BIOLOGICAL ASSESSMENT

CITY OF AZTEC, NEW MEXICO
AZTEC SEWER OUTFALL LINE PROJECT

Prepared for:

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1. INTRODUCTION

A Biological Assessment (BA) was prepared by SME Environmental, Inc. (SME) on behalf of the City of Aztec. The purpose of this Biological Assessment is to identify and analyze possible project related effects on US Fish and Wildlife Service (USFWS) and State of New Mexico listed threatened, endangered, candidate, and otherwise designated species or their designated critical habitats.

2. PROJECT DESCRIPTION

2.1 Project Location

The project proposed by the City of Aztec, the Aztec Sewer Outfall Line Project, is a sewer line replacement located within existing sewer line easements. The legal description of the proposed project's location is as follows:

South ½ of Section 8 and Northwest ¼ of the Southwest ¼ of Section 9
Township 30N, Range 11W, New Mexico Principal Meridian (NMPM)
San Juan County, New Mexico

The proposed project is depicted on the Flora Vista, NM 7.5' U.S. Geological Survey (USGS) quadrangle map (Figure 1). The project survey plan drawings are on file with the City of Aztec Public Works Department (303 S. Ash Ave., Aztec, NM 87410; (505) 334-7660). Sheet U1 of the plan drawings is provided as Attachment A. The proposed project is located within the City of Aztec, NM. The line would roughly parallel the Elledge Mill Ditch from Aztec Blvd. west to South Oliver Dr. The project area elevation ranges from 5,580 feet (ft) above mean sea level (msl) to 5,600 ft above msl. The GPS coordinates at the termini of the proposed sewer line are:

Eastern Terminus	Western Terminus
Latitude: 36.8264° N	Latitude: 36.8195° N
Longitude: 108.0033° W	Longitude: 108.0218° W
Datum: NAD 83	Datum: NAD 83

2.2 Project Disturbance

The development of the proposed sewer line replacement project will require the placement of a new sewer line adjacent to an existing sewer line and within the existing easement. Construction of the proposed pipeline will require clearing of a right-of-way and developing temporary use areas (as needed), trenching and boring, laying of pipeline, testing, and backfilling the pipeline. Approximately 7,188 feet of sewer line would be installed. Approximately 60 percent (engineer's estimate) of the proposed line would be bored underground to avoid surface resources and excess surface disturbance. The proposed sewer line would leave the existing easement for approximately 1,596 feet at the western end of the proposed alignment in order to avoid buildings that overlie the existing easement. Since the installation of the original sewer line, buildings at A-1 Mini

Storage in Aztec have been constructed over the existing easement. The existing sewer line will be left in place.

The City of Aztec plans to develop a 60-foot wide easement. Total area for the proposed easement would be approximately 8.52 acres.

3. METHODOLOGY

3.1 Off-Site Methods

Prior to conducting the on-site field survey, SME staff compiled a list of USFWS and New Mexico listed species with potential to occur in San Juan County. Federally listed species for the USFWS were obtained from the USFWS Southwest Region Endangered Species List and are listed in Table 1 (USWFS 2012). New Mexico state listed fauna were compiled from the New Mexico Department of Game and Fish and the New Mexico Natural Heritage Program (NMDGF 2012). New Mexico state listed flora were compiled from the New Mexico Rare Plant Technical Council (NMRPTC 1999) and are listed in Table 2.

3.2 Survey Methods

A site survey of the proposed City of Aztec Outfall Sewer Line replacement project was conducted on December 10, 2009. The survey methods included walking parallel transects along the project alignment and adjacent easement. Weather conditions were mostly sunny, winds were light out of the west 0-5 miles per hour (mph), and ambient temperatures were around 25°F. The project and surrounding areas were visually inspected with binoculars for raptors and nests or evidence of previous raptor use. All plant and wildlife species observed in the project area were recorded (Attachment B) and digital photos of the project area were taken. A follow-up site survey was conducted on August 29, 2012 to confirm data collected during the original site survey; no notable changes in the project area were observed.

4. ACTION AREA

4.1 Proposed Project and Action Area

The proposed project area includes the proposed sewer line and easement. The action area consists of the surrounding area within a 1/3 mile radius.

4.2 Physical Description

The east end of the project site can be accessed at the western abutment of the NM Hwy 516 (West Aztec Blvd.) bridge crossing the Animas River. The west end of the project is the City of Aztec Wastewater Treatment Plant located at the south end of South Oliver Drive. The project area is located along a slope between two valley terraces northwest of the Animas River and above the 100-year floodplain of the river. The easement generally contours the upper terrace edge; generally paralleling the uphill edge of the Elledge Mill Ditch. The project area is bound by mixed-use residential and commercial properties and roadways to the north/west and by the Animas River floodplain to the south/east, which also includes the City of Aztec's Riverfront Park.

The slopes within the proposed project range from 3-70 % and the slopes direct surface run-off south towards the Elledge Mill Ditch and the Animas River beyond. The Elledge Mill Irrigation Ditch is an artificial waterway that maintains downstream surface connection to the Animas River. Wetlands line the banks of the ditch and are primarily supported by this artificial water source. Other small wetland areas within the project area are supported primarily by concentrated surface runoff in swale features. The Elledge Mill Ditch flows during the growing season and may also intercept and convey water during storm events.

Surface geological material in the proposed project area is composed of quaternary alluvium. Soils were mapped as part of the Natural Resources Conservation Service (NRCS) web soil survey of San Juan County (USDA 2007b) (Figure 4). The soil unit descriptions derived from the USDA NRCS soil reports are included in the table below.

Table 1. Soil Units that Occur in the Proposed Project Area.

Soil Unit	Brief Description	Hydric Soils	Percent of Project Area
Fruitland loam, 5-8% slopes	A well drained soil found on alluvial fans and stream terraces at elevations ranging from 4,800 ft to 6,000 ft that was formed from slope alluvium derived from sandstone and shale with a moderate available water capacity and composed of loam and fine sandy loam.	Does not meet hydric criteria.	55%
Turley clay loam, 1-3% slopes	A well drained soil found on alluvial fans at elevations ranging from 4,800 ft to 6,000 ft formed from fan alluvium derived from sandstone and shale with a high available water capacity composed of clay loam.	Does not meet hydric criteria.	26%
Fruitland sandy loam, 2-5% slopes	A well drained soil found on alluvial fans and stream terraces at elevations ranging from 4,800 ft to 6,400 ft that was formed from alluvium derived from sandstone and shale with a moderate available water capacity and composed of sandy loam.	Does not meet hydric criteria.	13%
Stumble loamy sand, 0-3% slopes	A somewhat excessively drained to well drained soil found on dunes and alluvial fans at elevations ranging from 4,800 ft to 6,400 ft formed from eolian deposits derived from sandstone and fan alluvium derived from sandstone and shale with a low to moderate available water capacity and composed of loamy sand, gravelly loamy sand, loam and fine sandy loam.	Does not meet hydric criteria.	3%
Walrees loam	A somewhat poorly drained soil found on floodplains at elevations ranging from 6,400 ft to 7,200 ft on 0-2% slopes formed from mixed alluvium with a moderate available water capacity formed from stratified gravelly sand.	Does not meet hydric criteria.	2%
Werlog loam	A somewhat poorly drained soil found on floodplains at elevations ranging from 6,400 ft to 7,200 ft on 0-1% slopes formed from mixed alluvium with a high available water capacity and composed of loam, stratified fine sandy loam to clay loam and stratified sand to cobbly sand.	Does not meet hydric criteria.	1%

USDA 2007b

4.3 Biological Description

The project area is located at the transition of the Animas River floodway and an upland valley terrace. The floodway contains areas of native riparian communities characterized by the dominant presence of Fremont cottonwood (*Populus fremontii*), but the terrace slope, on which the study area is located, generally contains a transitional upland community characterized by the dominant presence of three leaf sumac (*Rhus trilobata*), Chinese elm (*Ulmus pumila*) Wood's rose (*Rosa woodsii*) and smooth brome (*Bromus inermis*). Two wetland areas also cross the study area. The eastern wetland area is a willow (*Salix*)/reed (*Phragmites*) dominated wetland community and a western wetland area is a cattail (*Typha*) dominated wetland community that also supports various wetland grasses and rushes including Torry's rush (*Juncus torryii*) and scratch grass (*Mulhenbergia asperifolia*). The vegetation located within the easement is largely disturbed due to disturbance related to the original construction and ongoing maintenance activities on the existing sewer line, ditch and overhead utility lines.

