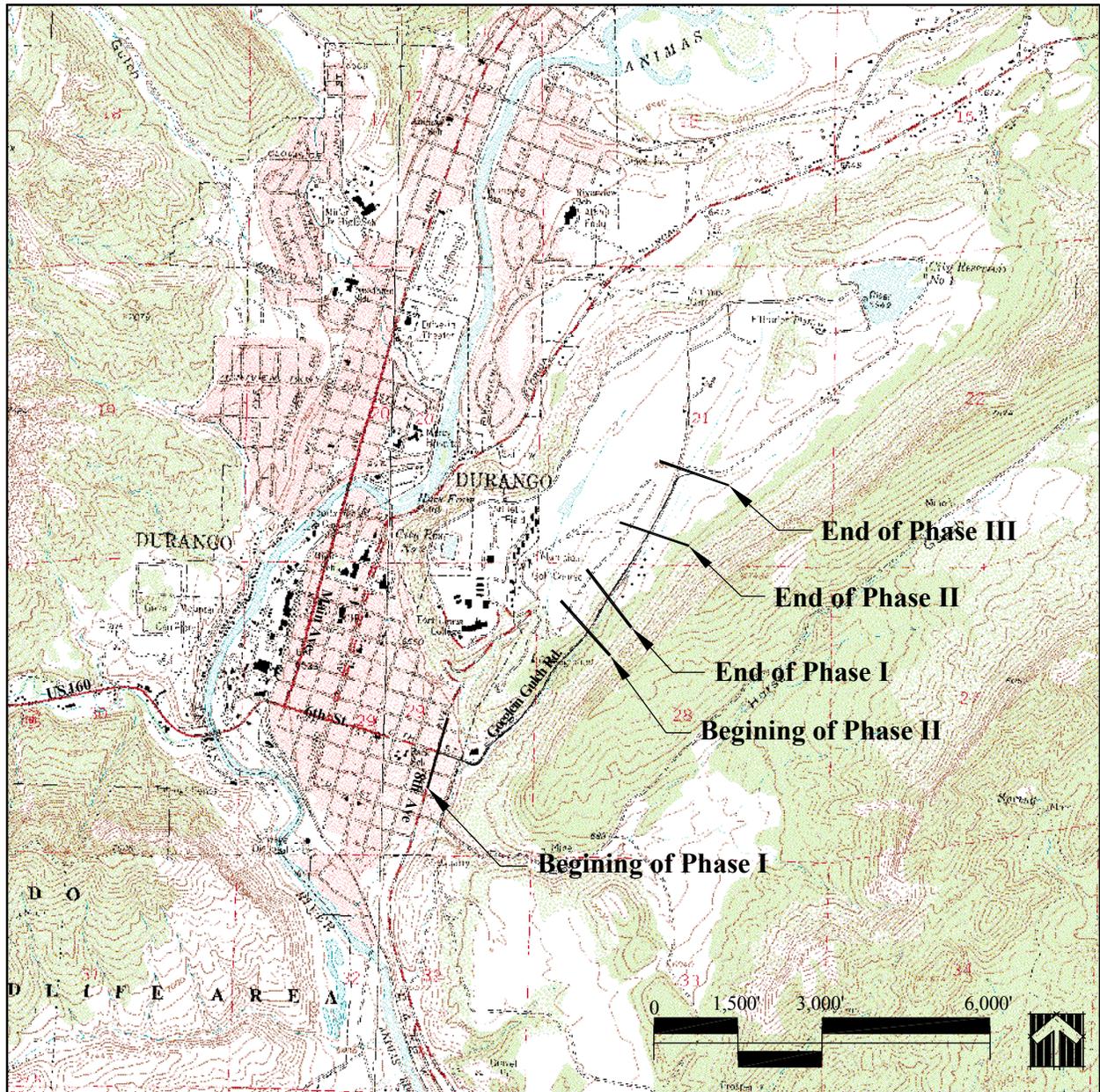
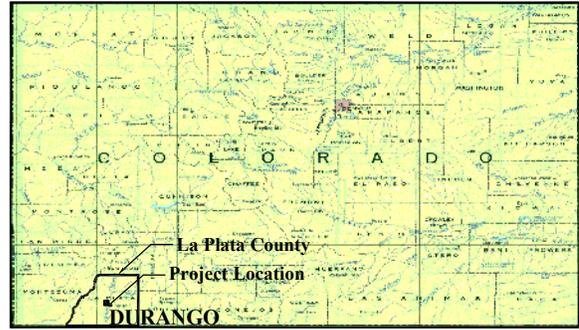


**PROJECT LOCATION:**

*Sections 21, 28 & 29, Township 35 North,  
Range 9 West, New Mexico Principal  
Meridian, La Plata County, Colorado.*



