

# MEMORANDUM

**TO:** Dan DeLange, Boulder County  
**FROM:** Tamara Keefe, Michael Baker International  
**DATE:** May 13, 2015  
**SUBJECT:** Fourmile Canyon Drive (Task Order 3) Wildlife and Tree Memorandum

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## 1.0 Introduction

The Fourmile Canyon Drive Flood Recovery Project is part of the emergency repair work being performed by Boulder County in response to flood events that occurred in September 2013. Boulder County is repairing damage to the roadway along Fourmile Canyon Drive. The purpose of the project is to permanently improve the roadway and drainage in the Fourmile Canyon Drive area.

A public meeting was held at the Alfalfa's Community Room in Boulder, Colorado to discuss the watershed master plan and to provide an update and respond to questions about the permanent roadway design. During this meeting, there were comments made in regards to the proposed guardrail and the possible impacts they may cause to wildlife in the area, as well as concerns for the trees.

**The purpose of this memorandum is to respond to the concerns brought up at the public meeting and to document the existing conditions regarding local wildlife and trees within the proposed project area.**

## 2.0 Project Description

The Fourmile Canyon Drive Flood Recovery Project is located along Fourmile Canyon Drive (CR 118) between Salina Junction and Boulder Canyon Drive (SH 119) approximately 2.5 miles west of Boulder, Colorado (see **Figure 1**). This project is part of the emergency repair work being performed by Boulder County in response to flood events that occurred in September 2013. Fourmile Canyon Drive is approximately 5 miles long and is located in a narrow mountain valley characterized by residential development along the Fourmile Creek Basin.

Figure 1: Project Location Map



Fourmile Canyon Drive  
Project Location Map

5/13/2015

**Legend**

- Project Location
- - - Stream (approximate pre-flood location)

0 1,000 2,000 Feet 1:24,000



The original and existing undamaged roadway width is generally a 20-foot wide paved section. The winter road construction that took place immediately after the floods was a temporary fix to get the roads open and was not meant to be a permanent solution. Permanent repairs are now required to provide roadway and drainage improvements that will meet Boulder County codes and standards and be able to endure future storm events.

The purpose of this project is to permanently improve the roadway and drainage in the Fourmile Canyon Drive area. Boulder County has identified two sections of Fourmile Canyon Drive that need permanent repairs, identified as the “North” and “South” sections (see **Figure 2**). The Fourmile North section starts just south of Salina Junction and extends approximately 3,300 feet southeast. The Fourmile South section starts a mile north of Boulder Canyon Road and extends northwest approximately 3,600 feet to Poorman Road. The proposed project would include a 27-foot wide typical section consisting of a 4-foot bikeable uphill shoulder, two 11-foot lanes, a 1-foot downhill shoulder, and a drainage system which includes drainage inlets, manholes, roadside ditches, offsite ditches, storm drain pipe, riprap and energy dissipaters.

**Table 1** and **Table 2** lists the walls and guardrails for each section of the proposed project. **Figure 3** and **Figure 4** shows the location of the walls and guardrail.

**Table 1: Proposed Walls**

Section	Name	Approximate Length	Approximate Wall Height Range
North	Wall N-1	192 ft	6 ft – 17 ft
	Wall N-2	273 ft	5 ft – 16 ft
	Wall N-3	68 ft	4 ft – 7 ft
	Wall N-4	71 ft	4 ft – 14 ft
South	Wall S-1	191 ft	3 ft – 12 ft
	Wall S-2	232 ft	3 ft – 6 ft

**Table 2: Proposed Guardrail**

Section	Name	Approximate Length
North	Guardrail N-1	238 ft
	Guardrail N-2	295 ft
	Guardrail N-3	374 ft
	Guardrail N-4	32 ft
	Guardrail N-5	53 ft
	Guardrail N-6	138 ft
South	Guardrail S-1	240 ft
	Guardrail S-2	275 ft

