CANYON INN

River Wilderness Park

River Wilderness Park Project
Site Programming, Site Planning and
Overall Site Concept Development
for the Canyon Inn Property

Watershed Conservation Authority
May 31, 2012

BlueGreen CONSULTING

Withers Sandgren Landscape Architecture

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Prepared by
BlueGreen Consulting
Withers & Sandgren, Ltd.

with
BonTerra Consulting
MTS Engineers, Inc.
On-Line Engineering
Geotechnologies, Inc.

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Chapter 1:
INTRODUCTION

1.1 Background

In 2007, the Watershed Conservation Authority (WCA) adopted a Master Plan for the El Encanto Property as the first piece of a greater River Wilderness Park in the beautiful lower San Gabriel River Canyon. The Watershed Conservation Authority (WCA) is a joint powers entity of the San Gabriel & Lower Los Angeles Rivers and Mountains Conservancy (RMC) and the Los Angeles County Flood Control District (LACFCD).

In 2008, the WCA purchased the neighboring 26-acre Canyon Inn Property, formerly referred to as the Cool Springs Property, bringing the total River Wilderness Park site to 75.7 acres. The $3,472,225 purchase was made possible by bond funds from two separate state agencies— the River Parkway Program by the California Department of Resources ($1,972,225), and the Rivers and Mountains Conservancy ($1,500,000).

The property is situated at the northernmost boundary of the City of Azusa abutting the Angeles National Forest. It includes the former site of the Canyon Inn south of the San Gabriel River between the El Encanto parking lot and Highway 39. It includes the entire San Gabriel River bend, on both sides of the river, downstream of the Highway 39 bridge and upstream of the Mountain Cove development.

Fig. 1.1,
Project Site from
Glendora Ridge
Motorway

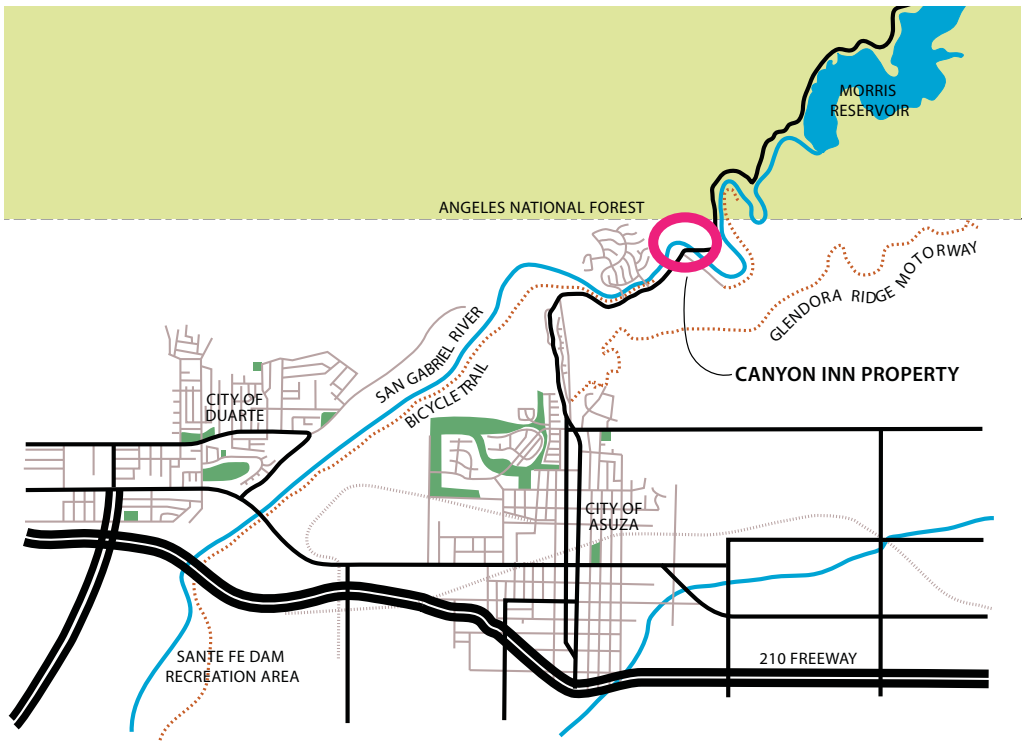


Fig. 1.2,
The project site is located on the San Gabriel River north of the City of Azusa

Extending the Bike Path and creating a safe highway crossing into the River Wilderness Park has been previously defined as a project priority by the public outreach process for the El Encanto property and through communication with community members and public agency partners. Until the purchase of the Canyon Inn property this key component to achieve connectivity was not possible.

Following the acquisition of the Canyon Inn Property, the WCA commissioned Blue-Green Consulting and Withers & Sandgren Ltd. to conduct a public outreach process and develop a Site Plan for the Canyon Inn Property and to incorporate the Canyon Inn Site Plan into the existing River Wilderness Park Master Plan.

These planning efforts are authorized and supported through inclusion of the River Wilderness Park area in the "Common Ground" Watershed and Open Space Plan for the San Gabriel and Los Angeles River, the "San Gabriel River Corridor Master Plan," and the City of Azusa's "Rio San Gabriel Vision Plan" and General Plan.

1.2 Project Mission and Goals

1.2.1 MISSION STATEMENT

The mission of the Canyon Inn Project is to restore natural habitat and increase connectivity to and from the Angeles National Forest, the River Wilderness Park and other open spaces, trails, parks, and river parkways. As a scenic mountain destination at the terminus of the San Gabriel River Bike Path, the Canyon Inn site offers safe bike path access, scenic views, shady rest areas, and facilities for recreational users. This project is a 26-acre addition to the River Wilderness Park.

1.2.1 PROJECT GOALS

1. Produce site plan, programming and site development for the Canyon Inn Property. The plan will be integrated with the existing park plans and adopted by the WCA as an addendum to the El Encanto Master Plan.
2. Extend the San Gabriel River Bike Path into the River Wilderness Park, thereby creating a destination at the end of the bike path, and providing safe access to the park.
3. Conduct an inclusive stakeholder process.
4. Restore natural habitat.
5. Provide for recreational uses compatible with habitat sensitivity.

1.3 Summary of Proposed Park Elements

The proposed park plan extends the San Gabriel River Bike Path into the park through the construction of a new trail underpass below the Highway 39 Bridge. Traffic calming on Highway 39 will include a roundabout that will reduce speed at the park entrance without stopping traffic, thereby improving safety for vehicular entry and exit to the park. This will also facilitate safer at-grade bicycle crossing of the highway, particularly for bicycles that have to switch sides to continue up the canyon. New park facilities include a park pavilion, a group picnic area, new hiking trails, river overlooks, a nature play area, habitat restoration, and a small café to be operated by a concessionaire.

Fig. 1.3,
The River Wilderness Park is formed by combining the Canyon Inn, El Encanto, and the Taylor properties.