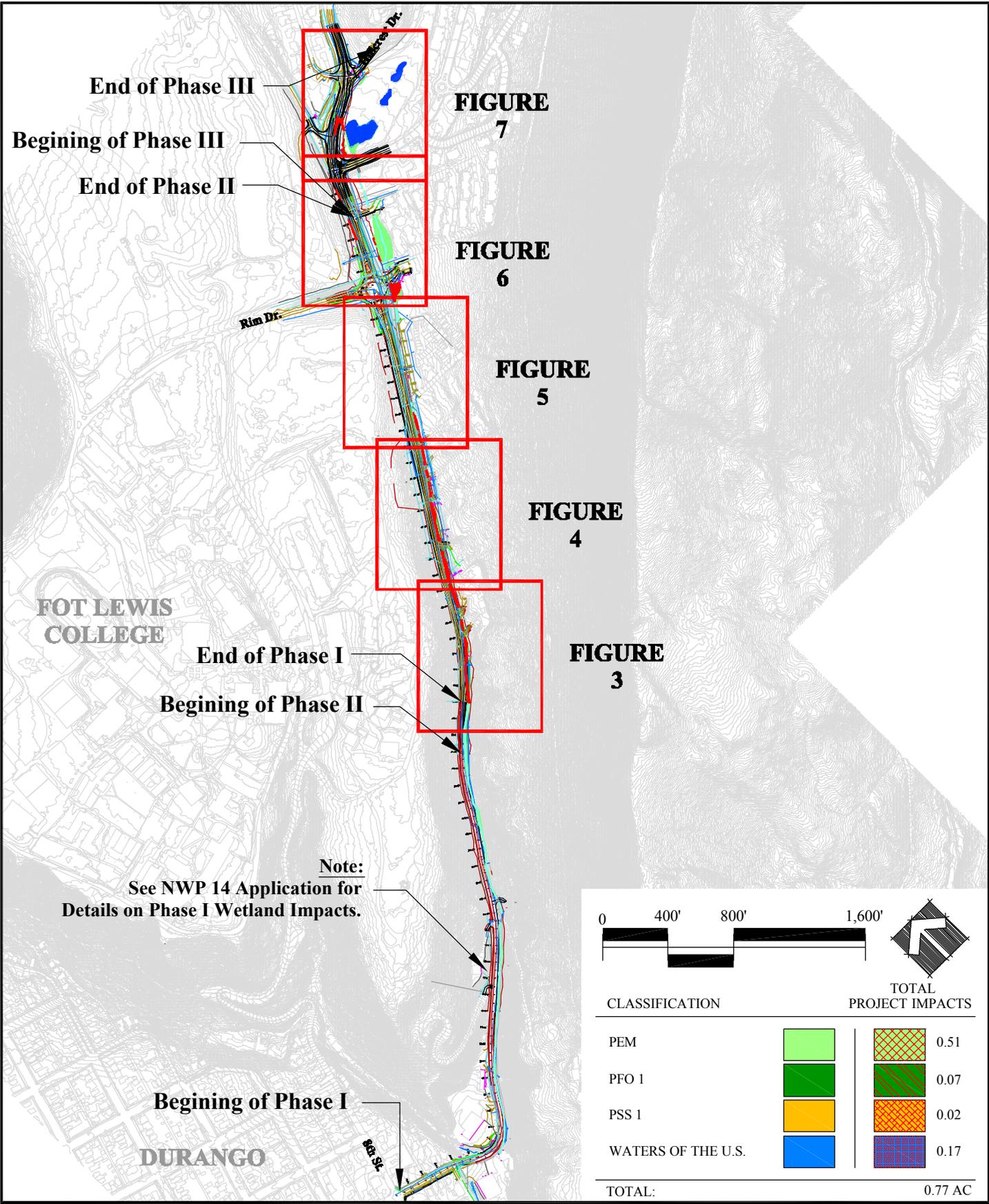
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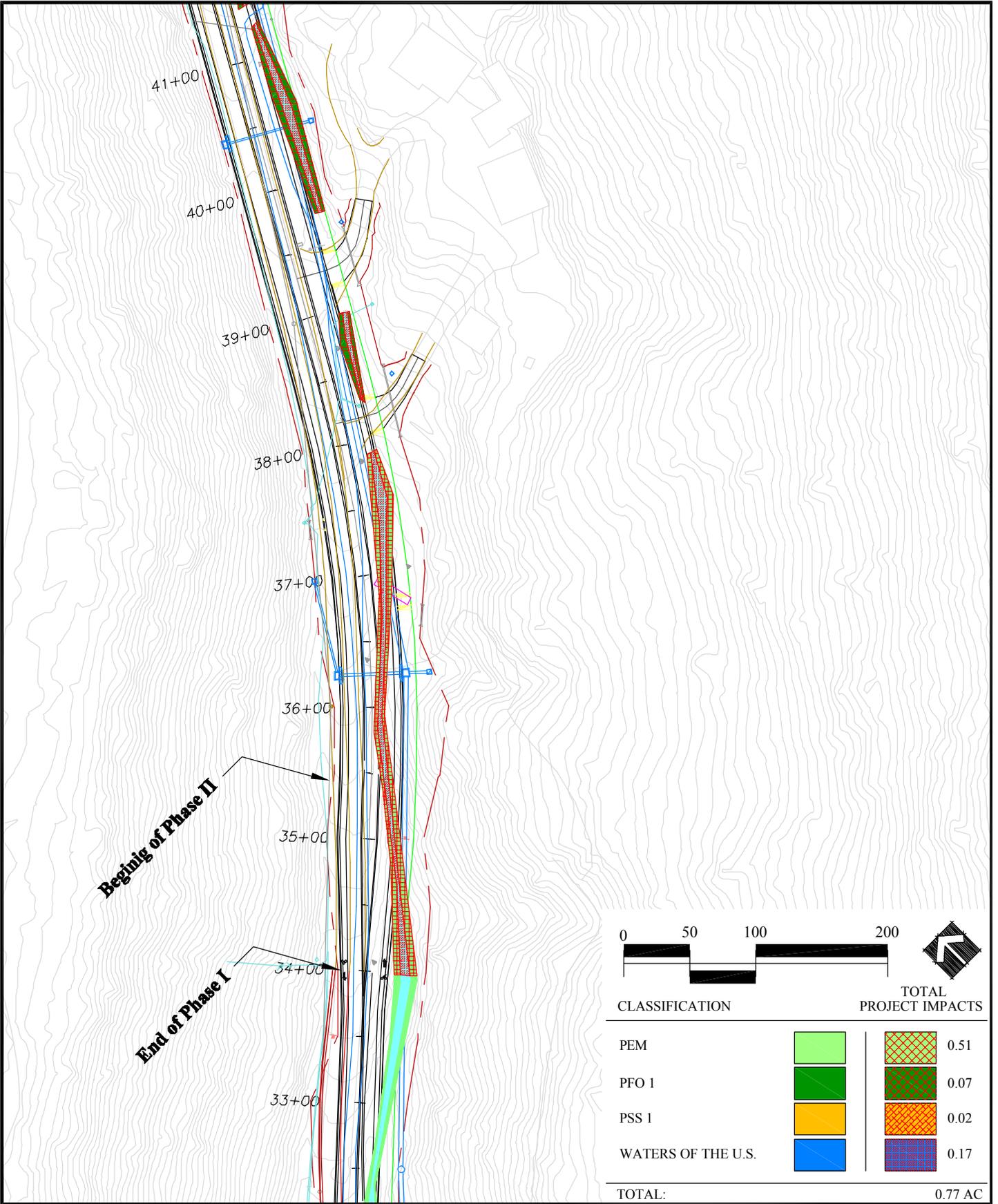
**PROJECT LOCATION  
& VICINITY MAP**  
**GOEGLIN GULCH RD**  
**INDIVIDUAL 404 PERMIT**