Figure 2: North and South Sections

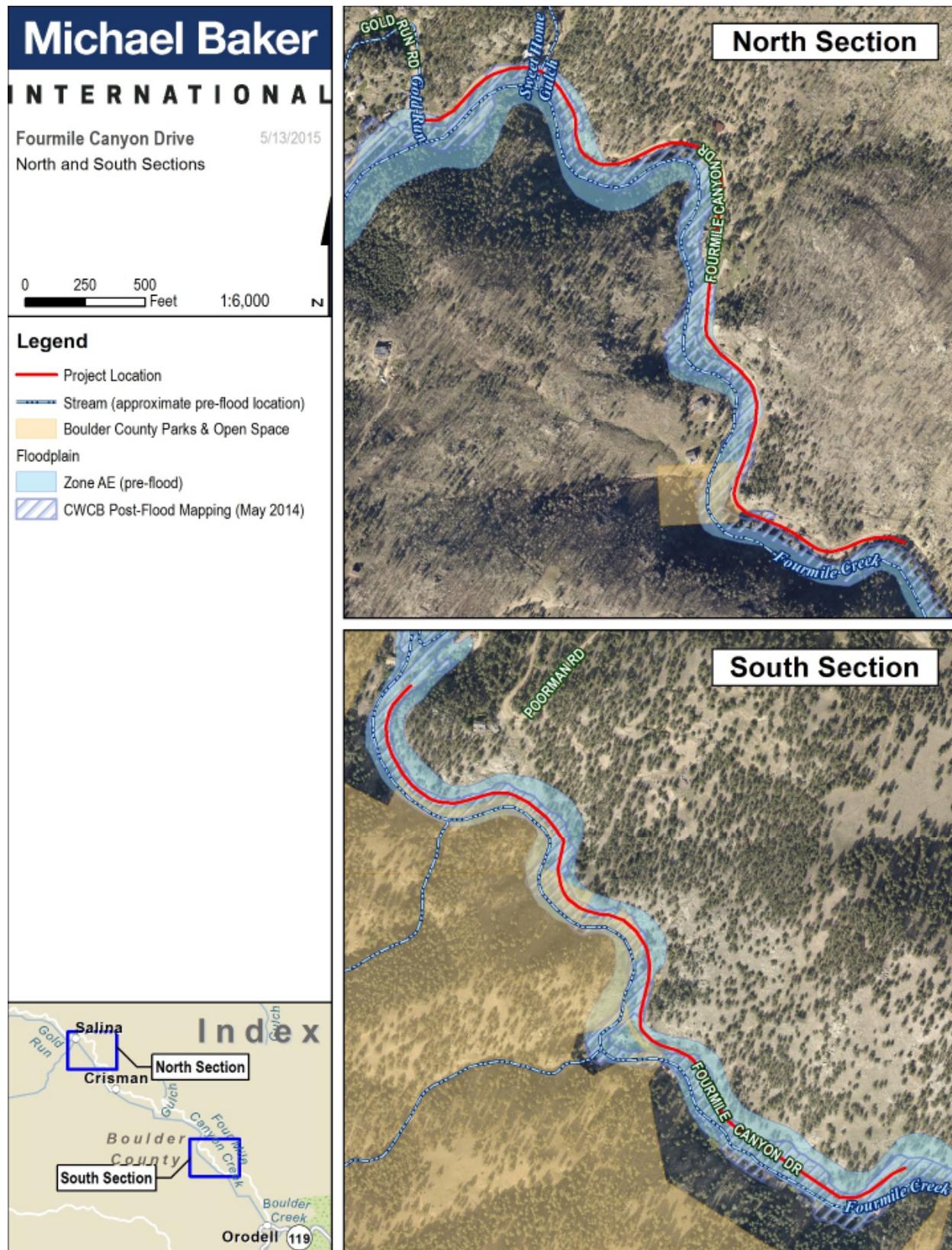