Four State of New Mexico listed noxious weed species were observed within the project area. One Class A species, Canada thistle (*Cirsium arvense*); one Class B species, Russian knapweed (*Acroptilon repens*); and two Class C species, cheatgrass (*Bromus tectorum*) and Russian olive (*Elaeagnus angustifolia*) were observed.

Evidence of habitat utilization by wildlife in the analysis area was revealed through tracks, droppings, vocalizations, and visual identification of individuals. Tracks and scat of striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), gray fox (*Urocyon cinereoargenteus*), and mule deer (*Odocoileus hemionus*) were observed along a trail following the south side of the Elledge Mill Ditch. A large number of deer (up to one dozen) and prairie dog burrows were observed in the study area. One bald eagle (*Haliaeetus leucocephalus*) was observed perched in a large cottonwood overarching the Animas River approximately 900 feet east of the project site, while a second bald eagle was observed flying west along the river corridor. A female northern harrier (*Circus cyaneus*) was observed flying low over meadow areas in the Animas River floodplain. Numerous Canada geese (*Branta canadensis*) were observed along the banks of the Animas River. A medium sized stick nest was observed in the top of a large cottonwood tree within 100 feet of the proposed alignment. The nest may be that of a red-tailed hawk (*Buteo jamaicensis*) or raven (*Corvus corax*). A complete list of wildlife inferred and observed during the on-site field survey is included in Attachment B.

5. SURVEY RESULTS

5.1 USFWS T&E Species

According to the USFWS, there are 12 federally threatened, endangered, proposed, or candidate species with the potential for occurrence in San Juan County, New Mexico. Table 2 below lists these species, their conservation status, habitat requirements, and provides an evaluation of the potential for these species to occur in the proposed action area. None of the federally listed species were identified during the field survey. One (1) of the 12 species, the southwestern willow flycatcher (*Empidonax traillii extimus*), has potential to occur in the proposed action area based upon evaluations of their habitat

requirements and field surveys. Effects to federally listed species are described further below in Section 6 - Determinations.

5.2 State T&E Species

Table 3 below lists the nine (9) State threatened or endangered species most likely to occur in San Juan County, their habitat requirements, and provides an evaluation of the potential for these species to occur in the proposed action area. Of the nine (9) State of New Mexico threatened or endangered species with potential to occur in San Juan County, New Mexico, three (3) have the potential to occur in the action area: American peregrine falcon (*Falco peregrinus anatum*), bald eagle (*Haliaeetus leucocephalus*), and spotted bat (*Euderma maculatum*).

The Animas River corridor provides potential foraging habitat for the peregrine falcon. The study area, however, does not provide large cliffs or tall buildings and bridges to supply suitable nesting habitat. The nearest known peregrine falcon nest lies 15 miles north of the project site above the Animas River (BLM 2008). Peregrine falcons most often forage within 10 miles of their nests. Potential prey species of peregrine falcon may be temporarily displaced during construction activities at the proposed project site. This would have a negligible effect on peregrine falcon as there is abundant forage habitat elsewhere in the Animas River corridor and the study area is not unique to the Animas River corridor.

Large cottonwood trees along the perennial Animas River provide suitable habitat for winter bald eagle foraging and night roosting. No bald eagle nests were observed in the study area, and bald eagles are not known to nest in San Juan County (J. Kendall, personal communication 2009). The nearest known bald eagle roost is located near the Colorado border approximately 13 miles north of the proposed action (BLM 2008). The project site lies as close as 100 feet from numerous large cottonwood trees that would provide physically suitable winter roost habitat. No potential habitat would be removed by the proposed action; however, bald eagles roosting and foraging in adjacent areas along the Animas River may experience noise from construction equipment and visual activity during daylight hours. It is unlikely that these activities would constitute a substantial interference to bald eagle breeding, feeding, or sheltering behavior. Bald eagles who utilize this somewhat developed area in the center of the City of Aztec are likely habituated to noise and activity related with residential and commercial development adjacent to the project site, vehicle traffic on the busy roads crossing the river, and activity within Riverside Park.

The proposed action area lies within the known range for the spotted bat (*Euderma maculatum*) (NMDGF 2012). Preferred habitat for this species in New Mexico includes meadows in subalpine coniferous forest, although the spotted bat is known to utilize a wide range of habitat types in or near forested areas nearby open water (NMDGF 2012). Spotted bats roost diurnally in cracks and crevices of cliffs and canyons and feed primarily on moths (NMDGF 2012). The species forages over standing water or high meadows (NMDGF 2012). Spotted bats have been documented to travel long distances between day-roost sites and foraging areas (NMDGF 2012). The Animas River provides a close source of open water; however, no rocky roost habitat was observed in or near the

action area. The spotted bat has been captured in Aztec, but the lone instance was considered unusual, and it was assumed that the bat was migrating to winter quarters (NMDGF 2012). Due to the lack of roosting habitat and preferred foraging habitat within the proposed action area, the removal of transitional riparian and upland shrubs and herbaceous vegetation in the proposed action area will have a negligible effect on potential spotted bat habitat.

5.3 Migratory Bird Compliance

Executive Order 13186 addresses concerns over impacts toward migratory birds and their habitats. The Migratory Bird Treaty Act (16 U.S.C. § et seq.) notes numerous birds of the southwestern United States that are assigned a migratory status (most notably those included in the USFWS BCR 16 list). The intent is to minimize the "take" of migratory birds through consideration in land use decisions and in conjunction with the USFWS. The implications of this action have been assessed in conjunction with the site visit to evaluate potential impacts to protected species. Migratory birds common to the southwestern United States are likely to be present in the study area. Migratory birds identified by the New Mexico Partners in Flight as having highest management priority for middle elevation riparian woodland include:

- Yellow-billed Cuckoo (*Coccyzus americanus*)
- Lewis's Woodpecker (*Melanerpes lewis*)
- Red-headed Woodpecker (*Melanerpes erythrocephalus*)
- Willow Flycatcher (*Empidonax traillii*)
- Lucy's Warbler (*Vermivora luciae*)
- Summer Tanager (*Piranga rubra*)
- Painted Bunting (*Passerina ciris*)

A medium sized stick nest was observed in the top of a large cottonwood tree within 100 feet of the proposed alignment.