**FIGURE 1**

*Source: Durango East & West,  
Colo. 7.5' USGS Quadrangles*



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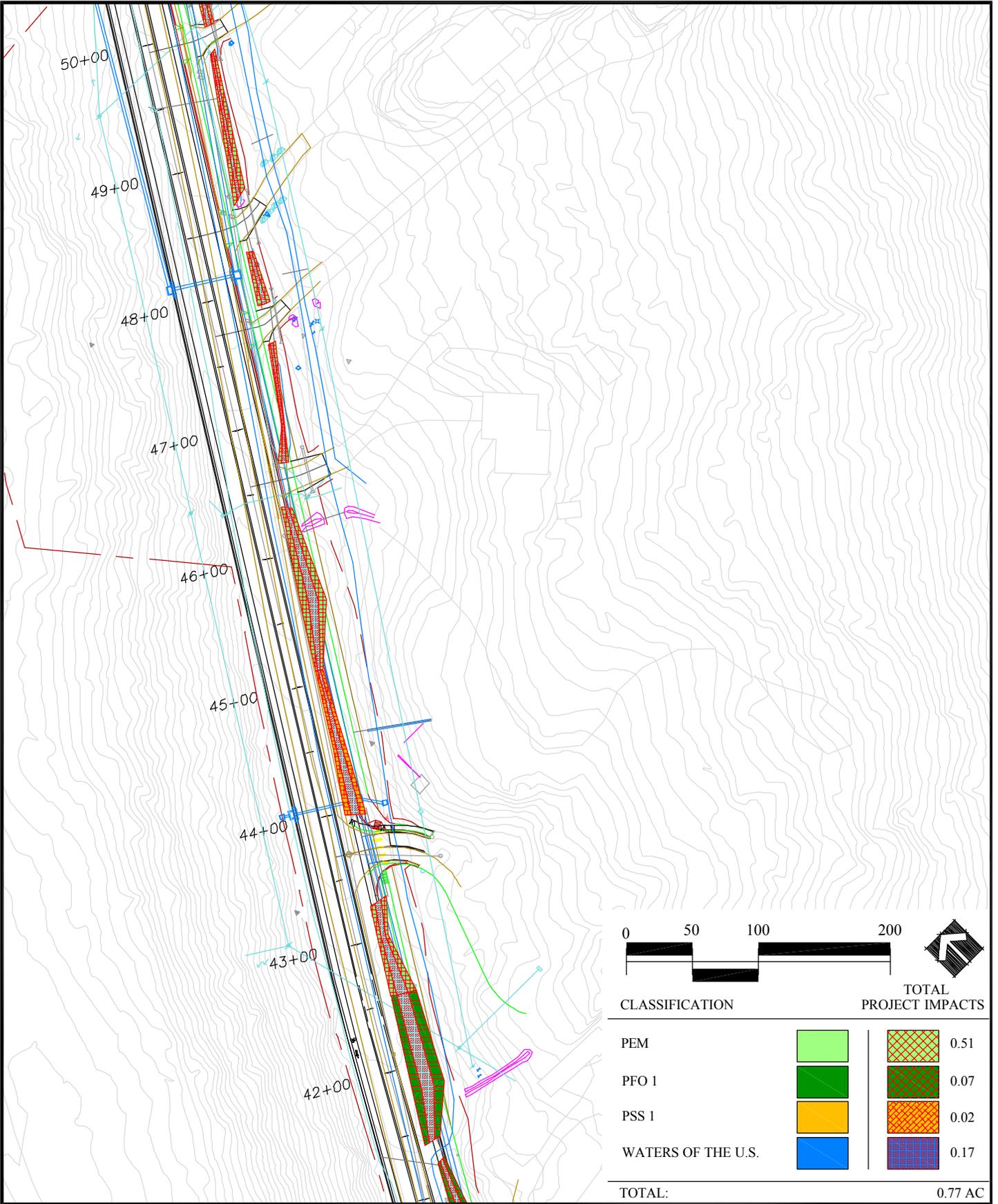


**SUGNET and ASSOCIATES**  
Environmental Planning / Landscape Architecture

**IMPROVEMENT PLAN & PROPOSED IMPACTS TO WATERS OF THE U.S.**  
**GOOGLEIN GULCH RD**  
**INDIVIDUAL 404 PERMIT**

**FIGURE 3**  
Digital topographic, planimetric and land use data provided by Bechtolt Surveying & Engineering

\\Projects\04\0055 Goglein Gulch\CAD\PhaseII\Figures\Figures2-7-9\_12\_06.dwg, 9/13/2006 3:47:15 PM

