, 2004**





Photo 1, Wetland 54



Photo 2, Wetland 55



Photo 3, Wetland 55



Photo 4, Wetland 56





Photo 5, Wetland 56



Photo 6, Wetland 56



Photo 7, Wetland 56



Photo 8, Wetland 58



Photo 9, Wetland 57



Photo 10, Wetland 59



Photo 11, Wetland 59



Photo 12, Wetland 59



Photo 13, Wetland 59



Photo 14, Wetland 60



Photo 15, Wetland 60



Photo 16, Wetland 60



Photo 17, Wetland 61



Photo 18, Wetland 61



Photo 19, Wetland 60



Photo 20, Wetland 62





Photo 21, Wetland 63



Photo 22, Wetland 63A



Photo 23, Wetland 61



Photo 24, Other Water 23



Photo 25, Wetland 64



Photo 26, Wetland 60



Photo 27, Wetland 60



Photo 28



Photo 29



Photo 30, Wetland 60



Photo 31, Wetland 60



Photo 32, Wetland 59



Photo 33, Wetland 59



Photo 34, Wetland 57



Photo 35, Wetland 59



Photo 36, Wetland 57





Photo 37, Wetland 57



Photo 38, Wetland 8A



Photo 39, Wetland 6



Photo 40, Wetland 6



Photo 41, Wetland 5



Photo 42, Wetland 65



Photo 43, Wetland 6



Photo 44, Wetland 6



Photo 45, Wetland 66

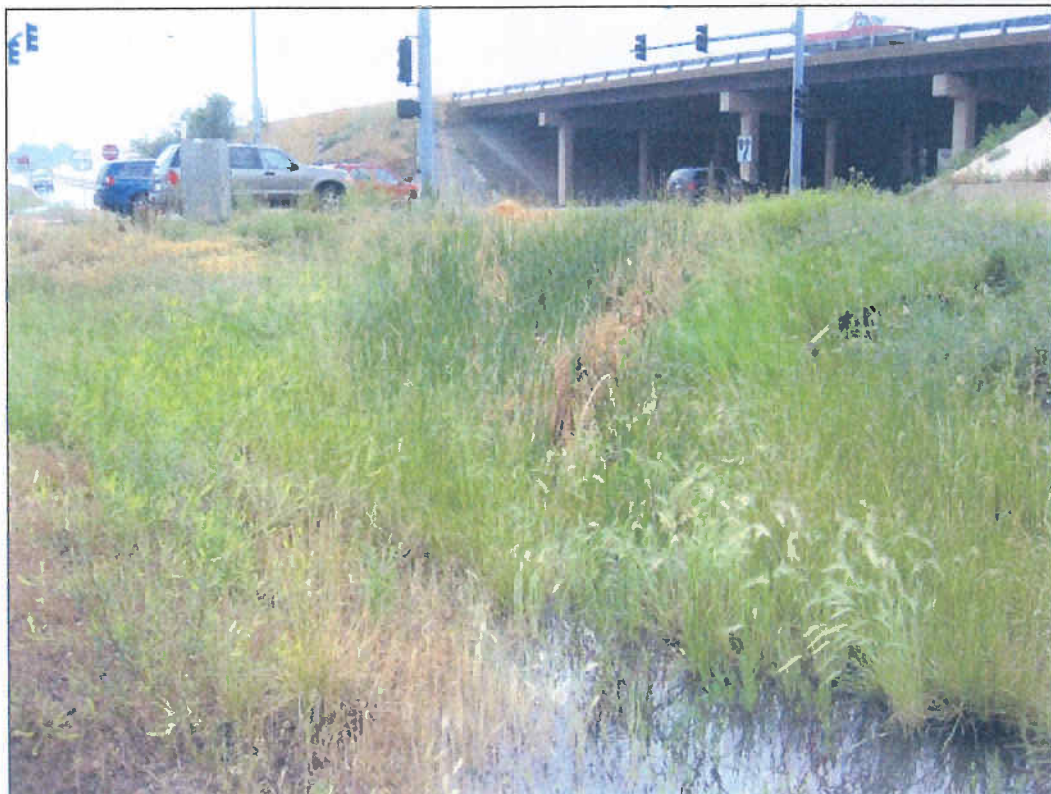