Bald eagles (*Haliaeetus leucocephalus*) and Golden eagles (*Aquila chrysaetos*) are protected under the Migratory Bird Treaty Act (16 U.S.C. § 703 et seq.) and the Bald and Golden Eagle Protection Act (Title 16 Chapter 5A, Subchapter II, § 668A-D). The Act prohibits the take of eagles including the disturbance of eagles defined as activities that "agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." The USFWS recommends minimizing potentially disruptive activities and development in the eagles' direct flight path between their nest and roost sites and important foraging areas (USFWS 2007a). The proposed action is located adjacent to potential foraging and roosts areas, but will not be located between, or intersect flight paths between, such areas.

Golden eagles are year-round residents of New Mexico utilizing a variety of habitats throughout the state, showing a preference for mountainous terrain with coniferous forests and woodland–shrubland complexes. Ledgey cliffs and occasionally large trees from sea level to 12,000 ft above sea level provide preferred nesting opportunities. The proposed project area does not contain potential golden eagle nest sites and the nearest documented golden eagle nest is located approximately 5 miles north of the proposed project area. The proposed project would not directly affect golden eagles, nor would it constitute a substantial interference to breeding, feeding, or sheltering behavior.

6. DETERMINATIONS

A total of 12 federally listed threatened, endangered, proposed, and candidate species were analyzed for potential impacts by the proposed action. A "no effect"/"no impact" determination is warranted for 11 of these species for the specified proposed project area. One species, the southwestern willow flycatcher, warrants a determination of "may affect, not likely to adversely affect". These 12 species determinations are further discussed below.

Black-footed ferret

The proposed project will have "no effect" on the black-footed ferret (*Mustela nigripes*). The analysis area lacks suitable prairie dog colonies of 80-acres or more. The surrounding prairie dog habitat could not support a population sufficient for black-footed ferrets. The handful of burrows observed in the project area did not indicate that an extensive colony exists within the study area. The maximum area around the project site suitable for prairie dogs does not exceed 20 acres.

Canada lynx

The proposed project will have "no impact" on individuals or populations of the Canada lynx (*Lynx canadensis*) due to a lack of suitable habitat. The analysis area is well below the elevation range of suitable habitat for the species. The Animas River corridor is unlikely to provide a suitable migratory corridor for the species as there are no suitable habitats near the Animas or San Juan Rivers downstream of the project area.

Mexican spotted owl

The proposed project will have "no effect" on the Mexican spotted owl (*Strix occidentalis lucida*) due to a lack of suitable habitat. The analysis area does not contain the preferred geography such as steep-sided canyons, or forest type such as dense, mature coniferous forest.

Southwestern willow flycatcher

The proposed project warrants a "may effect, but not likely to adversely affect" determination for the southwestern willow flycatcher (SWFL). A 0.3-acre patch of palustrine scrub-shrub (PSS) vegetation dominated by willow and reed would be directly impacted by the construction of the proposed sewer line. The wet area is situated in a small depression between the Elledge Mill Ditch and a slope uphill of and north of the

ditch. The depression formed as a result of the construction of the Elledge Mill Ditch across what was once a small swale that likely drained south towards the Animas River. Within this PSS patch, SME identified approximately 0.06 acre of willow that would meet the most basic habitat requirements for SWFL. The nearest neighboring willow patches are located approximately 1,400 feet to the west. No natural waterway is labeled on the Aztec, NM. 7.5' USGS quadrangle map in relation with this patch, and no waterway was identified within this patch in the field. The wet area likely receives a seasonal charge from upslope run-off and percolation from the Elledge Mill Ditch. The habitat patch exhibits adequate ground water to support such habitat. Furthermore the potential habitat is approximately 100 ft northwest of the Animas River channel. However, the isolated patch is not part of a larger complex of suitable riparian habitat. Informal consultation with the USFWS has determined that the 0.06 acre habitat patch would be marginally suitable at best given the relatively dry nature of the site, the low stature of the willows, the low density of the willows, and the very small size of the patch (D. Hill, personal communication 2012). In addition, USFWS indicates that there are no known SWFL nest territories in or near the project area (D. Hill, personal communication 2012).

In addition to potential habitat within the project area, a large (10-acre) cottonwood/willow/Russian olive wetland complex occurs approximately 150 feet south of the alignment in the historical floodplain of the Animas River from Light Plant Road west to Swire Ave. The abutting 10-acre cottonwood/willow complex is moderately mature with approximately 10% cottonwood canopy (30-50 feet high) and approximately 50% willow canopy (8-15 feet high), interspersed with wet meadow/marsh areas immediately adjacent to the Animas River. The complex appears to provide the vegetation and hydrology suitable to support SWFL.

The effects on potential SWFL habitat in the analysis area from the proposed action are likely to be insignificant and discountable. Anticipated direct impacts from the installation of the proposed sewer line would be the removal of the 0.06 acre patch, increased noise from construction activities, and elevated levels of fugitive emissions. Removal of the 0.06 acre patch would have an insignificant effect on SWFL due to the poor suitability of the patch and these effects are likely to be discountable due to the unlikelihood that any SWFL occur in the action area. Current direct impacts to potential SWFL habitat in and adjacent to the project area include noise and activity from an adjacent mobile home park, other residences, the adjacent pedestrian River Trail maintained by the City of Aztec, and the nearby Riverside Park opposite the Elledge Mill Ditch. New disturbances associated with the proposed action are likely to increase existing disturbances in the short term. The relatively short duration of these activities and the distance of these activities in relation to the 10-acre cottonwood-willow complex would constitute insignificant effects. Effects resulting from noise and fugitive emissions are likely to be discountable due to the unlikelihood of SWFL to occur in the action area.

Yellow-billed cuckoo

The proposed project will have "no impact" on individuals or populations of the yellow-billed cuckoo (*Coccyzus americanus*) due to a lack of extensive mature cottonwood

galleries in the study area and the lack of impact to potential habitat. While the terrain surrounding the study area does contain stands of cottonwoods, these stands are not populated with extensive, mature cottonwood galleries with a dense understory of shrubs that would provide the preferred nesting habitat for yellow-billed cuckoos. In addition, no mature cottonwood habitat will be removed by the proposed project.

Whooping crane

The proposed project will "not jeopardize" the continued existence of the whooping crane (*Grus americana*) due to a lack of suitable breeding or feeding habitat. Wetlands in and adjacent to the project area lack the open, shallow and calm waters associated with breeding and feeding habitat. There are also no suitable agricultural or cropland fields in or adjacent to the project area that would provide suitable forage. Lastly, the Rocky Mountain experimental population program has been discontinued; it is unlikely that the few individuals from the program that may have survived to this date would occur in the action area.

Colorado pikeminnow

The proposed project will have "no effect" on the Colorado pikeminnow (*Ptychocheilus lucius*) because there will be no depletions associated with the project implementation. The proposed project would not affect water quality or quantity within the San Juan River or its tributaries.

Razorback sucker

The proposed project will have "no effect" on the razorback sucker (*Xyrauchen texanus*) because there will be no depletions associated with the project implementation. The proposed project would not affect water quality or quantity within San Juan River or its tributaries.

Roundtail chub

The proposed project will have "no impact" on individuals or populations of the roundtail chub as there would be no effects on potential habitat. Roundtail chub is historically known to occur in the Animas River (NMDGF 2012). While the project site is very near the Animas River, the proposed project would not affect water quality or quantity within the Animas River or have any direct or indirect effects on the bed or banks of the river. A Stormwater Pollution Prevention Plan will be prepared for the proposed project to ensure the protection of surface and ground water resources.