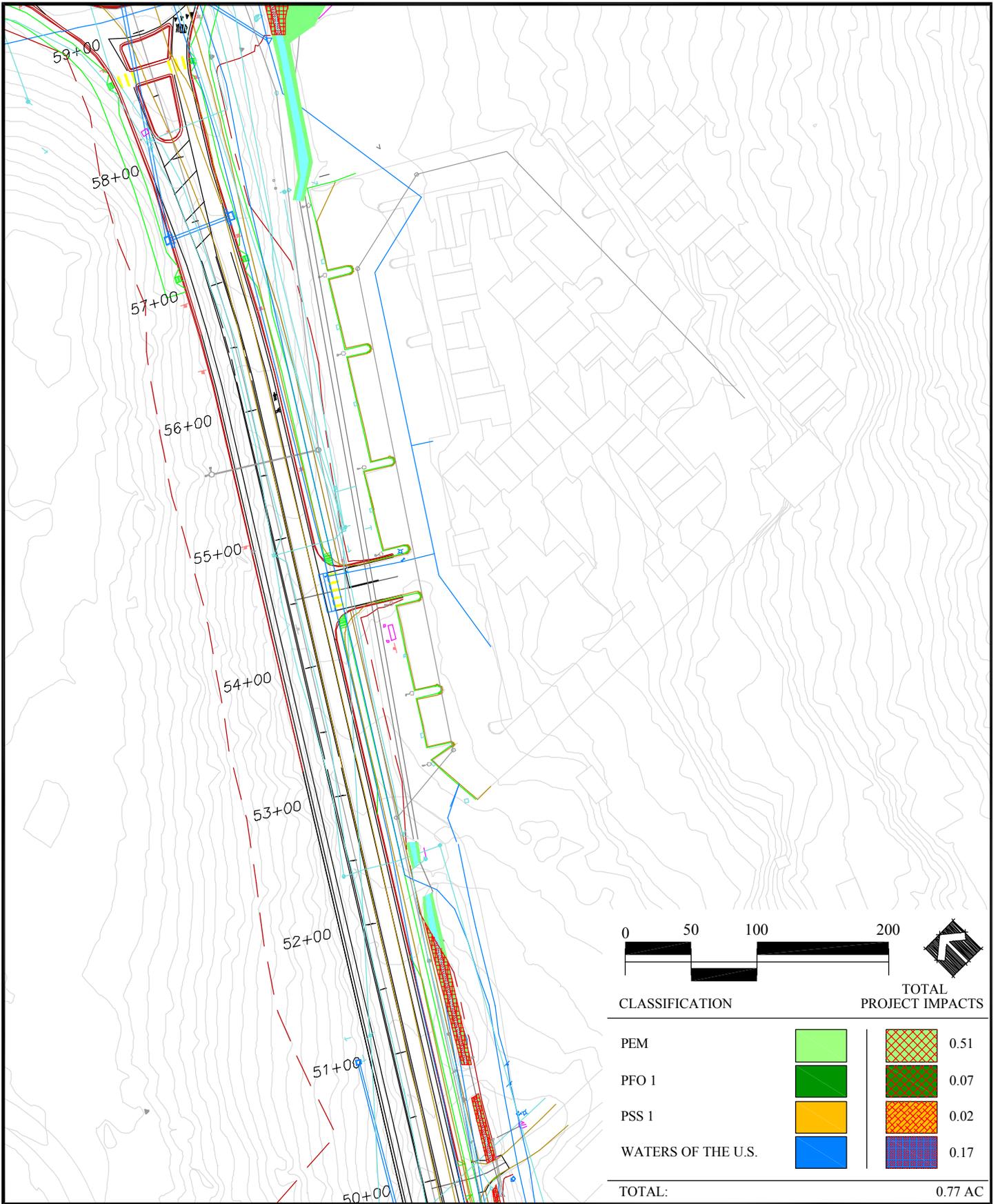


**SUGNET and ASSOCIATES**  
Environmental Planning / Landscape Architecture

**IMPROVEMENT PLAN & PROPOSED IMPACTS TO WATERS OF THE U.S.**  
**GOGLEIN GULCH RD**  
**INDIVIDUAL 404 PERMIT**

**FIGURE 4**  
Digital topographic, planimetric and land use data provided by Bechtolt Surveying & Engineering

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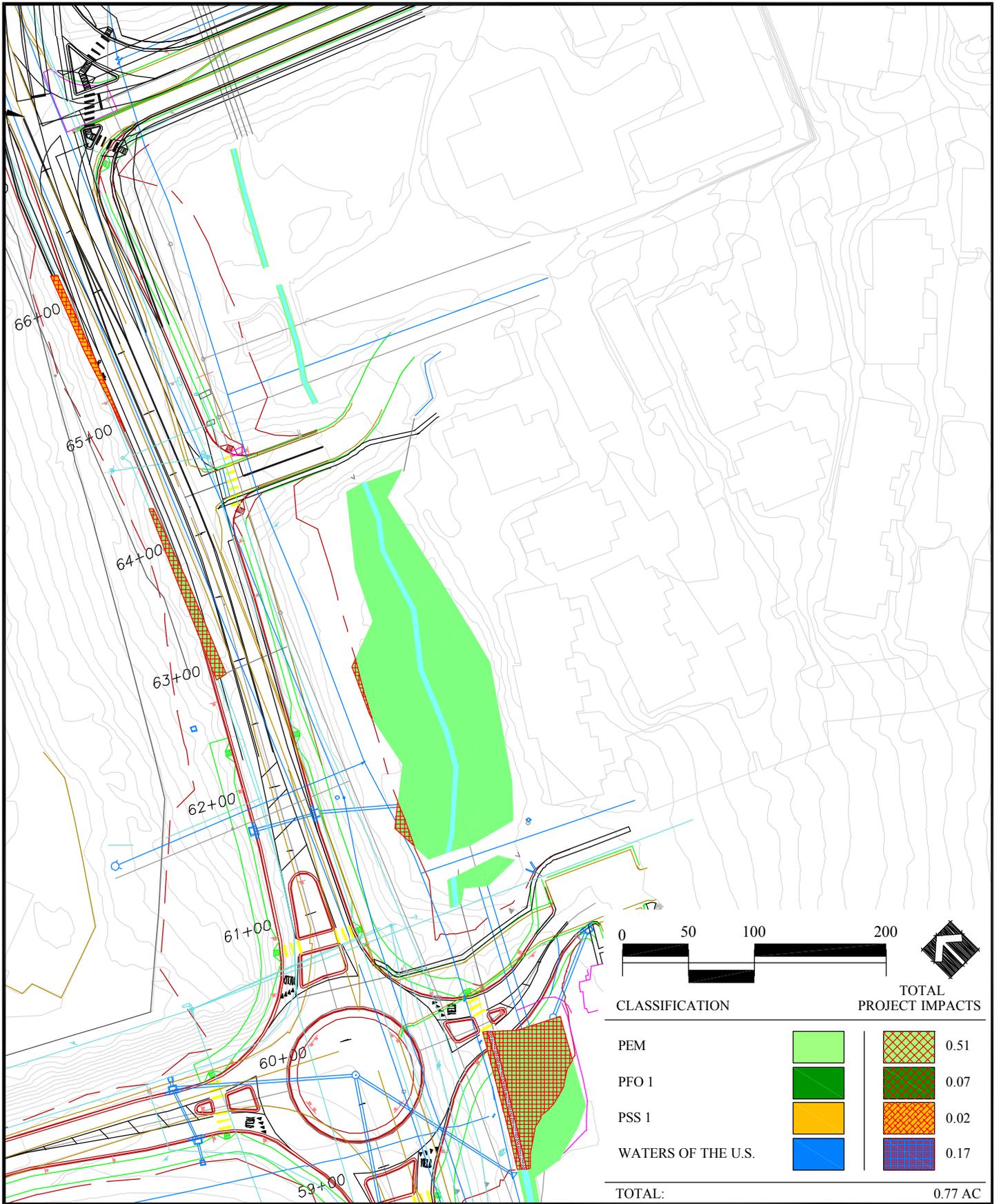
**SUGNET and ASSOCIATES**  
Environmental Planning / Landscape Architecture