Photo 46, Wetland 67



**Appendix E11**

**Wetland And Other Waters Photographs for June 10, 2004**







Photo 47, Wetland 56



Photo 48, Wetland 56



Photo 49, Wetland 56



Photo 50, Wetland 56



Photo 51, Wetland 54



Photo 52, Wetland 53



Photo 53, Wetland 53



Photo 54, Wetland 53



Photo 55, Wetland 68



Photo 56, Wetland 68



Photo 57, Wetland 69



Photo 58, Wetland 69



Photo 59, Wetland 52



Photo 60, Wetland 70



Photo 61, Wetland 70



Photo 62, Wetland 51





Photo 63, Wetland 47



Photo 64, Other Water 47A



Photo 65, Wetland 71



Photo 66, Wetland 46



Photo 67, Wetland 72

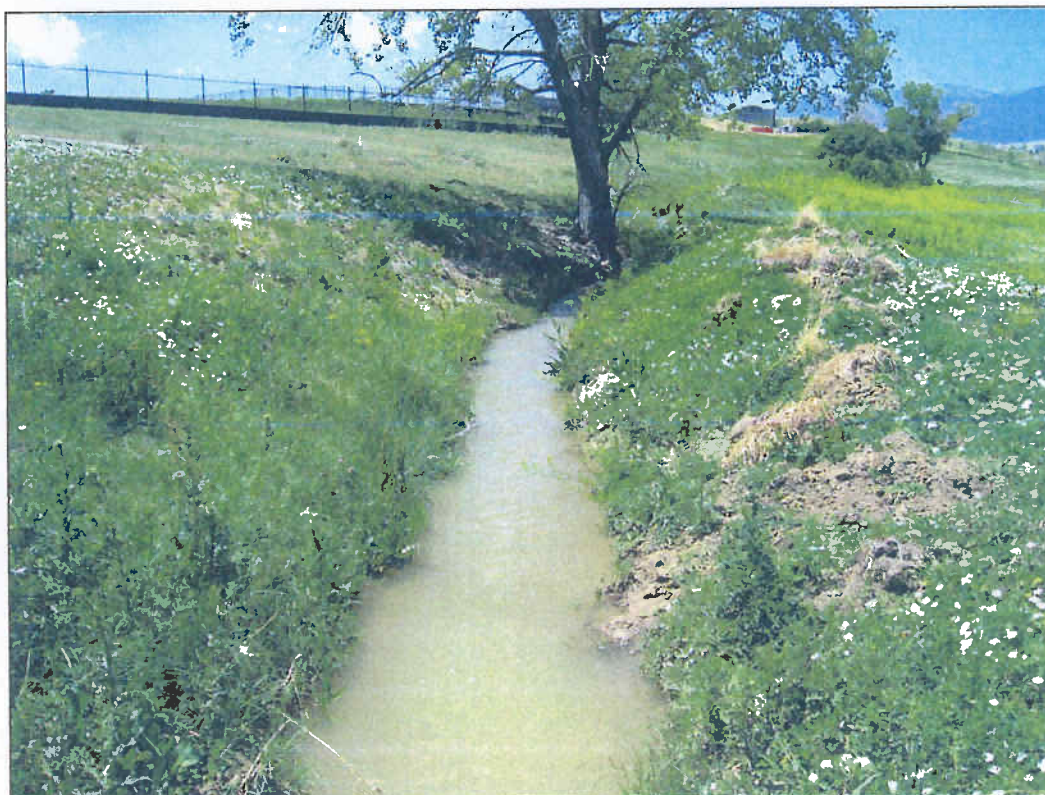


Photo 68, Other Water 45



Photo 69, Wetland 73



Photo 70, Wetland 45



Photo 71, Wetland 74



Photo 72, Wetland 44



Photo 73, Wetland 75



Photo 74, Wetland 75



Photo 75, Wetland 75



Photo 76, Wetland 75



Photo 77, Wetland 75



Photo 78, Wetland 76





Photo 79, Wetland 75



Photo 80, Wetland 75



Photo 81, Wetland 75



Photo 82, Wetland 75



Photo 83, Wetland 77

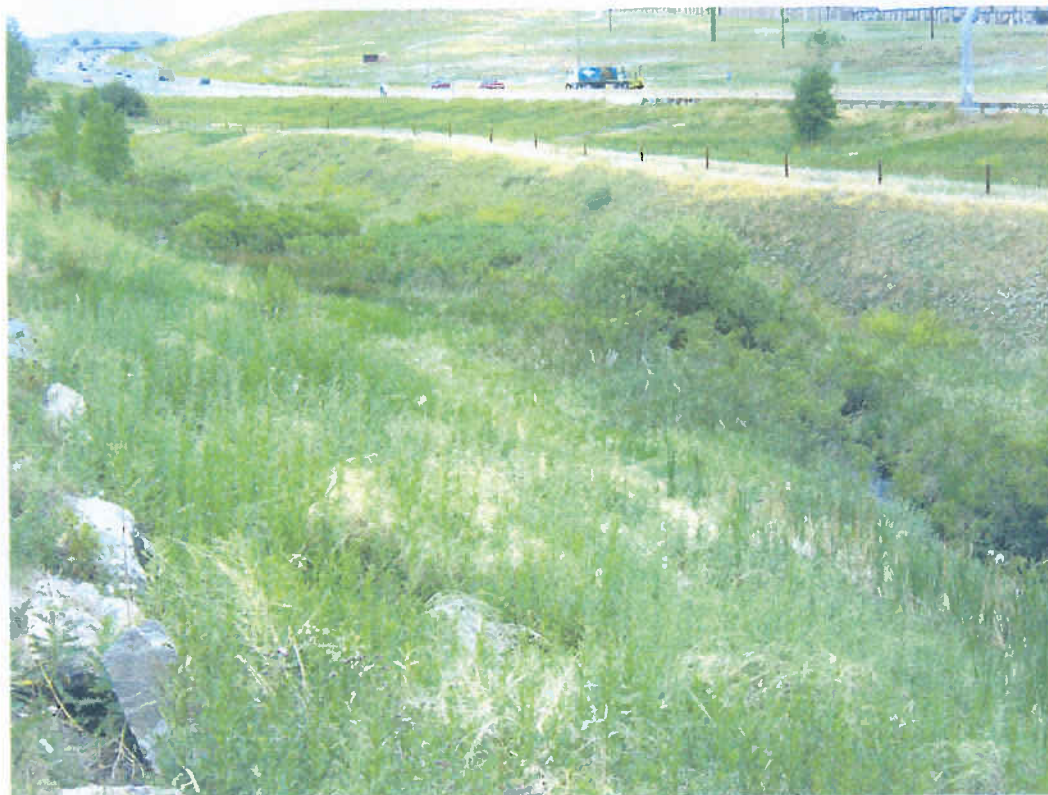


Photo 84, Wetland 75