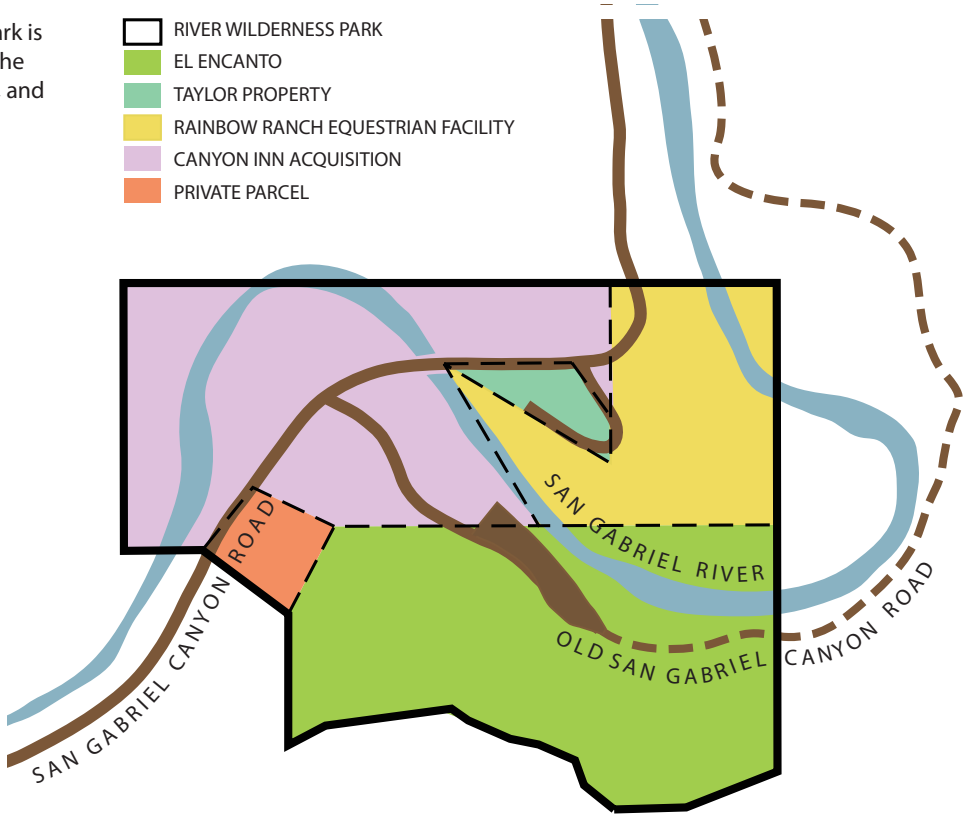


Fig. 1.4
The San Gabriel River Bank at the Canyon inn property

The River Wilderness Park is envisioned as a unique outdoor learning environment for local youth, a place of rest and relaxation for area hikers and cyclists, and a city-close nature destination in which to enjoy the rich and varied surroundings of the San Gabriel River and San Gabriel Mountains, at the foot of the Angeles National Forest.

Chapter 2:
PLANNING PROCESS FOR THE CANYON INN SITE PLAN

2.1 Steering Committee

The Consultants facilitated a public outreach program to solicit public input and guide the park planning effort. Stakeholders were engaged in one-on-one discussions, and a workshop with a fieldtrip was held to gain insight into opportunities, constraints and public opinions. A Steering Committee was assembled which consisted of the owner/client, public agencies with interests in the site, and stakeholders. Public Agencies with direct interest in the property were invited to participate in the project steering committee. Agencies were asked to designate staff that would be available to assist in understanding technical issues relevant to the project. The Steering Committee met four times and had the opportunity to review materials prior to public outreach events. Steering Committee Member Agencies and their representaitves are listed below.

Watershed Conservation Authority (WCA)
Jane Beesley, *Deputy Executive Director Watershed Conservation Authority*
Marybeth Vergara*, Project Analyst/Property Manager*

City of Azusa
Conal McNamara, *Assistant Community Development*
James Makshanoff, *Assistant City Manager*

U.S. Forest Service (USFS)

O'Dell Tucker, *District Ranger, San Gabriel River Ranger District Office*
L'Tanga Watson
Freddie Duncan
Esmeralda Bracamonte
Steve Yamshon, *District Recreation Office*

US Army Corps of Engineers (USACE)
Eileen Takata, *Watershed Program Manager Los Angeles District*

California Department of Transportation (Caltrans) District 7
Paul Caron, *Senior Environmental Planner*
Karl Price, *Senior Environmental Planner*
Thoa Le
Dale Benson, *Local Assistance Bike Coordinator*

California Department of Fish and Game (CDFG)
Scott P. Harris, *Environmental Scientist, Habitat Conservation Branch, South Coast Region 5*
Sarah Rains, *Streambed Alteration Team*
Kelly Schmoker, *Environmental Scientist*

Los Angeles County Department of Public Works (LACDPW)
Lani Alfonso, *Senior Civil Engineer*
Andrew C.T. Ross, *PE (Alt.)*
Abu Yusuf, *County Bicycle Coordinator*
Christopher Hudson, *County Bicycle Coordinator*

Fig. 2.1
The site of the former Canyon Inn

2.2 Community Involvement Program

The consultants developed a community involvement program which engaged local residents, park users, and special interest groups. Postcards and fliers were used to notify the public about outreach meetings. A radius map and mailing list were prepared by the City of Azusa and two separate mailings notified residents about the park planning events. Three public outreach events were held. Two evening meetings were held at Azusa City Auditorium in May 2011 and the final plan was presented to the public on June 18, 2011 at the River Wilderness Park site.

The first public meeting provided a general background about the site and its potential uses. A virtual field trip with site photos helped participants better understand the complexities of the site. Sub-areas were delineated and named to facilitate discussion, and a broad range of possible uses were presented for each area. Questionnaires were then used to gauge public reaction to these suggestions, track likes and dislikes and to solicit additional suggestions for other possible uses.

At the second public meeting, three alternative plan concepts were presented based on the initial round of input. The public was asked to provide feedback on multiple components of each alternative. Additional ideas were solicited, and feedback was tracked and quantified.

Fig. 2.2
Workshop held at El Encanto

Input from the public meetings, the stakeholder workshop, and three Steering Committee meetings guided the design of the "Preferred Alternative." The "Preferred Alternative" was presented at the third public meeting, which was held on the morning of Saturday, June 18, 2011 at the River Wilderness Park site. Following the informal presentation, visitors were invited to tour the new land acquisition and discuss the proposed park development designs. This was the first event where the Canyon Inn & Azusa Springs areas were open to the public.

Represented Organizations at the Workshops

Sierra Club
California Native Plant Society
California Resource Connection
Azusa Beautiful
Azusa School Board

2.3 Stakeholder Presentations and Workshops

Key stakeholders were identified and invited to participate in an on-site workshop and field trip. The stakeholders assisted the planning process by providing expertise and insight on a variety of topics including public access, safety, future uses and conservation.