Knowlton's cactus

The proposed project will have "no effect" on the Knowlton's cactus (*Pediocactus knowltonii*) due to a lack of proper geologic substrate in the study and analysis areas.

Mancos milkvetch

The proposed project will have "no effect" on the Mancos milkvetch (*Astragalus humillimus*) due to a lack of proper geologic substrate in the study and analysis areas.

Mesa Verde cactus

The proposed project will have "no effect" on the Mesa Verde cactus (*Sclerocactus mesae-verde*) due to a lack of proper geologic substrate in the study and analysis areas.

7. RECOMMENDATIONS

The USFWS recommends minimizing the amount of vegetation being removed and conducting all work outside of the migratory bird nesting season (April 15- August 15), unless there is a biological monitor on site to ensure no nests are present prior to vegetation removal (D. Hill, personal communication 2012).

If nesting building activities are observed, hazing/exclusion activities should be implemented. Hazing techniques utilize visual and/or auditory devices which produce negative stimulation for birds, deterring them from landing in an area. Exclusion is the prevention of birds from entering a specific area using netting, and/or screening. Hazing/exclusion techniques should be continued until site vegetation has been removed for construction purposes. Completed/occupied nest should be avoided.

Clear cutting of trees and mowing of vegetation should be avoided. Both remove potential habitat for migratory and resident species. Standing dead trees are also suitable habitat for many species providing cavity nesting sites and preferred roosting positions.

Implementing Stormwater Pollution Prevention Plan BMPs pre- and post- construction will minimize potential erosion/sedimentation to aquatic resource locations.

Contractors should not conduct fueling or lubricating of construction equipment or other motor vehicles within 100 ft of open water sources, or other wetland areas. Major repairs to construction equipment should be performed offsite, where possible.

8. CERTIFICATION

To the best knowledge of Sugnet & Moore Environmental, Inc., the proposed project, with the successful implementation of mitigation measures, would not violate any provisions of the Endangered Species Act of 1973, as amended. Conclusions are based on actual field examinations and are correct to the best of my knowledge.

Signature of Field Biologist: Nathan Kirker **Date:** January 15, 2013

Nathan Kirker, Biologist

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Table 2. Species listed by the USFWS under the authority of the Endangered Species Act of 1973 for San Juan County, New Mexico (E = Endangered, T = Threatened, C = Candidate for listing).

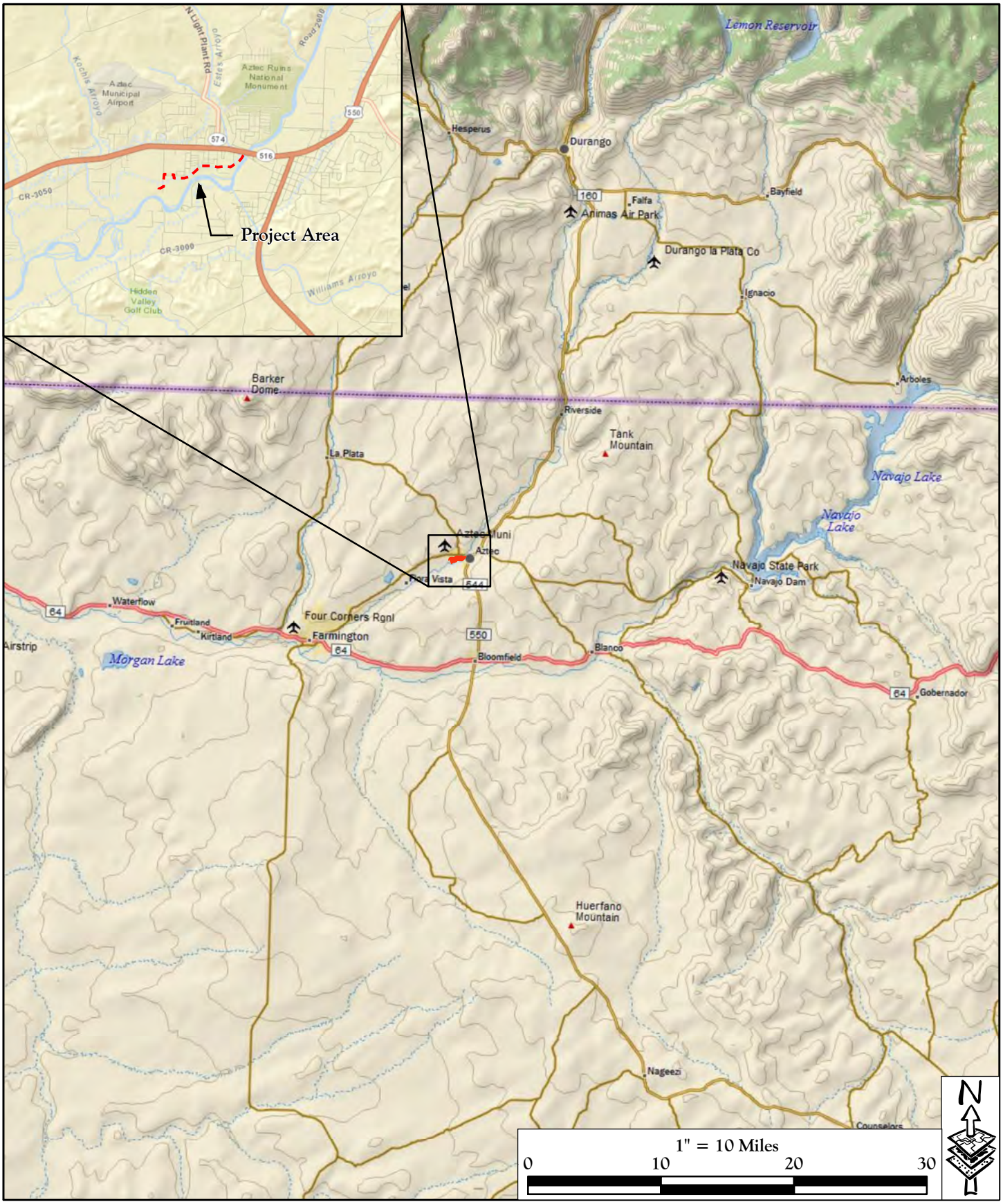
Species Name	Conservation Status	Habitat Associations	Potential to Occur in the Proposed Action Area
Mammals			
Black footed ferret (*Mustela nigripes*)	FE	Grassland plains where it occurs in association with prairie dogs. At a minimum, the black-footed ferret requires prairie dog towns of at least 80 acres for suitable habitat.	No known prairie dog colonies are located within the proposed action area.
Canada lynx (*Lynx canadensis*)	FC	Mature subalpine coniferous forests with uneven-aged stands, boulder outcrops, and downed logs.	No subalpine forests occur within the proposed action area; elevation too low. No riparian corridors suitable for migration occur in or near the proposed action area.
Birds			
Southwestern willow flycatcher (*Empidonax traillii extimus*)	FE	Riparian habitats along rivers, streams, or other wetlands with dense growths of willows or other shrubs and medium sized trees.	Limited suitable habitat occurs in and adjacent to the project area.
Mexican spotted owl (*Strix occidentalis lucida*)	FT	Mature montane forest and in shaded, woody, and steep canyons.	No montane forests are located within the project or analysis area.
Whooping crane (*Grus americana*)	Experimental, non-essential population; Rocky Mountain population	Nests at shallow diatom ponds that contain bulrush. Migration: wetland mosaics most suitable. Feeding: primarily use shallow, seasonally and semi permanently flooded palustrine wetlands for roosting, and various cropland and emergent wetlands.	No suitable wet areas or cropland occur in or near the analysis area. Rocky Mountain experimental population has been discontinued.
Yellow-billed cuckoo (*Coccyzus americanus*)	FC	Low to mid-elevation riparian woodlands, deciduous woodlands, and abandoned farms and orchards.	There are no large, mature cottonwood galleries with a dense understory within the project or analysis area.
Fish			
Colorado pikeminnow (*Ptychocheilus lucius*)	FE	Large rivers with strong currents, deep pools, and quiet backwaters.	Nearby Animas River provides potential habitat. No perennial water sources would be impacted by the proposed action. Furthermore, there would be no depletions associated with the proposed project.
Razorback sucker (*Xyrauchen texanus*)	FE	Habitats include slow areas, backwaters and eddies of medium to large rivers; impoundments.	Nearby Animas River provides potential habitat. No perennial water sources would be impacted by the proposed action. Furthermore, there would be no depletions associated with the proposed project.