Photo 85, Wetland 75



Photo 86, Wetland 75



Photo 87, Wetland 78



Photo 88, Wetland 79



Photo 89, Wetland 80



Photo 90, Wetland 81



Photo 91, Wetland 81



Photo 92, Wetland 81



Photo 93, Wetland 81



Photo 94, Wetland 82





Photo 95, Wetland 82



Photo 96, Wetland 82



Photo 97, Wetland 84



Photo 98, Wetland 84



Photo 99, Wetland 82



Photo 100, Wetland 83



Photo 101, Wetland 84



Photo 102, Wetland 85



Photo 103, Wetland 86

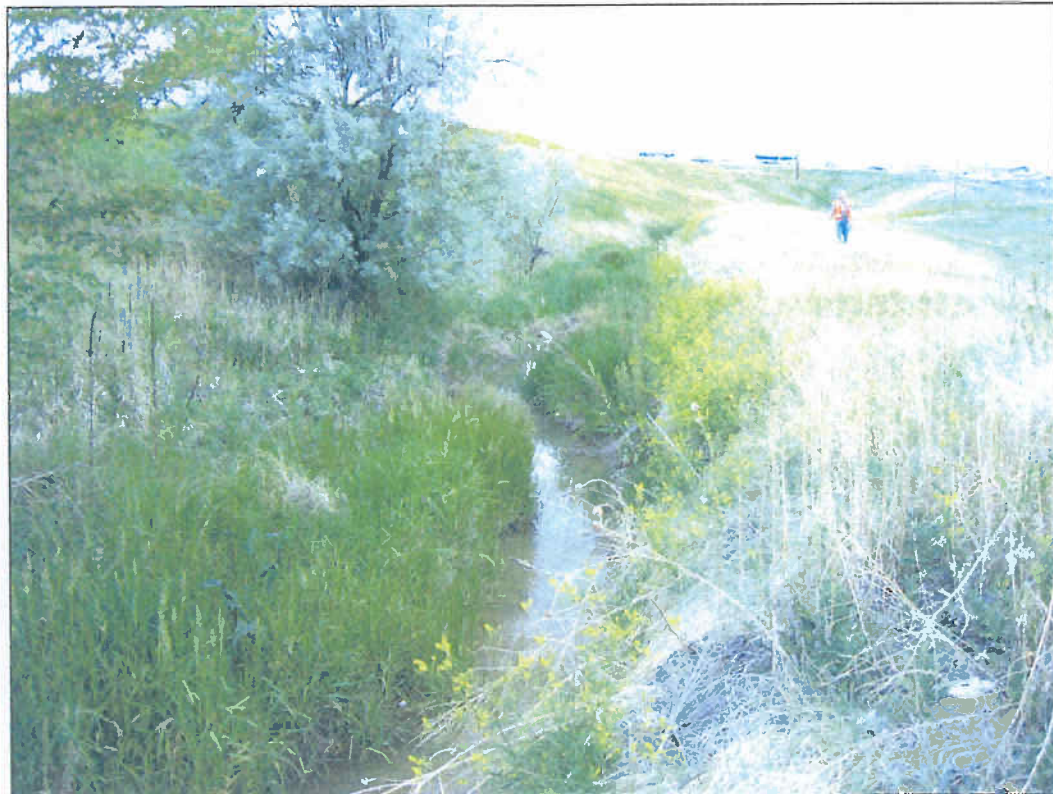


Photo 104, Wetland 86



Photo 105, Wetland 87



Photo 106, Wetland 86



Photo 107, Wetland 86



Photo 108, Wetland 86



Photo 109, Wetland 86



Photo 110, Wetland 88





Photo 111, Wetland 88



Photo 112, Wetland 88



Photo 113, Wetland 89



Photo 114, Wetland 90



Photo 115, Wetland 91



Photo 116, Wetland 91



Photo 117, Wetland 92

**Appendix E12**

**Wetland And Other Waters Photographs for June 28, 2004**





Photo 1, Wetland 47



Photo 2, Wetland 48



Photo 3, Wetland 65



Photo 4, Wetland 65





Photo 5, Wetland 65A



Photo 6, Wetland 44B



Photo 7, Wetland 20



Photo 8, Wetland 18