Chapter 3:
SITE INVENTORY AND ANALYSIS

3.1 Location and Description of Property

The Canyon Inn Property is nestled within the greater River Wilderness Park site commonly known as "El Encanto" and is situated adjacent to the San Gabriel River. It rests at the northernmost point of the San Gabriel River Bike Path and the Emerald Necklace, a network of rivers, trails, and green space gracing the San Gabriel Valley. Once used for many picturesque movie sets, the site affords wonderful views of the San Gabriel River and the surrounding mountains. The 26-acre Canyon Inn Property acquisition brings the total River Wilderness Park size to 75.7 acres.

3.2 Abounding Jurisdictions

The Angeles National Forest abuts the northern boundary of the Canyon Inn property. The Angeles National Forest (ANF) provides one thousand square miles of open space and a variety of recreation opportunities year-round. The ANF is managed by the US Forest Service, under the US Department of Agriculture. Highway 39 and the San Gabriel Canyon is one of the major gateways providing access to the recreational resources of the forest. The US Army Corps of Engineers (USACE) owns and manages the flood control channel of the San Gabriel River one mile downstream of the site. USACE has a mandated interest in the management of the dams and channels upstream and have jurisdiction over any changes to the stream channel at the site.

The California Department of Transportation (Caltrans) has jurisdiction over Highway 39 (SR 39) and the bridge across the San Gabriel River. This reach of Highway 39 is within the park boundary on land owned in fee by the WCA. The width of the State Highway easement is 100 feet. The California Department of Fish and Game has jurisdiction over the biological resources of the river and holds a conservation easement in the river channel and along the banks. The State Water Resources Control Board and Los Angeles Regional Water Quality Control Board have jurisdiction on matters related to water conservation and water quality at the site.

The San Gabriel River Channel at the site is owned in fee by the WCA and is operated by the Los Angeles County Flood Control District (LACFCD). Upstream, Morris Dam is owned by the Metropolitan Water District (MWD) and managed and operated by the LACFCD.The project site is located in the City of Azusa which has jurisdiction over property issues including zoning, and building and safety.

3.3 General Site Conditions

The climate of the area is temperate and semi-arid with warm, dry summers and mild, moist winters. Higher elevations tend to have more moderate summers and colder winters with significant amounts of precipitation including snow in winter. The majority of rainfall occurs between the months of December and March. The soils of the area are shallow Mollisols and Entisols that have developed within the weathering products of the underlying cretaceous granitic rocks. These soils are common in the Mediterranean climate of Southern California where they are commonly associated with annual grasses, oak species, and California Chapparal on steep slopes.

The project site is situated in the southeastern portion of the San Gabriel Mountains within the central part of the Transverse Range Province. The San Gabriel Mountains are bounded to the north by the San Andreas fault separating the San Gabriel Mountains from the Mojave Desert and the San Bernardino Mountains to the east. In the south, the San Gabriel Mountains are bounded by a series of reverse faults including the Cucamonga, Sawpit Canyon, and Sierra Madre Faults. Tectonic motion along these faults has been responsible for the ongoing uplift of the San Gabriel Mountains.

Fig. 3.1
Point Bar viewed from the western bank of the San Gabriel River

3.4 Geomorphology and Hydraulics

The geomorphology of the study area is that of an incised canyon meander which is formed due to down-cutting of the San Gabriel River. As the rapid tectonic uplift happens simultaneously with the down-cutting of the river the resulting topography is that of a river canyon with steep side walls. While the channel base is near bedrock, there are substantive alluvial gravel deposits stored within the canyon bottom. These are commonly reworked and redistributed throughout the canyon floor by fluvial sediment transport during floods. This results in a channel morphology that is dominated by a string of alluvial gravel bars flanking the main river channel. In the wider and more curved portions of the canyon, a complex meander topography has evolved that includes a large gravel-based point bar that is the focal point for the Canyon Inn property west of the Highway 39 bridge.

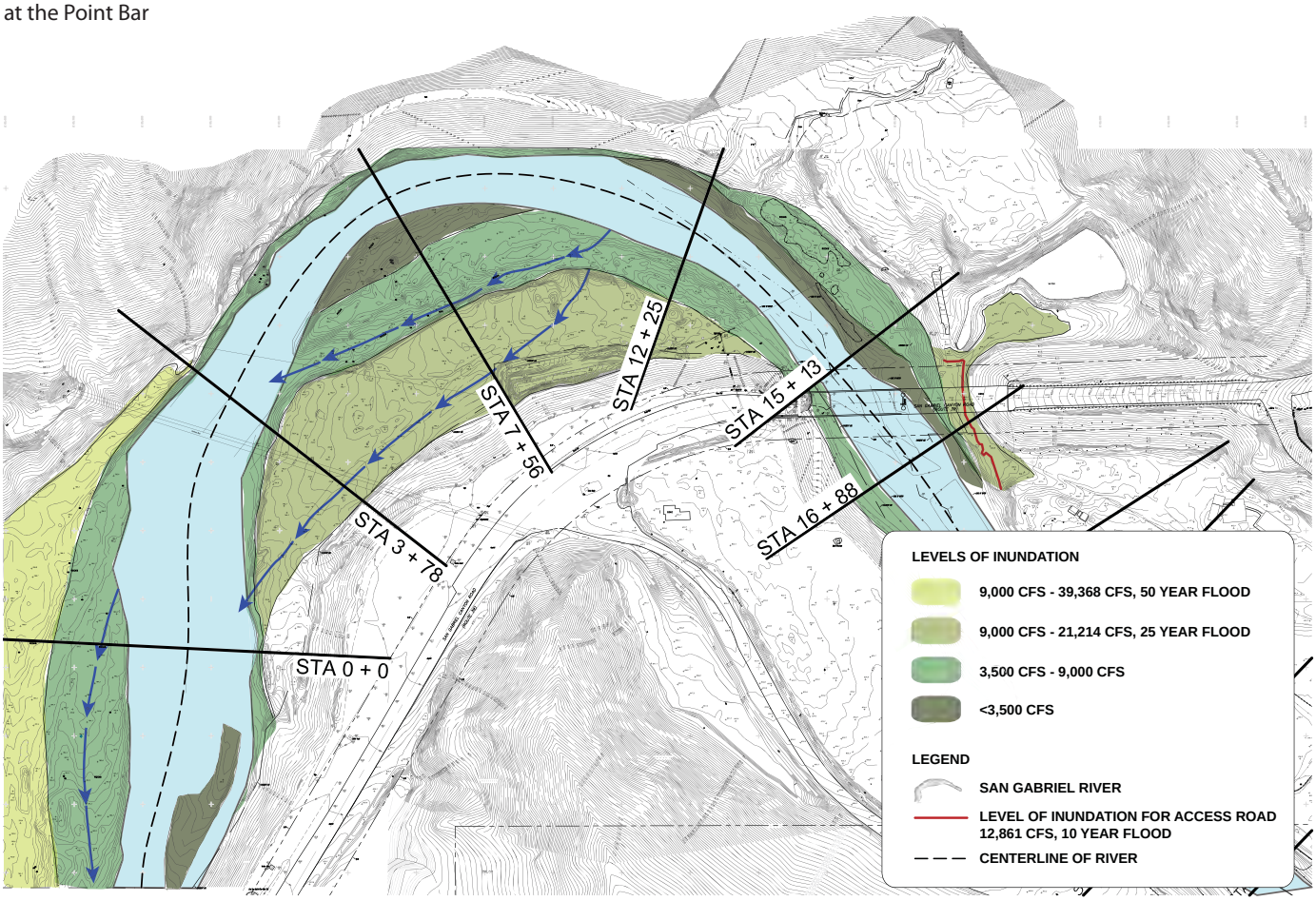
Another large point bar is located east of the bridge on the north side of the river. This area includes the Rainbow Ranch and Taylor House properties and the access road to portions of the Canyon Inn located north of the river. This point bar is higher

in elevation and includes thick sandy deposits. The flat area that used to be the location of the Canyon Inn on the south side of the river and east of the highway was likely a river terrace or high gravel bar covered with sandy deposit. It appears that a large amount of fill was placed on top of that surface to prepare the land for agricultural use or development. This area borders the river and a steep engineered earthen slope now constitute the southern bank of the river as it approaches the highway bridge.