**IMPROVEMENT PLAN & PROPOSED IMPACTS TO WATERS OF THE U.S.**

**GOGLEIN GULCH RD  
INDIVIDUAL 404 PERMIT**

**FIGURE 5**

Digital topographic, planimetric and land use data provided by Bechtolt Surveying & Engineering



**SUGNET and ASSOCIATES**  
Environmental Planning / Landscape Architecture

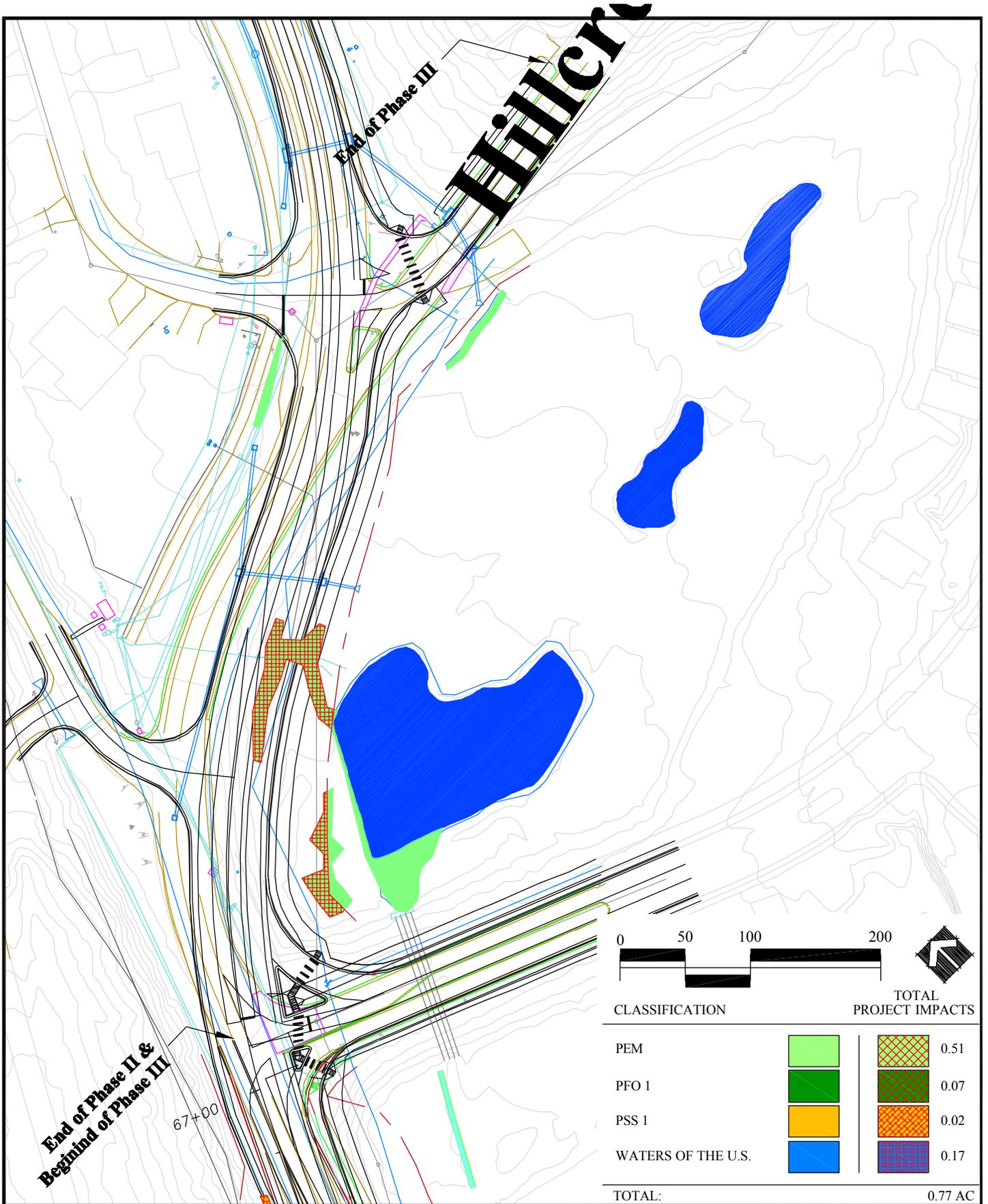
**IMPROVEMENT PLAN & PROPOSED IMPACTS TO WATERS OF THE U.S.**

**GOGLEIN GULCH RD  
INDIVIDUAL 404 PERMIT**

**FIGURE 6**

Digital topographic, planimetric and land use data provided by Bechtolt Surveying & Engineering