Species Name	Conservation Status	Habitat Associations	Potential to Occur in the Proposed Action Area
Roundtail chub (*Gila robusta*)	FC	Occurs in cool to warm water, mid-elevation streams and rivers with deep pools adjacent to swifter riffles and runs. Cover is usually present (large boulders, tree rootwads, submerged large trees, etc.)	Nearby Animas River provides potential habitat. No perennial water sources would be impacted by the proposed action.
Plants			
Knowlton's cactus (*Pediocactus knowltonii*)	E	Alluvial deposits that form rolling, gravelly hills in piñon-juniper and sagebrush communities (6,200-6,400 ft.). Distribution restricted to 25 acre locality near La Boca, CO.	Soils in the PAA are sandy, clayey, or loamy in texture and do not contain a high content of organic matter. PAA is outside of type locality.
Mancos milkvetch (*Astragalus humillimus*)	E	Cracks of Point Lookout Sandstone of the Mesa Verde series (5,000-6,000 ft.).	Point Lookout Sandstone does not occur in the PAA.
Mesa Verde cactus (*Sclerocactus mesae-verde*)	T	Highly alkaline soils in sparse shale or adobe clay badlands of the Mancos and Fruitland formations (4,000-5,550 ft.).	PAA geology does not consist of Mancos or Fruitland Shale Formations.

USFWS 2012

Table 3. New Mexico Listed Threatened & Endangered Species Most Likely to Occur in San Juan County, New Mexico. NM-T=Threatened or NM-E=Endangered.

Species Name	Conservation Status	Habitat Associations	Potential to Occur in the Proposed Action Area (PAA)
Mammals			
Spotted bat (*Euderma maculatum*)	NM-T	Roost sites are cracks, crevices, and caves, usually high in fractured rock cliffs. Found in desert to sub-alpine meadows, including desert-scrub, piñon-juniper woodland, ponderosa pine, mixed conifer forest, canyon bottoms, rims of cliffs, riparian areas, fields, and open pasture. Known to forage up to 25 miles from roost.	Proposed action area (PAA) contains suitable habitat for foraging. PAA does not contain suitable rocky/cliff habitat for roosting.
Birds			
Brown pelican (*Pelecanus occidentalis*)	NM-E	Usually found in marine habitats in warmer waters in North America. Feeds exclusively on fish. Most occurrences in the state are presumed to be of storm-driven birds that moved inland under duress.	PAA includes the Animas River. However, immediate project area is far enough removed from the Animas River as to not be within potential habitat for the species.
American peregrine falcon (*Falco peregrinus anatum*)	NM-T	Open country near lakes or rivers with rocky cliffs and canyons. Tall city bridges and buildings also inhabited.	PAA contains suitable habitat for foraging, however no preferred nest sites are available in the PAA.
Bald eagle (*Haliaeetus leucocephalus*)	NM-T	Near lakes, rivers and cottonwood galleries. Nests near surface water in large trees. May forage terrestrially in winter.	PAA provides roosting and foraging opportunities. While suitable nesting habitat is also present, no bald eagles are known to have nested in the area or in the county.
Gray vireo (*Vireo vicinior*)	NM-T	In northwestern New Mexico, found primarily within mixed piñon-juniper woodland.	No significant piñon-juniper woodland habitat exists in the PAA.
Plants			
Brack's hardwall cactus (*Sclerocactus cloveriae ssp. brackii*)	NM-E	Sandy clay of the Nacimiento Formation in sparse shadscale scrub (5,000-6,000 ft).	Nacimiento formation soils do not occur in the PAA.
Aztec gilia (*Aliciella formosa*)	NM-E	Salt desert scrub communities in soils of the Nacimiento Formation (5,000-6,000 ft).	Nacimiento formation soils do not occur in the PAA.
Parish's alkali grass (*Puccinellia parishii*)	NM-E	Alkaline springs, seeps, and seasonally wet areas that occur at the heads of drainages or on gentle slopes. Requires continuously damp soils during its late winter to spring growing period	No potential habitat in PAA due to lack of alkaline springs, seeps, or seasonally wet areas. Wet areas in the PAA did not appear to have the surface crusts of salt associated with potential habitat for this species.
Goodding's onion (*Allium gooddingii*)	NM-E	Typically found in mature forests, along north-trending drainage bottoms associated with perennial, intermittent and ephemeral stream courses in mixed-conifer and spruce-fir zones at elevations ranging from 7,000-9,400 ft. elevation	No potential habitat in PAA due to low elevation, lack of habitat.



SME ENVIRONMENTAL CONSULTANTS 679 E. 2nd Ave. - Unit E2 Durango, Colorado 81301 www.sme-env.com (970) 259-9595	ROAD/VICINITY MAP	FIGURE 1
	AZTEC SEWER OUTFALL LINE BIOLOGICAL ASSESSMENT	*Sources: ESRI, DeLorme, AND, Tele Atlas, First American, ESRI Japan, UNEP-WCMC, USGS, METI, ESRI Hong Kong, ESRI Thailand, Procalculo Prosis*

PROJECT LOCATION:

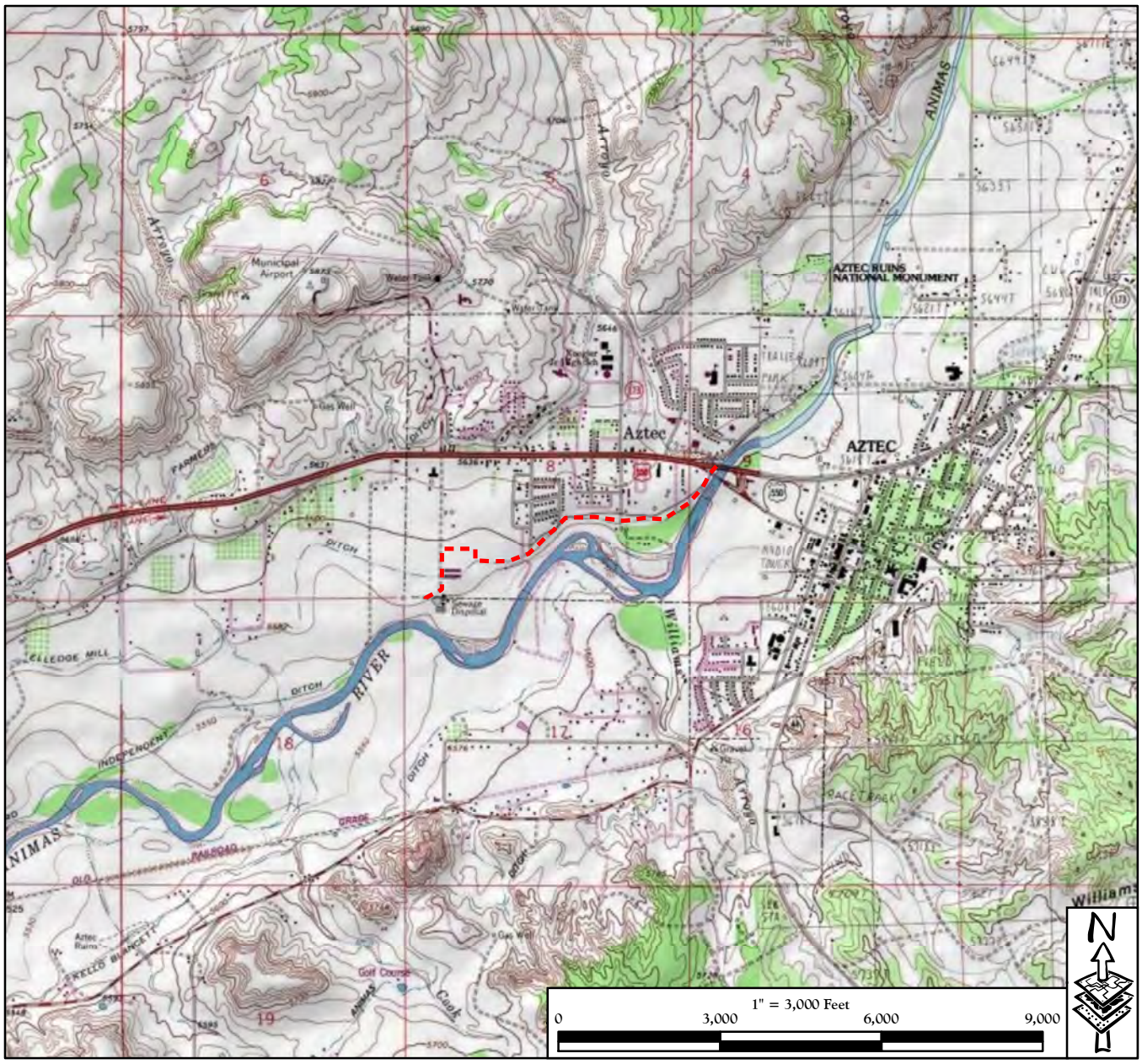
Township 30 North, Range 11 West,
Sections 8, 9, and 17,
NMPM, San Juan County, New Mexico.

Western Terminus:
Lat: 36° 49' 10.2" N Long: 108° 01' 18.3" W

Eastern Terminus:
Lat: 36° 49' 34.9" N Long: 108° 00' 12.0" W

Legend

Proposed Sewer Line



SME
ENVIRONMENTAL CONSULTANTS
679 E. 2nd Ave. - Unit E2
Durango, Colorado 81301
www.sme-env.com (970) 259-9595

PROJECT LOCATION MAP

AZTEC SEWER OUTFALL LINE
BIOLOGICAL ASSESSMENT

FIGURE 2

Source: Aztec & Flora Vista, New Mexico 7.5' USGS Quadrangles

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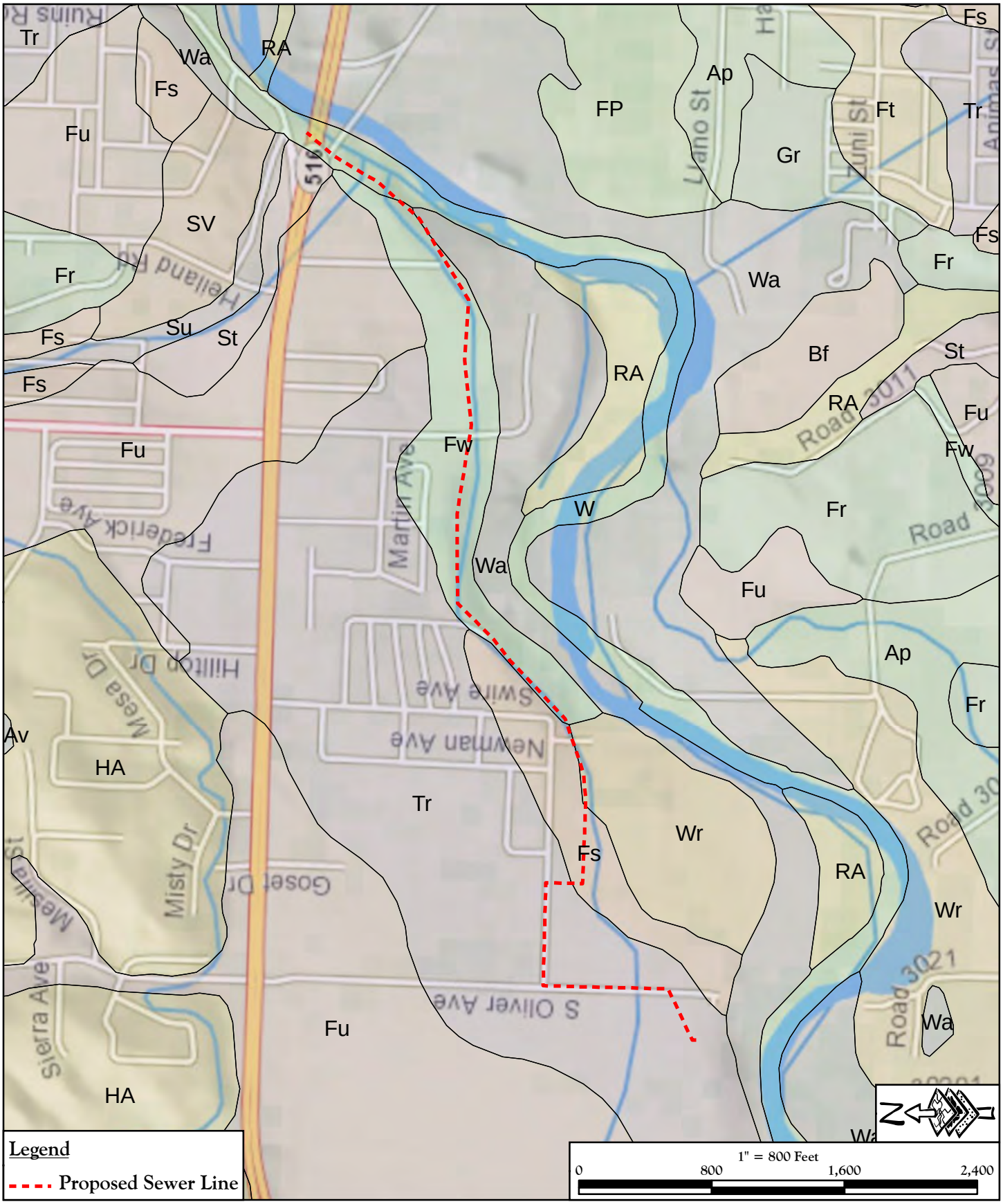
ENVIRONMENTAL CONSULTANTS
679 E. 2nd Ave. - Unit E2
Durango, Colorado 81301
www.sme-env.com (970) 259-9595