Stream flow at the site is regulated by three dams within the watershed: Cogswell, San Gabriel, and Morris Dams. Morris Dam, only two miles upstream of the project site is owned by the Metropolitan Water District (MWD). It was originally constructed by the City of Pasadena as Pine Canyon Dam in 1934 and purchased by the Metropolitan Water District in 1935. The dam is currently operated by LACDPW but remains in ownership of the MWD. Substantial improvements to the outlet structures of Morris Dam are underway.

Stream flows are characterized by high flood peaks of relatively short duration, substantially moderated or delayed by upstream storage. Flood release patterns at Morris Dam are essentially unmanaged to around 2000 cfs. Larger floods are contained and, when needed, released at more than 5000 cfs. The result is that high to medium flood frequencies (smaller floods) are reduced and that floods reach their

Fig. 3.2
The inundation levels at the Point Bar



peak rapidly once Morris Reservoir is full to capacity. More information on the general hydraulics of the channel are contained in the El Encanto Master Plan produced in 2007.

A component of the planning effort of this work was to evaluate habitat restoration potential and strategies. To better understand the dynamics of the gravel bars within the project site a HEC-RAS hydraulic model was used to evaluate at which frequencies and discharges the gravel bars at the project site are likely to be inundated. An initial geomorphologic evaluation mapped the gravel bar surfaces and the hydraulic model was used to determine at which discharges and frequencies these surfaces become flooded. This classification of gravel bars is summarized in Fig. 3-2 and can be explained as follows:

Lower Gravel Bars

These gravel bars consist of smaller mid-channel bars and frequently inundated bars along the banks. These bars are inundated in a flow range above 500-1000 cfs and are fully inundated at around 3,500 cfs which corresponds to the 3.4 year flood. When located along the channel fringes these surfaces are generally bounded by a steep outer bank that separates them from the next higher bar.

Intermediate Gravel Bars

Once a flow level of 9000 cfs is reached the river starts to widen and inundates a set of higher lying gravel bars. The onset of inundation for these bars is equivalent to a full flood stage with initial inundation of a floodplain. Hence, the 9000 cfs flow level is roughly equivalent to bankful discharge with a recurrance interval of 6.6 years. At an inundation level equivalent to 21,000 cfs and a recurrence interval of 25 years these intermediate bars are fully inundated and are fully contained by the surrounding bank slopes up to the Capital Flood with 86,700 cfs.

Upper Gravel Bars

Only along the downstream end of the river reach does the channel significantly widen to display a greater braided topography. Particularly on the west side of the river along the Mountain Cove Development does the gravel bar become significantly wider and accommodates much greater flow from 9000 cfs to roughly 40,000 cfs, which is equivalent to a 50 year recurrence interval. It represents the highest level of gravel bar inundation in the project site.

3.5 Biological Resources

In order to describe and summarize the existing biological resources, a biological reconnaissance survey of Azusa River Wilderness Park Project Site was conducted by BonTerra Consulting in October of 2006. A search of available literature to identify special status plants, wildlife, and habitats known to occur in the vicinity of the site was conducted. The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CIMPS 2005) and the California Department of Fish and Game

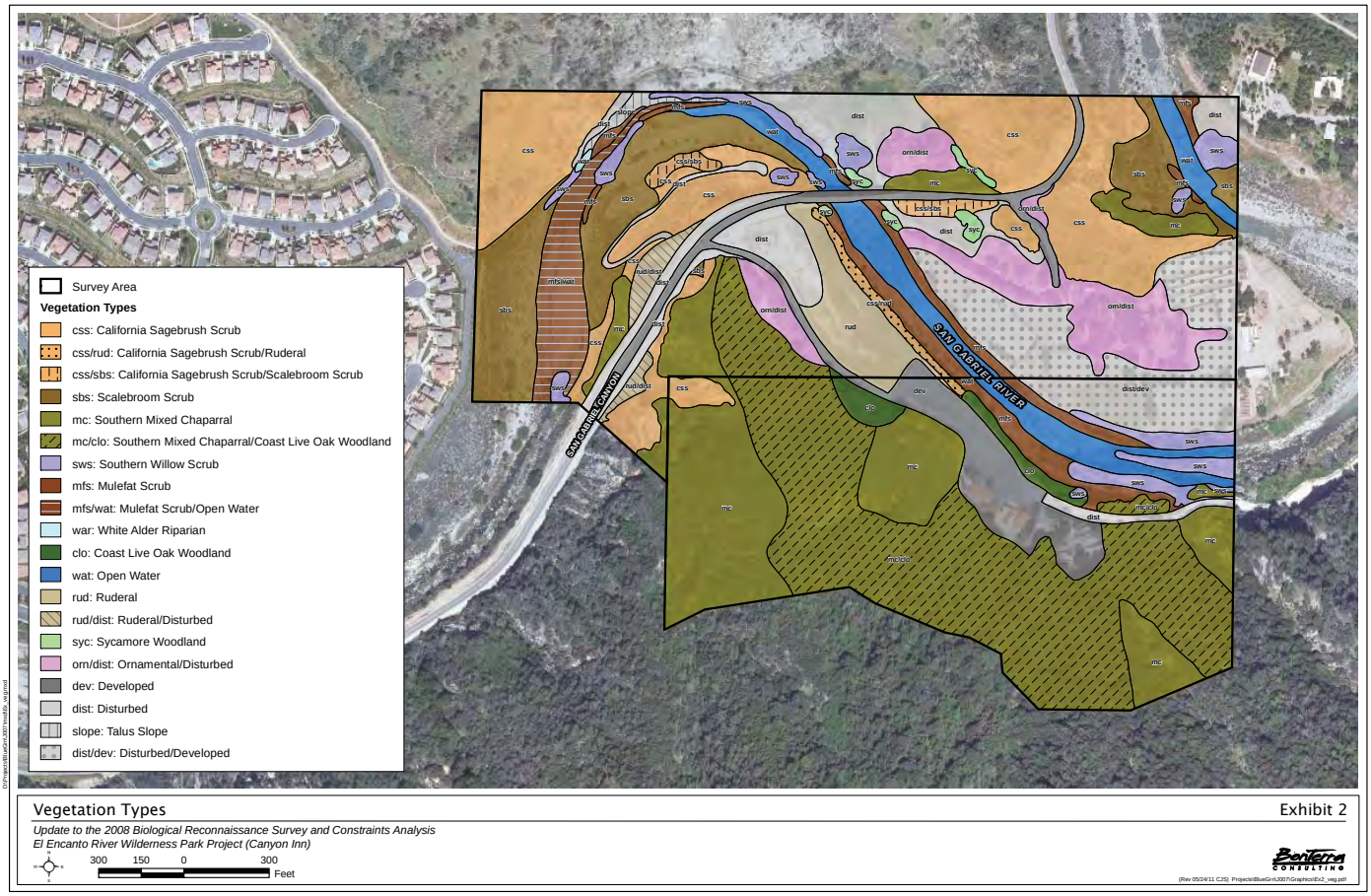


Fig. 3.3
BonTerra Consulting mapped the exisiting plant communities in the project area.