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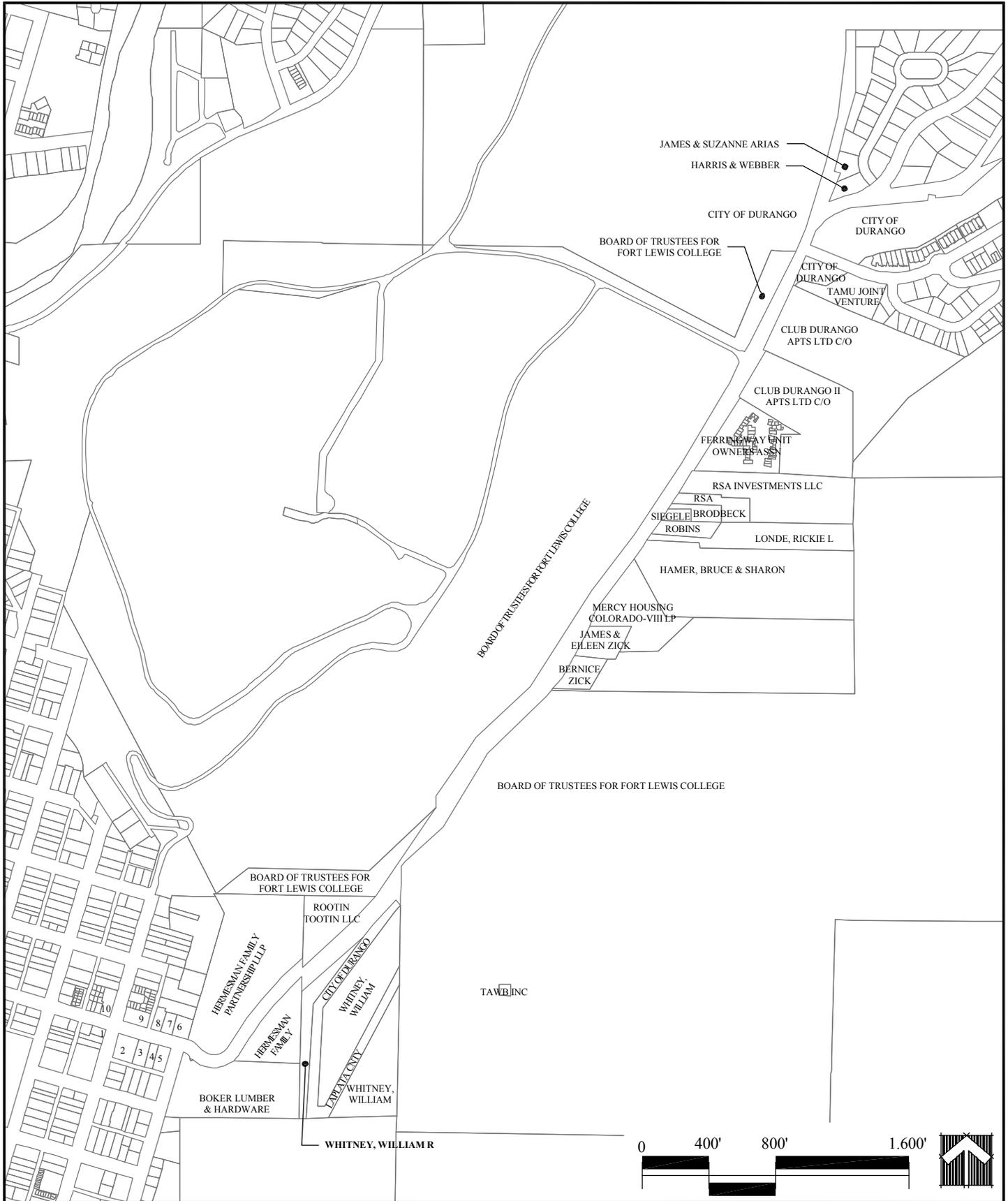
**SUGNET and ASSOCIATES**  
Environmental Planning / Landscape Architecture

IMPROVEMENT PLAN & PROPOSED IMPACTS TO WATERS OF THE U.S.

**GOGLEIN GULCH RD  
INDIVIDUAL 404 PERMIT**

**FIGURE 7**

Digital topographic, planimetric and land use data provided by Bechtolt Surveying & Engineering



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 <b>SUGNET and ASSOCIATES</b> Environmental Planning / Landscape Architecture	<b>ADJACENT PROPERTIES MAP</b>	<b>FIGURE 8</b>  <i>Source: La Plata County GIS Department.</i>
	<b>GOEGLIN GULCH RD. INDIVIDUAL 404 PERMIT</b>	





# GOEGLIN GULCH WETLAND MITIGATION PROJECT CITY OF DURANGO

**BID SET**  
**AUGUST 3, 2006**

APPROVED: \_\_\_\_\_  
City of Durango



- 1 TITLE SHEET
- 2 SUMMARY OF APPROXIMATE QUANTITIES
- 7A GRADING PLAN - SOUTH HALF
- 7B GRADING PLAN - NORTH HALF
- 8A PLANTING PLAN - SOUTH HALF
- 8B PLANTING PLAN - NORTH HALF

**BECHTOLD**  
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3009 HAWAII AVE  
DURANGO, CO 81301  
TEL: 970.278.5200  
FAX: 970.288.7422

**STO. & A. B. DURANGO**  
7218 Camino del Rio  
Durango, CO 81301  
TEL: 970.278.4800  
FAX: 970.278.4800

**Goeglein Gulch Phase 1**  
DURANGO, COLORADO  
**TITLE SHEET**

DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
PROJECT NO.	DATE
SHEET NO.	DATE
SCALE AS SHOWN	DATE
SHEET NUMBER	DATE

## **SUMMARY ALTERNATIVES ANALYSIS**

### **Introduction**

#### **Section 404(b)(1) Requirements**

This document provides information as required under the Clean Water Act Section 404(b)(1) Guidelines on the availability of practicable alternatives for the Goeglein Gulch Road Widening Project (Regulatory number 200475519) (Figure 1 in Permit application). In order for an alternative to be considered practicable, it must be “available” and capable of being done after taking into consideration cost, existing technologies, and logistics in light of overall project purposes” (40 C.F.R. 230.10(a)(2)). The guidelines also state that an alternative is not considered practicable if it results in other significant adverse environmental impacts. If no practicable off-site alternative with less environmental impacts is available, then the project proponent must show that the proposed project, in consideration of mitigation measures, is the least environmentally damaging practicable on-site alternative.