AERIAL SITE MAP

AZTEC SEWER OUTFALL LINE
BIOLOGICAL ASSESSMENT

FIGURE 3

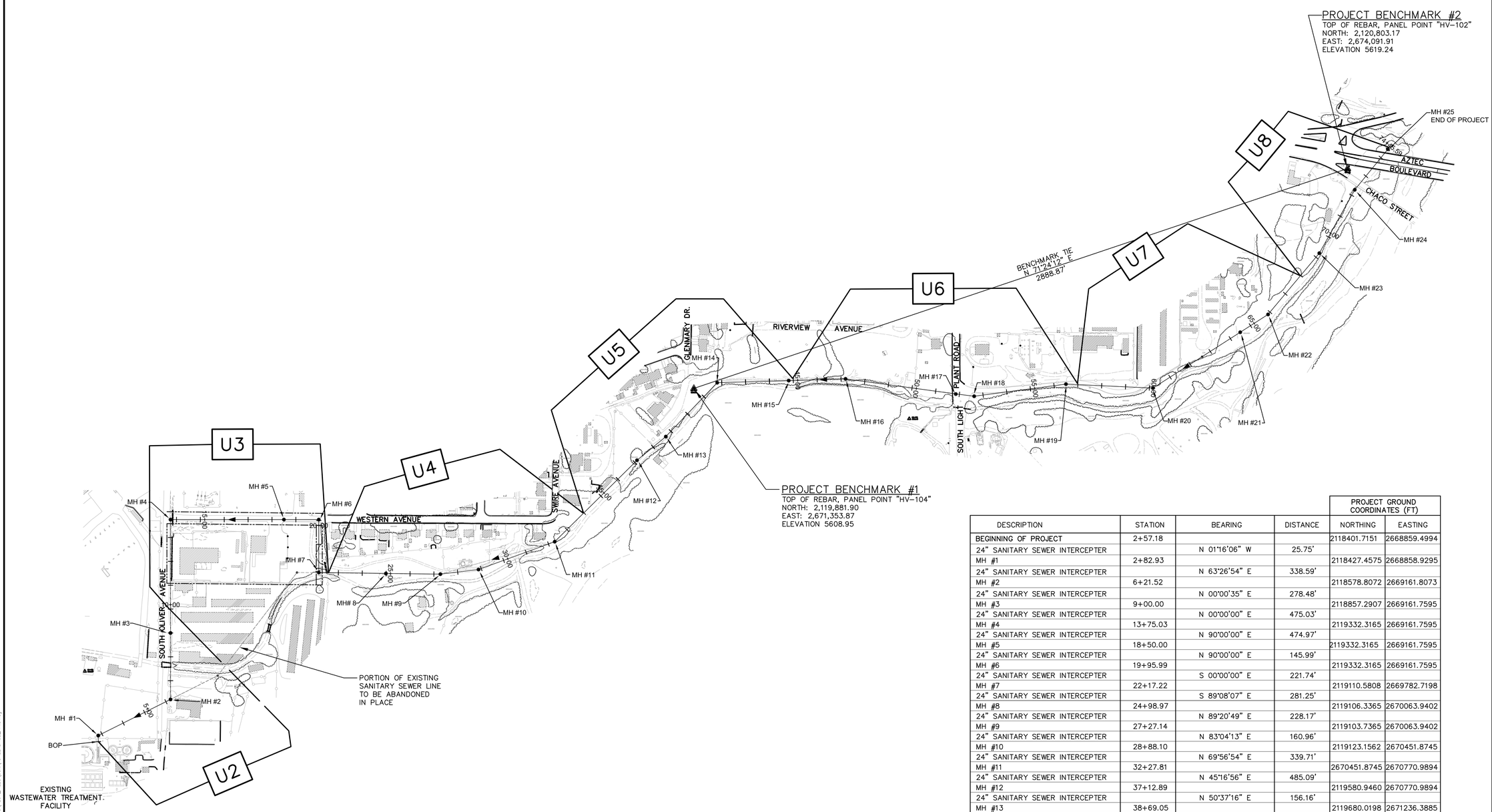
Source: Aerial Photo Taken in 2011 Provided by National Agriculture Imagery Program (USDA).



SME ENVIRONMENTAL CONSULTANTS 679 E. 2nd Ave. - Unit E2 Durango, Colorado 81301 www.sme-env.com (970) 259-9595	SOILS MAP AZTEC SEWER OUTFALL LINE BIOLOGICAL ASSESSMENT	FIGURE 4 *Source: Photo Taken in 2012 Provided by N.A.I.P. (USDA). Soils Data Provided by NRCS Web Soils Survey.*

ATTACHMENT A

PLAN DRAWINGS
(Sheet U1)



DESCRIPTION	STATION	BEARING	DISTANCE	PROJECT GROUND COORDINATES (FT) NORTHING	EASTING
BEGINNING OF PROJECT	2+57.18			2118401.7151	2668859.4994
24" SANITARY SEWER INTERCEPTER		N 01°16'06" W	25.75'		
MH #1	2+82.93			2118427.4575	2668858.9295
24" SANITARY SEWER INTERCEPTER		N 63°26'54" E	338.59'		
MH #2	6+21.52			2118578.8072	2669161.8073
24" SANITARY SEWER INTERCEPTER		N 00°00'35" E	278.48'		
MH #3	9+00.00			2118857.2907	2669161.7595
24" SANITARY SEWER INTERCEPTER		N 00°00'00" E	475.03'		
MH #4	13+75.03			2119332.3165	2669161.7595
24" SANITARY SEWER INTERCEPTER		N 90°00'00" E	474.97'		
MH #5	18+50.00			2119332.3165	2669161.7595
24" SANITARY SEWER INTERCEPTER		N 90°00'00" E	145.99'		
MH #6	19+95.99			2119332.3165	2669161.7595
24" SANITARY SEWER INTERCEPTER		S 00°00'00" E	221.74'		
MH #7	22+17.22			2119110.5808	2669782.7198
24" SANITARY SEWER INTERCEPTER		S 89°08'07" E	281.25'		
MH #8	24+98.97			2119106.3365	2670063.9402
24" SANITARY SEWER INTERCEPTER		N 89°20'49" E	228.17'		
MH #9	27+27.14			2119103.7365	2670063.9402
24" SANITARY SEWER INTERCEPTER		N 83°04'13" E	160.96'		
MH #10	28+88.10			2119123.1562	2670451.8745
24" SANITARY SEWER INTERCEPTER		N 69°56'54" E	339.71'		
MH #11	32+27.81			2670451.8745	2670770.9894
24" SANITARY SEWER INTERCEPTER		N 45°16'56" E	485.09'		
MH #12	37+12.89			2119580.9460	2670770.9894
24" SANITARY SEWER INTERCEPTER		N 50°37'16" E	156.16'		
MH #13	38+69.05			2119680.0198	2671236.3885
24" SANITARY SEWER INTERCEPTER		N 43°37'13" E	311.88'		
MH #14	41+80.93			2119905.7992	2671451.5481
24" SANITARY SEWER INTERCEPTER		N 88°18'05" E	299.70'		
MH #15	44+80.63			2119914.6822	2671751.1152
24" SANITARY SEWER INTERCEPTER		N 88°18'05" E	238.27'		
MH #16	47+18.90			2119921.7445	2671989.2785
24" SANITARY SEWER INTERCEPTER		S 82°14'39" E	467.30'		
MH #17	51+86.20			2119858.6816	2672452.3016
24" SANITARY SEWER INTERCEPTER		S 82°48'48" E	76.18'		
MH #18	52+62.38			2119849.1510	2672527.8842
24" SANITARY SEWER INTERCEPTER		N 82°28'30" E	387.92'		
MH #19	56+50.30			2119899.9524	2672912.4631
24" SANITARY SEWER INTERCEPTER		S 87°23'11" E	364.75'		
MH #20	60+15.05			2119883.3189	2673276.8328
24" SANITARY SEWER INTERCEPTER		N 57°23'30" E	433.93'		
MH #21	64+48.97			2120117.1590	2673642.3615
24" SANITARY SEWER INTERCEPTER		N 57°20'46" E	138.48'		
MH #22	65+87.45			2120191.8767	2673758.9522
24" SANITARY SEWER INTERCEPTER		N 39°54'37" E	334.60'		
MH #23	69+22.05			2120448.5305	2673973.6265
24" SANITARY SEWER INTERCEPTER		N 29°12'13" E	304.18'		
MH #24	72+26.23			2120714.0481	2674122.0409
24" SANITARY SEWER INTERCEPTER		N 39°11'34" E	219.35'		
MH #25 – END OF PROJECT	74+45.59			2120884.0520	2674260.6568

NOTES:

PLANS DEPICT THE REPLACEMENT OF THE EXISTING SANITARY SEWER MAIN.