(CDFG) California Natural Diversity Database (CDFG 2004) were reviewed. During the field survey, vegetation types were described and evaluated for their potential to support special status plant and wildlife species. Plants were identified using keys in Hickman (1993) and Munz (1974). Finally, potential biological constraints were evaluated and site specific recommendations for potential enhancement or restoration of biological resources were presented. This work has been included in the El Encanto Master Plan of 2007.

For this planning phase an additional field survey to determine if any changes to the biological conditions had occurred since their last site visit in 2006. The vegetation was updated to reflect changes to the project site. See Appendix C. The vegetation mapped previously by BonTerra Consulting correctly represented nearly all current conditions. The vegetation map was updated to document changes to the site. The most obvious changes are the vegetation covers of southern willow scrub and mule fat scrub. Both communities have expanded their coverage throughout the river channel. In many cases, mule fat (Baccharis salicifolia) has become established and abundant, in addition to willows (Salix ssp.), which often overtake mule fat over a period of a few to several years. Both are often locally eliminated by seasonal flooding, followed by a period of re-establishment and are described as follows:

Sycamore Woodland

This riparian community is dominated by California sycamore (*Platanus racemosa*). It typically grows in loose sandy to gravelly soils near ephemeral and permanently flowing water sources. Associated species typically include blue elderberry (*Sambucus nigra ssp. caerulea*), toyon (*Heteromeles arbutifolia*) , mule fat, and mugwort (*Artemisia douglasi*) (Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986 and 1992 update). It was noted in the northwestern portion of the site along the San Gabriel River channel and in small pockets upstream of the bridge.

White Alder Riparian Forest

This riparian community is dominated by white alder (*Alnus rhombifolia*). It now occurs in small pockets along the San Gabriel River.

Vegetation types at the El Encanto property were identified and their spatial extent was mapped on an aerial photography. (Fig. 3-3) The following types were specifically identified:

- California Sagebrush Scrub
- Scalebroom Scrub
- Southern Mixed Chaparral
- California Annual Grassland
- Southern Willow Scrub
- Mule Fat Scrub
- Coast Live Oak Woodland
- Sycamore Woodland
- White Alder Riparian Forest

Special Status Resources

A literature review was performed using the California Department of Fish and Game (CDFG) California Natural Diversity Database, May 5, 2011 version. No additional special status species have been reported in the general project site vicinity. However, the following species database changes have occurred: scalloped moonwort (Botrychium crenulatum) CNPS listing changed from 1B to 2; Parry's spineflower (*Chorizanthe parryi var. parryi*) CNPS listing changed from 3 to 1B; and the coastal western whiptail scientific name changed from Cnemidophorus tigris stejnegeri to Aspidoscelis tigris stejnegeri.

Special Status Species Observed

Only one special status plant was found during the survey: San Gabriel Mountains Live-forever (*Dudleya densiflora*). It is listed by the California Native Plant Society (CNPS) as a List 1B.1 Species. The plant is locally common on north-facing cliff walls just beyond the El Encanto headquarters buildings. It was found with white fairy lantern (*Calochortus albus*) and chaparral yucca (*Hesperoyucca whipplei*).

Fig. 3.4
Water from an abandoned and collapsed water tunnel feeds the pond and surrounding vegetation at Azusa Springs

3.6 Tree Inventory

In spring of 2011 BlueGreen Consulting conducted a tree survey for the Canyon Inn site and documented all trees having a trunk 8 inches or greater in diameter at breast height (DBH). Field reconnaissance included verifying tree locations and data collection including species, DBH, canopy width, and height. The tree data was added to the topographic survey base for inclusion in the projects construction documents.

The Canyon Inn property contains 53 trees with a DBH of 8 inches or more. Most of the trees are located in the plan areas designated as Shady Grove and Azusa Springs. Shady Grove Area has 16 trees, most of which are exotic species with the exception of two coast live oak (*Quercus agrifolia*) and two toyon (*Heteromeles arbutifolia*). The Triangle Area has one non-native pepper tree (*Schinus molle*). Azusa Springs has 30 trees of which 22 are Mexican fan palm (*Washingtonia robusta*) surrounding the pond. The area includes a number of native trees including one Goodding's black willow (*Salix gooddingii*), one western elderberry (*Sambucus mexicana*) and five western sycamore (*Platanus racemosa*). A 10" diameter willow (*Salix* species) is located along the river bank.

The Western Bank Area has one white alder (*Alnus rhombifolia*) located in a ribbon of riparian vegetation along the river's edge. A notable three-trunk western sycamore (*Platanus racemosa*) is located on the right bank of the river on the eastern side of the Highway 39 bridge. Growing on the Point-Bar Area, within the DFG conservation easement, is a multi-trunk Fremont cottonwood (*Populus fremontii*). On the slope between the highway and the point-bar is one Mexican fan palm (*Washingtonia robusta*). One 16 inch diameter western sycamore (*Platanus racemosa*) is below the Highway 39 bridge on left river bank below the Canyon Inn Area.

3.7 Open Space Connectivity

A stated priority for this project is to establish site connectivity with the San Gabriel River Bike Path. This will tie the River Wilderness Park into the existing open space and develop much needed connectivity to a multitude of projects along the San Gabriel River, the Rio Hondo and the Los Angeles River to the Pacific Ocean. Currently, the bikeway ends only a few hundred feet away from the project site. One of the major goals of this planning effort is to extend the bikeway to the new park site and develop a destination for passive recreational activities. Another goal is to provide further open space access to existing resources in the vicinity.