### **Project Purpose**

The purpose of the project is to widen Goeglein Gulch Road to two through lanes, a center two-way left turn lane, designated bicycle lanes, and a separated shared use path. The college mesa area has recently seen a large increase in residential and commercial development, along with continued expansion of Fort Lewis College (FLC). This project will improve the safety and operation of the roadway by providing a two-way left turn lane to segregate the left-turning vehicles from the flow of traffic, thereby eliminating the incidence of rear-end accidents. The addition of the bike lanes will provide a much needed safe mode of transportation between the college and downtown Durango. Currently, access to FLC from downtown is difficult and dangerous. In its current configuration, there are no pedestrian facilities in the corridor. The construction of the shared use path will provide this much needed facility and will eliminate the exposure of pedestrians to the flow of vehicular traffic. In addition to accommodating pedestrians, the shared use path will provide recreational opportunities for its users.

The Fort Lewis College Mesa is used for a variety of functions, including access to FLC, Hillcrest Golf Course, Rim Drive Overlook, Lion’s Den Park, the City of Durango Reservoir, Hillcrest Development and SkyRidge Development. The mesa is also bordered by public lands to the southeast which are used extensively for recreation. The area will see more recreational use due to increased development and trails, currently in the planning phase, to allow increased access to public lands.

## **Alternative Analysis**

A systematic approach was utilized in determining if any practicable alternatives were available that could achieve the project purpose with less environmental impact. Off-site Alternatives Analysis used project specific screening criteria to determine if there were any other feasible project locations with fewer environmental impacts. On-site Alternatives Analysis compared different levels of development to determine the least environmental damaging alternative. The proposed project is aimed at providing safer and more efficient flow of vehicular traffic, bicycle traffic, and pedestrian traffic between the Downtown Durango with Fort Lewis College Mesa.

## **Off-site Alternatives Analysis**

The USACOE Regulatory Guidance Letter 95-01 states “the first step in the sequence requires the evaluation of potential alternative sites under §230.10(a) of the Guidelines, to locate the proposed project so that aquatic impacts are avoided to the extent practicable.” For the purposes of analyzing off-site alternatives, screening criteria were applied based on available routes from the downtown Durango area and the Fort Lewis College Mesa, which could accommodate a projected vehicular traffic flow along with bicycle and pedestrian facilities. Primary screening criteria were used to eliminate previously developed areas and unfeasible routes. Then, secondary screening determined if the alternatives not already eliminated could achieve the project purpose and represent a less damaging practicable alternative without more significant adverse environmental impacts.

Less damaging practicable alternatives for this roadway project may include new routes from the south side of Durango to the Fort Lewis College Mesa or the improvements to existing routes.

## **Primary Screening**

The Fort Lewis College Mesa contains the College Campus facility, Hillcrest Golf Course, the City of Durango Reservoir, and numerous developments consisting of both commercial and residential uses. The mesa is surrounded by very steep terrain. Due to the steep topography, new roads/trails between Durango and the college mesa would require a large amount of area to accommodate switch-backs needed to reduce the grade of the roadway. Therefore, no additional new routes are possible without extensive environmental impacts and loss of habitat from the sides of the mesa.

Goeglein Gulch Road (County Road 238) is one of three roads commonly used for access to the Fort Lewis College Mesa and it is the only designated truck route for College Mesa. North College Road and East 8<sup>th</sup> Avenue are the other two access roads to the mesa. East 8<sup>th</sup> Avenue is a very winding two lane connection between the East 8<sup>th</sup> Avenue/East 8<sup>th</sup> Street intersection and the entrance to Fort Lewis College. North College Road meanders up the Mesa from Florida Road (County Road 240) and becomes the northern portion of Goeglein Gulch Road (County Road 239) on the north end of the mesa. Because of

grades and horizontal alignments, large trucks are not allowed on either North College Drive or 8<sup>th</sup> Street.

Historically, development in Durango has been oriented south of Downtown., primarily in the Bodo and the Wal-Mart/Home Depot corridors. Residential development within La Plata County has also been following the same pattern. It is expected that this will continue to be the case, particularly with the development of the Grandview area. As a result, traffic to and from College Mesa will continue to be primarily oriented toward downtown and the southern portion of the City. Modifications to North College Road would not adequately address the anticipated demand of traffic, both vehicular and bicycle. North College Road will be eliminated from the screening process since it does not provide adequate access from College Mesa to either Downtown or to the southern part of Durango

### **Secondary Screening**

The project purpose specifies that dedicated bicycle lanes and a separated shared use path are needed along the preferred route to accommodate student and residential movement in the area. East 8<sup>th</sup> Avenue is very windy and does not provide the adequate sight distance needed for bicycle or pedestrian safety. Also, because of its grade, East 8<sup>th</sup> Avenue is frequently closed during periods of inclement weather. Reconstruction of East 8<sup>th</sup> Avenue to current standards would significantly increase its length (to reduce the grade) and would require substantial disturbance of the existing hillside. Goeglein Gulch Road is not as steep and provides sight distance for improved safety in the area. Additionally, roadway improvements and the expected increase in volumes along the alignment of East 8<sup>th</sup> Avenue would exacerbate pedestrian conflict issues as it bisects Fort Lewis College and traverses several heavily used pedestrian crossings. Goeglein Gulch Road is currently the primary thoroughfare on the Fort Lewis College Mesa. Due to the aforementioned reasons, the expansion of East 8<sup>th</sup> Avenue is impractical and Goeglein Gulch Road is the only logical project location.

### **On-site Alternative Analysis**

The terrain in Goeglein Gulch is very challenging. Unique design measures are required to minimize the impacts within the corridor while still maintaining the functionality of the improvements. Implementation of such design criteria will not only reduce construction costs to a level that reflects the budget of the City of Durango, but will minimize the impacts to the environment

Three on-site alternative project plans were evaluated to determine the least environmentally damaging practicable on-site alternative that can be implemented at Goeglein Gulch Road which satisfies the project purpose. The evaluation of the scale of road improvements made two assumptions that are essential to the purpose of the project:

- The project must be designed to accommodate the projected automotive and bicycle traffic flow and to provide for safe usage by pedestrians.

- The project must be in compliance with the goals, policies and codes of the Colorado Department of Transportation, La Plata County and the City of Durango.