Figure 3: Proposed Walls and Guardrail Locations in North Section

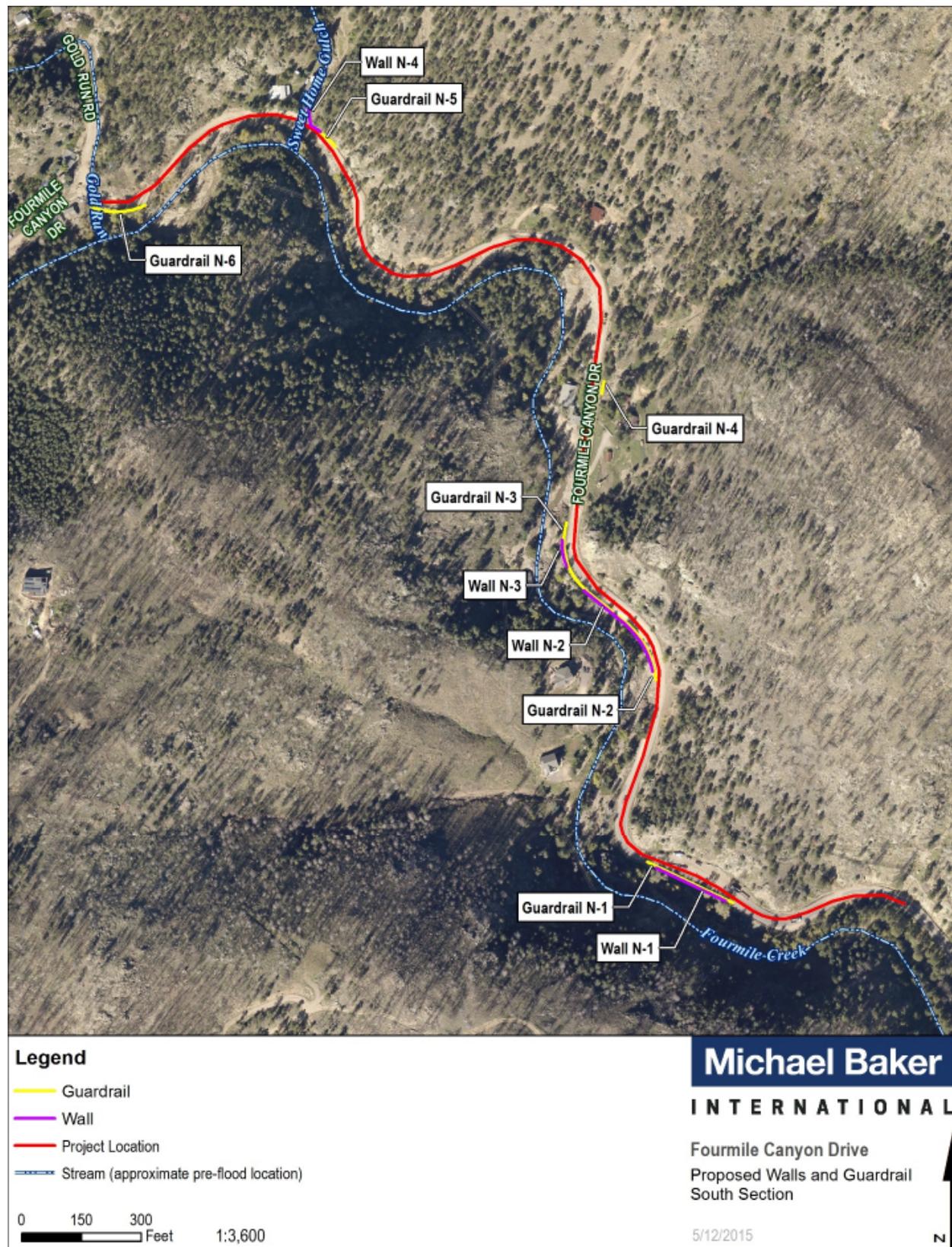
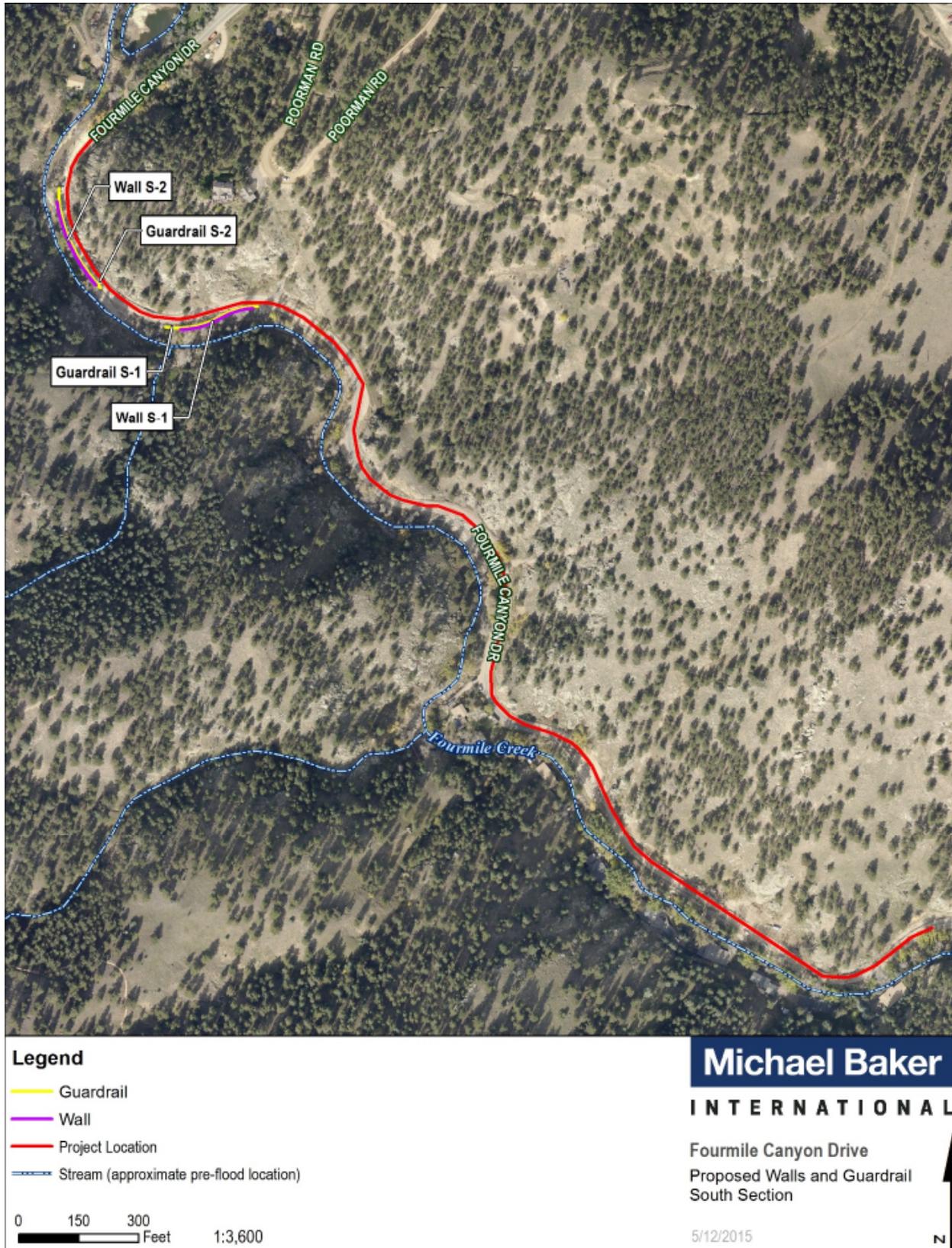