Several open space and trail connections are possible. One is to improve access to the Old San Gabriel Canyon Road between the project site and the old River Gaging Station. This picturesque area along the river is of high interest to naturalists with access limited to pedestrian traffic. This connection allows further exploration of the slopes south of the river. Another important connection would be to the Glen-

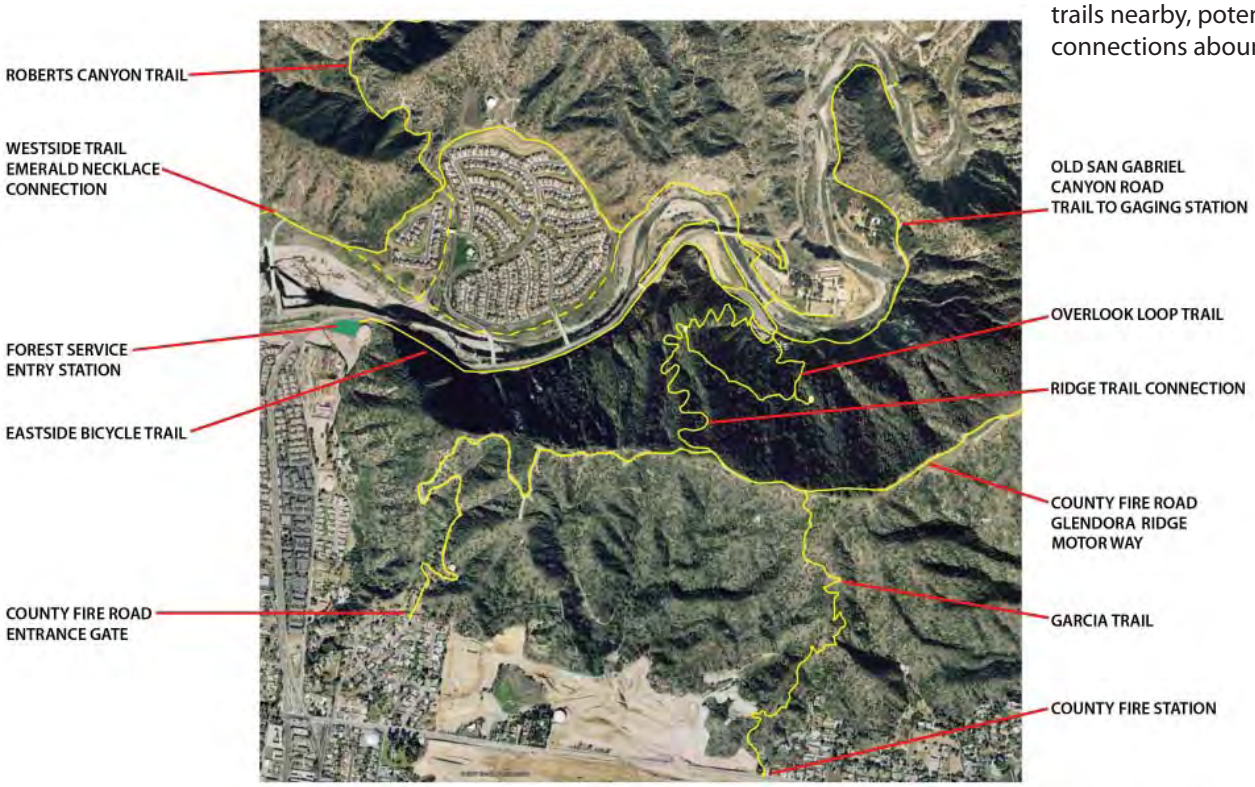


Fig. 3.5
With many local and regional trails nearby, potential connections abound

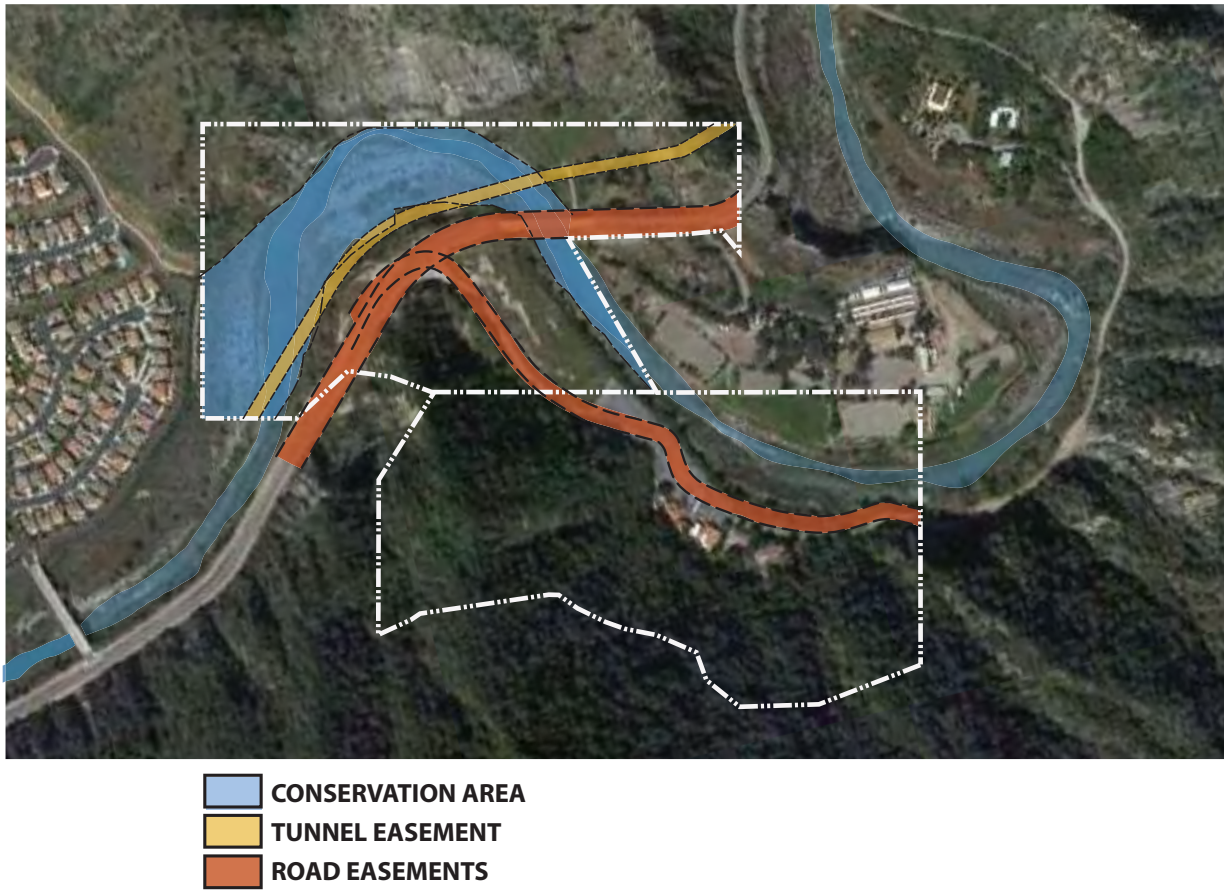
dora Ridge Motor Way which currently follows the mountainous ridge south of the property. A trail going up to the ridge would allow a connection to other trails along the Motorway, most notably the Garcia Trail, a popular trail on the south face of the ridge in the City of Azusa.

The Azusa Spring area northeast of the highway bridge would be another destination for visitor's arriving at the Canyon Inn Site. This beautiful area is the location of the "oasis" a small pond fed by a collapsed water tunnel initially constructed by a water company. This area abuts the Angeles National Forest and no fencing inhibits wildlife from the ANF from accessing the pond and ephemeral drainages that steeply drop from the ridge behind the area. The west-side trail along the river affords spectacular views of the river and pristine natural habitat. The trail, if rebuilt along the river, could provide a much needed connection to Roberts Canyon north of the Mountain Cove Development.