The three alternatives were assessed with the overall project purposes and criteria in mind, and being cognizant of site development limitations created by existing constraints. The following is a description of the Alternatives A, B, and C.

Alternative A:

This alternative involves no expansion of Goeglein Gulch Road. This would result in no waters of the U.S., wildlife, or riparian impacts but there would be increased traffic congestion and an increase in the frequency of accidents in the corridor as multiple users (vehicles, bicycles, and pedestrians) utilize the existing facility. Development in the area would be limited if constraints were imposed by the City to match the use of the roadway to its functional level which would result in a financial loss to businesses and property owners on the mesa. Wetlands along the roadside would remain in their current site.

If the City does not impose development constraints, the financial impacts as a result of the development also need to be considered. Increased use of the current infrastructure would increase congestion and travel times, which would ultimately reduce the overall safety of properties on the Fort Lewis College Mesa.

Alternative B:

This alternative involves the minimum amount of road improvements while still providing adequate vehicular, bicycle and pedestrian traffic flow. Two through lanes with a center two-way left turn lane would provide ample traffic infrastructure for projected traffic volumes, and would adequately accommodate through and turning vehicles. The dedicated bike lanes would not only accommodate existing bicycle traffic, but would encourage increased usage by providing a safe facility, providing the roadway users with a viable alternative to vehicular travel. The shared use path would provide the infrastructure for the safe passage of pedestrian traffic. This improved roadway is designed to accommodate the rapidly developing Fort Lewis College Mesa area and provide the infrastructure needed for the area's projected growth.

Since the roadway is located in a steep, historic drainage; most of the wetlands are contiguous and located adjacent to the roadway. Therefore, it would be virtually impossible to widen the road without impacting wetlands adjacent to the existing Goeglein Gulch Road. However, the Alternative B design involves special measures to minimize impacts to the aquatic environment. For example, a reduced roadway width has been adopted for this specific purpose. Rather than 12' through lanes and 16' two-way left turn lane that is the standard of the City of Durango, 11' through lanes and a 13' two-way left turn lane have been adopted for this project.

Under this alternative impacts to the relatively low quality roadside ditch/wetland would be mitigated via the creation of relatively higher quality emergent/wet meadow wetlands near adjacent to the SkyRidge development. Implementation of the mitigation plan would likely result in an overall gain in wetland function within the Goeglein Gulch/Animas River watershed.

Alternative C:

This alternative involves a widening Goeglein Gulch Road to four lanes with a two-way left turn lane, dedicated bike lanes and a separated shared use path. This would fully accommodate future vehicular volumes at “full build-out” of the area and ensure minimal vehicular congestion, it would result in significant impacts to wetlands and habitat. It is also infeasible due to the topography of the gulch which would raise the construction costs to a level which is impracticable for this type of project.

Under this alternative, additional off-site wetland mitigation (outside of the Goeglein Gulch watershed) would likely be required as there is not enough available area to accommodate required mitigation within the SkyRidge mitigation site.

**Summary**

This document reviewed all practical offsite and onsite alternatives for the Goeglein Gulch Road project. Screening of off-site alternatives has revealed that no alternatives exist that can provide adequate transportation flow without additional significant environmental impacts. After analysis of on-site alternatives, Alternative B results in the only practicable on-site alternative in light of the overall project objective. This viable alternative will maintain wetland/environmental resources within the area and provide adequate roadway improvements to accommodate expected vehicular, bicycle, and pedestrian traffic. Furthermore, it fulfills the project purpose and improves safety in a heavily used transportation corridor for motorists, pedestrians and bicyclists alike.

**Table 1- Feasibility Assessment of Three On-site Alternatives**

ALTERNATIVES	WETLANDS		BIOLOGICAL/WILDLIFE	ELIMINATED OR PREFERRED
	WETLAND FUNCTIONAL VALUE IMPACTS	MITIGATION SCENARIO		
<b>ALT. A-</b> NO ROADWAY EXPANSION	NO CHANGE TO OVERALL FUNCTIONAL VALUE OF WETLAND RESOURCE	NO MITIGATION PERFORMED AND GOEGLEIN GULCH REMAINS IN CURRENT STATE	RETAINS ALL WETLAND AND UPLAND HABITATS. NO WILDLIFE MITIGATION NECESSARY	ELIMINATED DUE TO INSUFFICIENT VEHICULAR, BICYCLE, AND PEDESTRIAN TRAFFICACCOMODATION AND POOR SAFETY
<b>ALT.B-</b> EXPANSION OF ROADWAY TO ACCOMMODATE TWO THOROUGH LANES, A TWO-WAY LEFT TURN LANE, DEDICATED BIKE LANES AND A SEPARATED SHARED USE PATH	TEMPORARY LOSSES OF LOW QUALITY ON-SITE WETLAND RESOURCE.	LONG-TERM GAIN OF FUNCTIONAL VALUE THROUGH SUCCESSFULL ENHANCEMENT OF GOEGLEIN GULCH AND SKYRIDGE MITIGATION	PRESERVES APPROX. _____ ACRES OF CURRENT WETLAND HABITATS AND WITH NO NET LOSS TO FUNCTIONAL VALUE WITH MITIGATION	PREFERRED PROJECT ALTERNATIVE AFTER TAKING INTO CONSIDERATION COST, SURROUNDING TOPOGRAPHY, AND LOGISTICS IN LIGHT OF OVERALL PROJECT PURPOSES
<b>ALT. C -</b> HIGHEST LEVEL OF EXPANSION WITH FOUR LANES THROUGH LANES, A TWO-WAY LEFT TURN MEDIAN, DEDICATED BIKE LANES AND A SHARED UUSE PATH.	MAJOR IMPACT TO ON-SITE WETLAND RESOURCE, FUNCTIONAL VALUE	WOULD REQUIRE MITIGATION IN CORRIDOR, AT SKYRIDGE MITIGATION SITE AND AT AN ADDITIONAL OFF-SITE MITIGATION LOCATION	MITIGATION MEASURES CREATE OFFSITE WETLAND HABITAT.	ELIMINATED DUE TO EXCESSIVE ENVIRONMENTAL IMPACTS AND DEVELOPMENT COSTS