A 60' WIDE TEMPORARY CONSTRUCTION EASEMENT SHALL BE OBTAINED BY THE CITY OF AZTEC (30' EACH SIDE OF THE SAS PIPE AS SHOWN HEREIN).

A 30' WIDE PERMANENT PUBLIC UTILITY EASEMENT SHALL BE OBTAINED BY THE CITY OF AZTEC (15' EACH SIDE OF THE SAS PIPE AS SHOWN HEREIN).

N

200 100 0 200 400

SCALE: 1"=200'

NO.	DESCRIPTION	DATE	BY
7			
6			
5			
4		–	–
3	–	–	–
2	–	–	–
1	–	–	–

REVISIONS (OR CHANGE NOTICES)

Designed By:
HUITT-ZOLLARS
Huitt-Zollars, Inc.
Rio Rancho
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3259

Designed For:
CITY OF AZTEC

UTILITY TITLE SHEET

SANITARY SEWER LINE
AZTEC, NEW MEXICO

SCOTT A. EDDINGS
NEW MEXICO
12856
REGISTERED PROFESSIONAL ENGINEER
11/13/12

PROJECT NO. 17-0788-01
DESIGNED BY: SAE
DRAWN BY: LRT
CHECKED BY: SAE
DATE: NOV. 13, 2012
DPW CHK: -

SHEET:
U1

Nov 13, 2012 9:03:06am – User: seddings
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Xrefs: [G:\PROJ\170788101\DWG\PLOT_FILES\U5R\AZTEC_SAS_BASE-02X0.DWG] [G:\PROJ\170788101\DWG\X-01_FILES\U5R\SHEETBASE_RR.DWG]

ATTACHMENT B
PLANTS AND WILDLIFE
IN THE PROJECT AREA

PLANT SPECIES

Scientific Name	**Common Name**
Graminoids	
Achnatherum hymenoides	Indian ricegrass
Agropyron cristatum	crested wheatgrass
Agropyron trachycaulum	slender wheatgrass
Beckmannia syzigachne	slough grass
Bouteloua gracilis	blue grama
Bromus inermis	smooth brome
Bromus tectorum	cheatgrass
Carex praegracilis	clustered field sedge
Carex sp.	sedge
Dactylis glomerata	orchard grass
Echinochloa crus-galli	barnyard grass
Elymus canadensis	Canada wildrye
Equisetum arvense	horsetail
Festuca rubra	red fescue
Hordeum jubatum	foxtail barley
Hippochaete hyemalis	scouring rush
Juncus arcticus	wire rush
Juncus torreyi	Torrey's rush
Muhlenbergia asperifolia	scatchgrass
Pascopyrum smithii	western wheat
Phalaris arundinacea	reed canary grass
Phleum pretense	timothy
Phragmites australis	common reed
Pleuraphis jamesii	galleta grass
Poa sp.	bluegrass
Schoenoplectus pungens	three-square
Typha latifolia	broadleaf cattail
Forbs	
Asclepias speciosa	showy milkweed
Aster spp.	aster
Bassia scoparia	kochia
Carduus nutans	musk thistle
Centaurea repens	Russian knapweed
Cirsium arvense	Canada thistle
Conyza canadensis	Canadian horseweed
Erigonum sp.	wild buckwheat

Erodium cicutarium	redstem filaree
Glycyrrhiza lepidota	wild licorice
Helianthus annuus	sunflower
Medicago sativa	alfalfa
Melilotus officinalis	yellow sweet clover
Plantago lanceolata	lanceleaf plantain
Plantago major	broadleaf plantain
Rumex crispus	curly dock
Sisymbrium altissimum	tall tumble mustard
Solidago canadensis	Canada goldenrod
Taraxacum officinale	dandelion
Trifolium pratense	red clover
Verbascum thapsus	common mullein
Shrubs	
Artemisia frigida	pasture sagebrush
Atriplex canescens	fourwing saltbush
Ephedra torreyana	Mormon tea
Ericameria nauseosa	rubber rabbitbrush
Padus virginiana	chokecherry
Rhus trilobata	skunkbush sumac
Rosa woodsii	Woods' rose
Salix exigua	coyote willow
Sarcobatus vermiculatus	greasewood
Trees	
Acer negundo	box elder
Elaeagnus angustifolia	Russian-olive
Juniperus scopulorum	Rocky Mt. juniper
Populus fremontii	Fremont cottonwood
Ulmus pumila	Siberian elm
Vines	
Clematis ligusticifolia	western white clematis
Toxicodendron rydbergii	western poison ivy

WILDLIFE SPECIES

Scientific Name	**Common Name**
Mammals	
Cynomys gunnisoni	Gunnison's prairie dog
Mephitis mephitis	striped skunk
Odocoileus hemionus	mule deer
Procyon lotor	raccoon
Syvilagus sp.	cottontail rabbit
Urocyon cinereoargenteus	gray fox
Birds	
Branta canadensis	Canada goose

Buteo jamaicensis	red-tailed hawk
Circus cyaneus	northern harrier
Corvus corax	common raven
Haliaeetus leucocephalus	bald eagle
Junco hyemalis	dark-eyed junco
Passer domesticus	house sparrow
Pica pica	black-billed magpie
Picoides pubescens	downy woodpecker
Pipilo maculatus	spotted towhee
Zenaida macroura	mourning dove

ATTACHMENT C

PHOTO DOCUMENTATION

CITY OF AZTEC SEWER OUTFALL LINE

(Photos taken 12/10/09 & 12/11/09 by PH & NK)

Photos progress from east to west along the sewer easement

Photo 1: Sewer Alignment looking SW under bridges near eastern terminus of project Elledge Mill Ditch (EMD) at left.

Photo 3: View of sewer alignment looking SW into Wetland-2, which is dominated by *Salix exigua* and *Phragmites australis.*

Photo 2: Sewer alignment looking SW from same location as photo 2, EMD at left, steep terrace hillside at right.

Photo 4: View of sewer alignment looking SW into terrace slope Rosa woodsii (red shrub) and Rhus trilobata (tall grey).

Photo 5: Panoramic view looking SE to SW at 10 acre willow/cottonwood complex located adjacent to the south side of the sewer easement which tightly parallels the EMD in middle of photo.

Photo 6: View of sewer alignment looking E. EMD at right.

Photo 7: View of sewer alignment looking N along South Oliver Ave. near the western terminus.