3.8 Existing Parking and Vehicle Access

Access to the site of the former Canyon Inn is available through the main park road connecting El Encanto to the highway. A portion of the El Encanto Parking lot is part of the Canyon Inn Property. The areas north of the river are currently not open to public access and no formal parking is available for these areas.

Fig. 3.6
A new topographic survey confirmed several easements that impact the site



3.9 Topographic Mapping, Easements, and Utilities

Consultants received a new topographic survey for the Canyon Inn property from the WCA at the beginning of the project. Another survey, produced for the El Encanto Planning Project in 2007 was made available. In addition, the title report produced for the property acquisition was available to resolve potential boundary conflicts. These available documents and other information about property boundaries from State Agencies, County Departments, and the City of Azusa, were utilized within the budgetary constraints of this planning study to evaluate relevant boundary constraints.

The survey consultant filled in several relevant gaps to complete a survey that covers the combined El Encanto and Canyon Inn properties. Areas that required additional surveys included the engineered slope along the southern bank of the river, the underside of the bridge and bridge abutment, locations and wire height of several power and utility lines, and the northern bank of the San Gabriel River including project relevant portions of Forest Service land that were not included in the initial surveys. Additional photogrammetry was purchased to complete the entire project area and datum discrepancies between the two surveys were resolved by surveying additional matching points and by recalculating and transforming the younger photogrammetry and survey data to match the one produced in 2007.

Subsequently all property boundaries were plotted on the survey including the Canyon Inn and El Encanto. It was attempted to obtain all relevant legal descriptions for easements and rights-of-way. Unfortunately, many of these boundaries were established before 1900 and some records with legal boundary descriptions were not legible in the form made available by the County or the title reports.

Highway 39 and Old San Gabriel Canyon Road are the most important roadways within the project area. California Department of Transportation records were used to plot the current alignment and right of way for the highway. Old San Gabriel Canyon Road was established very early and no legible legal description for the road alignment was found. The plotted boundaries were graphically fitted from the county assessor's data base showing some misalignment especially around the El Encanto Building and the Special Use Area.

A major restriction to development of the Canyon Inn Site is a Conservation Easement to the California Department of Fish and Game that includes the river bed and significant portions of the adjacent floodplains and gravel bars. The Conservation easement was plotted onto the survey using its original legal description contained in the title report.

Several entries in the title report pertain to a narrow strip of land that is now in the hands of the San Gabriel River Water Committee or "Committee of Nine." This was originally a strip of land reserved for water development through agreements between the San Gabriel Power Company and Azusa Irrigation Company and a group of local landowners (R. W. Powell et al.). The agreements resulted in the construction of a section of water tunnel for diversion about ½ mile upstream from under the river bed. The tunnel exits at the Azusa Spring/Oasis site but was not continued fur-

ther downstream after all water rights in the area were combined and the separate diversion was not needed anymore. The tunnel mouth collapsed during a landslide but the water continues to seep through the tunnel and through the debris only to re-enter the river downstream of the highway bridge. The easement on the canyon inn property still exists but the agreements are handwritten records and the legal description of the easement is not legible. Per personal communication with Don Berry of the Committee of Nine, 2011, there are no intentions by the water company to utilize the easement other than maintaining the status quo. Lacking a legal description the easement was plotted from the county assessors map data base. The parcel is identified as #8684-027-105 with approximately 2.46 acres.

The Southern California Edison Company (SCE) provides electrical service to the area. A map search with SCE was performed that produced underground and above ground maps for the area. Underground lines are located beneath the north shoulder of the highway bring power up the foothills and stop before crossing the river. The line terminates at a vault located at the entrance to the River Wilderness Park. A short spur of underground electrical is located in the Special Use Area. However that section of electrical service was not documented by SCE and has not been surveyed.

Power poles and overhead electrical lines service the residences and the El Encanto building, and all other surrounding properties including service to other utility companies and the gaging station. Electrical service is provided to the entire area on both sides of the San Gabriel River. All major power lines and other utility poles were surveyed directly and later checked against the maps received by Edison. While the title documents are largely illegible there is some evidence indicating that SCE owns what is referred to as a 'blanket' easement. Further discovery to reveal an easement of this type would involve a fee stipulated 'Rights Check' initiated by request and conducted by the SCE Real Estate Division.

Fig. 4.1,
End of the existing Class I bicycle path on Highway 39

Chapter 4:

BIKE PATH EXTENSION FEASIBILITY STUDY

4.1 Process

In order to meet one of the project goals of creating a safe end-destination for the existing San Gabriel River Bike Path into the site, a technical engineering report was generated to evaluate the feasibility of extending the existing bike path north and into the River Wilderness Park. The current Class I Bike Path ends abruptly, 700 feet below the intersection of the Highway and Old San Gabriel Road. Increased connectivity and access into the park by recreational users is the primary

purpose of this proposed trail extension. MTS Engineering led the analysis that included coordination with Caltrans District 7 and provided expertise in structural, civil, and transportation engineering. Geotechnologies Inc. provided a geotechnical engineering review of the site to determine initial feasibility and provide guidance for future implementation requirements.

Several alternatives and sub-alternatives were generated to explore bike path alignments. The opportunities and constraints that each alternative alignment revealed when placed into the site topography evaluated in light of existing natural conditions. In addition, impacts to existing easements and Caltrans standards for Class I Bike Path design required another layer of planning consideration and analysis. The major objectives used to measure feasibility included:

1. Safety of bicyclists and pedestrians using the trail
2. Minimization of environmental impacts
3. Agency, community and stakeholder approvals
4. Cost effectiveness

Initial parameters of project elements were discussed with District-7 staff. An extensive site meeting was conducted to discuss potential feasibility issues and implementation challenges. Caltrans District 7 attendants of the meeting were: Dale Benson, Local Assistance; Ken Hatai, Traffic; Mahmoud Hajjar,Traffic; Gedion Werrede, Structures; and Utin New, Structures. Caltrans staff provided several constructive comments of how to improve project alternatives and a consensus field determination was made that, pending incorporation of suggestions, project alternatives are substantially feasible within a general planning framework. All future alterations to the roadway, bridge approach and abutments, as well as traffic calming measures would have to be reviewed and approved by Caltrans in the future.

4.2 At-Grade Crossing Alternatives

In order to provide a safe, at-grade crossing for bicyclist and pedestrians across Highway 39, significant traffic calming measures to reduce vehicular speed on the highway is necessary. Currently the posted speed is 40 miles per hour (mph), however many vehicles surpass this speed limit in this location. Speed reduction to 25 mph with advanced warning signs in each direction to inform drivers of an at -grade crossing would be imperative for the safety of bicyclists and pedestrians crossing the Highway into the Park, and for vehicles entering and exiting the Park.