Photo 9, Wetland 18



Photo 11, Wetland 8C



Photo 12, Wetland 67



Photo 13, Wetland 67



Photo 15, Wetland 67



**Appendix E13**

**Wetland And Other Waters Photographs for July 2, 2004**







Photo 5, Wetland 63A



Photo 6, Wetland 62



Photo 8, Wetland 1-4



Photo 9, Wetland 1-5



Photo 10, Wetland 47



Photo 11, Wetland 1-6



Photo 13, Wetland 75



Photo 14, Wetland 86

**Appendix E14**

**Wetland And Other Waters Photographs for July 15, 2004**





Photo1, Wetland 56



Photo 2, Wetland 55



Photo 3, Wetland 53



Photo 4, Wetland 75





Photo 5, Wetland 75



Photo 6, Wetland 75



Photo 7, Wetland 75



Photo 9, Wetland 79B



Photo 10, Wetland 39



Photo 11, Wetland 79



Photo 12, Wetland 86



Photo 13, Wetland 84



Photo 15, Wetland 84B



Photo 16, Wetland 84B



Photo 17, Wetland 84C



Photo 18, Wetland 86



Photo 19, Wetland 84D



Photo 20, Wetland 22



Photo 21, Wetland 22A



**Appendix E15**

**Wetland And Other Waters Photographs for July 16, 2004**





Photo 23, Wetland 11B



Photo 24, Wetland 11C



Photo 26, Wetland 6



Photo 27, Wetland 6