Figure 4: Proposed Walls and Guardrail Locations in South Section



### 3.0 Public Meeting Comments

The public meeting held on September 3, 2014 was to announce the beginning of the watershed master planning process and to provide the community with an update about the permanent roadway design, as well as an opportunity to ask questions pertaining to the proposed roadway design. There were 57 community stakeholders that attended the meeting, in addition to staff from Boulder County and the consultant project team. The following is a list of comments and questions received at the meeting that pertain to wildlife and trees within the proposed project area:

- Can the guardrail be offset/overlapped to give pedestrians/bears breaks?
- Concerns about blocking natural paths for the following animals: Bears, deer, black foxes, squirrels, lynx, fish, and yellow bellied marmot. Foxes are present in the south segment of the project.
- Concern for the apple trees on private property.
- Will trees be cut down for roadway improvements?

This memo will address the comments and concerns of the public in regards to local wildlife being impacted by the proposed walls and guardrails and trees in the area being impacted by construction. The following sections describes the existing wildlife and vegetation within the study area.

### 4.0 Vegetation and Wildlife

#### 4.1 General Wildlife

Common wildlife within the project area includes chipmunks (*Tamias sp.*), rabbits (*Sylvilagus sp.*), mule deer (*Odocoileus hemionus*), elk (*Cervus Canadensis*), and wild turkeys (*Meleagris Gallopavo*). There have also been sightings of mountain lions (*Puma concolor*), moose (*Alces alces*), and black bears (*Ursus americanus*). The study area lies within the Colorado Parks and Wildlife (CPW) designated overall and winter range for elk; overall range for black bear and summer concentration area for black bear in the North Section; overall range for Abert's squirrel (*Sciurus aberti*); overall range for mountain lions; overall, winter, and summer range for mule deer; and overall and winter range for wild turkeys. There are no migration corridors or migration patterns within the proposed project area.

On May 7<sup>th</sup> and May 12<sup>th</sup>, 2015 CPW was contacted to discuss any concerns they may have with walls and guardrails along Fourmile Canyon Drive. **CPW does not have any concerns for any wildlife at this time.**

The proposed project is along an existing roadway; however retaining walls will be constructed adjacent to the roadway, which would present a new barrier to wildlife movement. Effects to wildlife include possible disturbance to normal travel patterns as a result of retaining walls. Wall lengths vary upon location from 68 to 273 ft. The purpose of the new walls is to protect private property and to avoid placing fill into the stream.

The guardrail was limited as much as possible; however, there are areas where it is required for safety. The current typical section provides 3 feet between the edge of pavement and the face of the guardrail on the creek side.

Since wildlife frequenting the sites will be able to go around either end of the guardrails and walls and create new travel patterns, this project is unlikely to permanently impact or cause displacement to wildlife species in the area.

During construction, wildlife may avoid the area, but this will be temporary and wildlife can return to the area once construction is complete. There may be a temporary increase in sediment during construction, however best management practices (BMPs) and a Storm Water Management Plan (SWMP) will be put into place prior to construction to minimize any sediment entering wetlands or waterways.

## 4.2 Vegetation

The vegetation present is typical for a mountain terrain habitat. Elevations within the project area range from 5,863 ft to 6,637 ft. Dominant trees within the project area include Ponderosa pine (*Pinus ponderosa*) and Douglas fir (*Pseudotsuga menziesii*) with some aspen (*Populus tremuloides*), narrowleaf cottonwood (*Populus angustifolia*), Siberian elm (*Ulmus pumila*), Rocky Mountain juniper (*Juniperus scopulorum*), and several species of willow (*Salix* sp.). Trees near private residences also included apple trees (*Malus pumila*), choke cherry (*Prunus virginiana*), Lilac (*Syringa* sp.), wild plum (*Prunus Americana*), and Russian olive (*Elaeagnus angustifolia*). See **Figure 5** and **Figure 6** for typical trees within the study area.

The roadway was designed to minimize impacts to vegetation where possible and to preserve the natural terrain, drainage, existing topsoil and vegetation including tree masses and large individual trees. Removal of existing trees and vegetation during construction will be limited. The proposed project will avoid unnecessary removal of trees and excessive excavations.

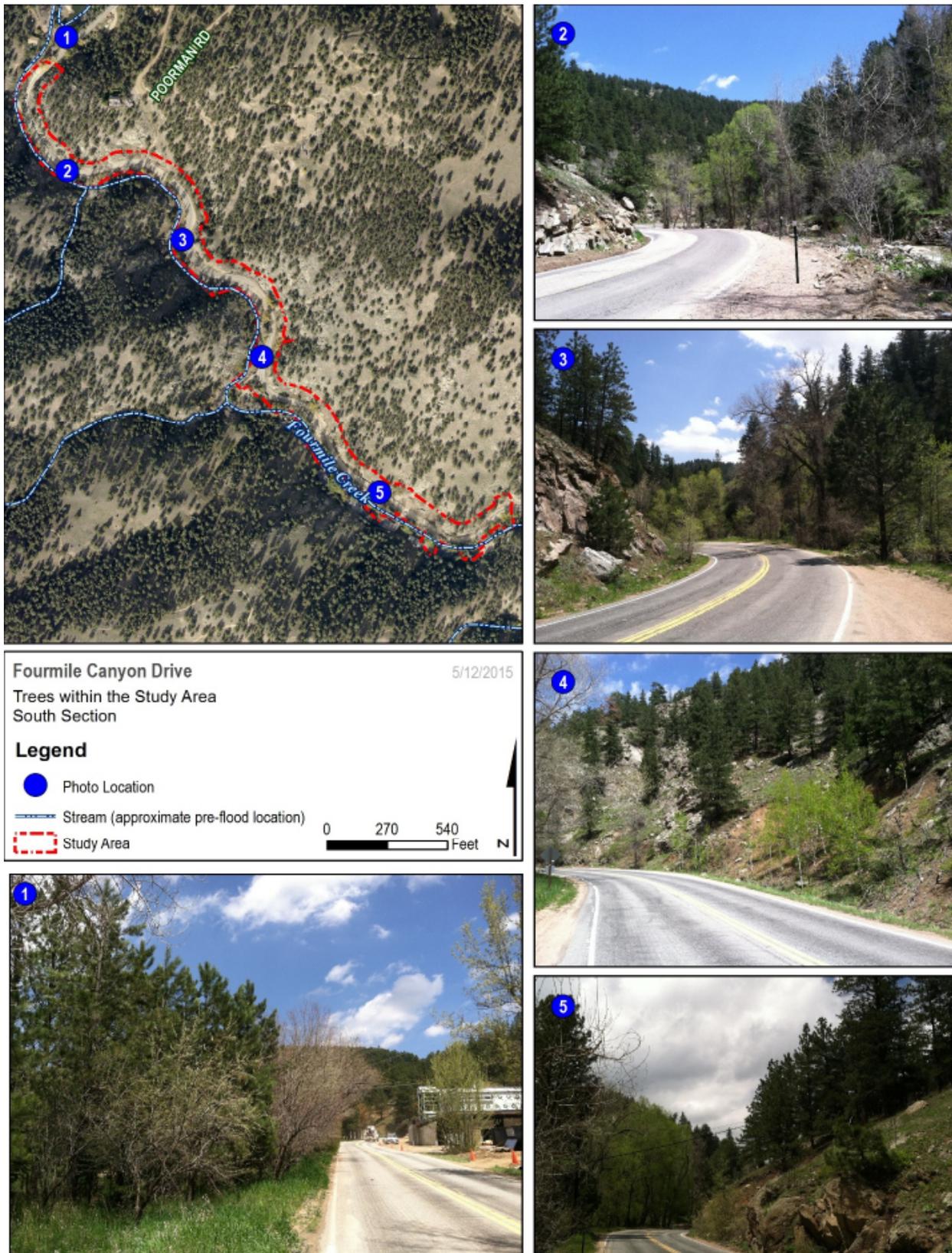
Access routes, staging areas, etc. will be located within previously disturbed areas to the extent possible. Disturbed areas will be restored using native plant materials. It is recommended that trees removed in construction would be replaced at a minimum 2 to 1 level, however tree replacement may be negotiated with individual land owners. Trees are defined as woody stemmed vegetation that exceeds 4 inch diameter at breast height (dbh). Woody stemmed vegetation below a 4 inch dbh would not be included in the replacement.

Since the impacts to vegetation and trees within the study area will be limited to the extent possible and all disturbed areas will be restored, as well as mitigating for removal of trees during construction, this project is unlikely to have a permanent impact to vegetation, including trees.

Figure 5: North Section Typical Tree Photos



Figure 6: South Section Typical Tree Photos



## 5.0 References

Colorado Natural Heritage Program (CNHP). 2014. ESRI L4 Geodatabase Statewide Elements by Quad. <http://www.cnhp.colostate.edu/download/gis.asp> Accessed April 2015.

Colorado Parks and Wildlife (CPW).

2014. All Species Activity Mapping Data. Modified December 4, 2014. <http://www.arcgis.com/home/item.html?id=190573c5aba643a0bc058e6f7f0510b7> Accessed April 2015.

2015. May 7, 2015. Phone conversation with CPW Fort Collins Office regarding possible concerns with walls and guardrails on wildlife.