In each of the alternatives detailed below, the existing Class I Bike Path would be extended north in it's existing alignment and width, offset 20 feet from the Highway's edge of pavement. At a specified crossing site that best aligns with park entry road, the bike path alignment would be modified to fit the specifics of a crossing configuration. Recreational users would cross the Highway at-grade. The two different crossings conceptually explored include:

Fig. 4-2
An example of a roundabout and crosswalk

Roundabout
(Preferred At-Grade Alternative)

A roundabout constructed at the intersection would provide the traffic calming element necessary to significantly reduce highway speed in this location. The footprint of the curbed and landscaped roundabout would be approximately 120 feet in width and extend beyond the Caltrans Highway 100 ft right-of-way width and into the Watershed Conservation Authority property. The bike path would cross at the northern leg of the roundabout. Bike path modifications include fencing on the west side towards the river, and a metal beam guard rail placed between the bike path and Highway 39.

Pedestrian Crosswalk (Rejected Alternative)

The design of a safe, at-grade pedestrian crossing with a smaller footprint than a roundabout would require several traffic calming elements. Adequate safety measures would include 1) the construction of a raised central median to provide a refuge area for pedestrians; 2) installation of pedestrian actuated flashing beacons to warn traffic of pedestrian crossing and 3) installation of a traffic signal to stop vehicles during pedestrian crossings. The community was opposed to the idea of installing a traffic signal and flashing beacons at this natural and scenic location.

Pedestrian Bridge over Highway 39 (rejected alternative)

An Above-Grade crossing designed as a pedestrian bridge over Highway 39 was briefly considered as an option that avoided passage under the existing bridge. Considerable visual, environmental, and cost impacts led to the elimination of this alternative. A massive overhead structure would significantly impact views. The need for switchback ramps leading to the overhead crossing would require a large footprint resulting in higher environmental impacts and cost. This alternative was poorly received by the community and was not considered a cost effective alternative.

4.3 Under Bridge Crossing Alternatives

In designing an under bridge crossing at the site several optional strategies are available. Structural considerations pertain to the construction of the underpass features. Two major options exist that includes a more conventional approach that utilizes grading and construction of retaining walls to place the bike path under the existing bridge. Another option is to construct a free-standing curved bridge struc-

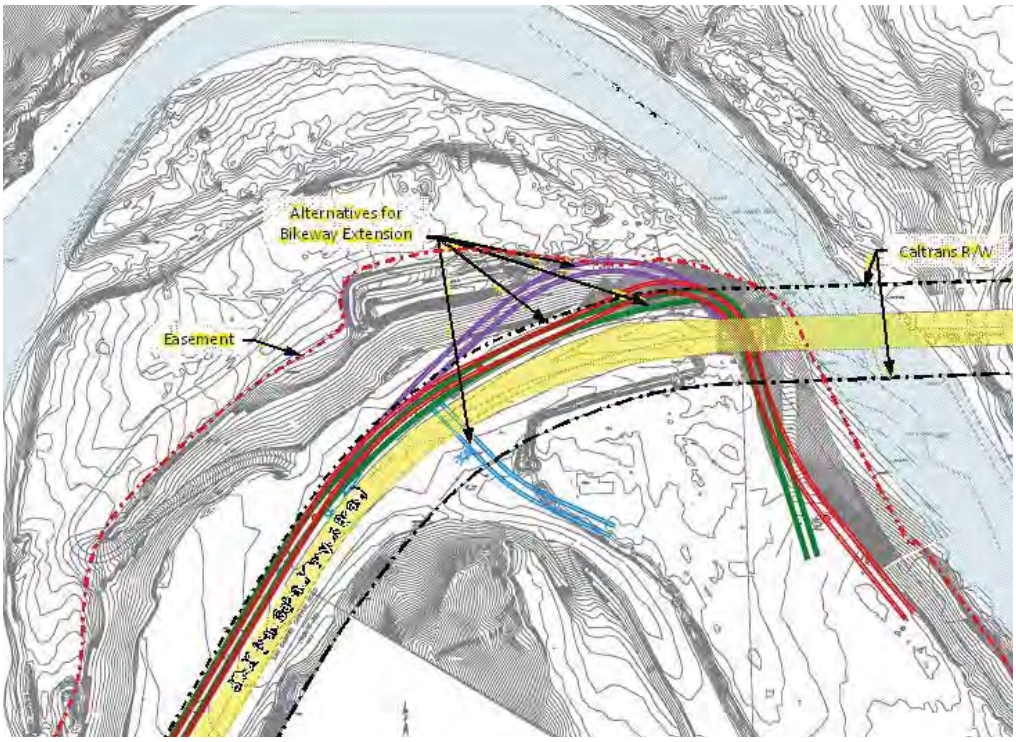


Fig. 4-4
A comparison of the alternative approaches to the Bicycle trail alignment

Key

Blue	Alt A	At-Grade Crossing
Red	Alt B	Crossing Below Highway 39 Bridge - 20 MPH
Green	Alt C	Crossing Below Highway 39 Bridge – 15 MPH
Purple	Alt D	Crossing Below Highway 39 Bridge- 25MPH

ture where the bike path is installed as a deck on on steel or concrete girders. The use of Caltrans standard wall designs would minimize review time and stone veneer could be applied to mitigate aesthetic concerns. A bridge option along a portion of the path could reduce the lengths of wall and vary the aesthetic of the bike path structure. Retaining wall types and bridge superstructure types are detailed in the Bike Path Extension Feasibility Study prepared by MTS, June 2011 (Appendix A) .

The fist layout option pertains to the exact location and type of crossing under the bridge. There are two options. One crosses north of the first bridge column (Bent 2), and the other one crosses between the bridge column and the abutment. An optional consideration was a truss option where the bike path is suspended from the existing truss. This concept was rejected because any additional loads placed on the existing bridge would alter the structural integrity of the bridge and require an expensive structural analysis and potential retrofit of the bridge. Placing the path north of the bridge column and foundation was eliminated as an option because this would also pose a conflict with the existing conservation easement.

In order to continue the bike path along the slope and lower it to an elevation below the current bridge, several layout options exist that are primarily related to path curvature and velocity of travel. Layouts with a higher design speed would require a

wider footprint as the curvature radius would be greater. Design layouts were generated for design speeds of 15, 20, and 25 mi/hr. This preliminary evaluation showed that the Caltrans standard 25 mile/hr design layout was not feasible because it was in conflict with the Conservation Easement at the site. An exception to the standard is allowable pending review and approval of a Fact Sheet Exception to Mandatory Design Standards. This exception is attainable through design mitigation that would reduce speed of travel such as signage. Hence, the 20-mile/hr. design speed layout was taken as the most probable alignment that would have greatest speed and would not be in conflict with the conservation easement.

Fig. 4-3
Examination and discussion of the Highway Bridge structure in the field

Once less feasible alternatives were eliminated two major Alternatives for under bridge crossings were brought forward. In each of the under bridge crossing alternatives described below, the Class I Bike Path would extend north in it's existing alignment. As it approaches the bridge, each alignment would dip below the grade of the Highway in order to pass under the bridge over the San Gabriel River. Where walls are needed, the bike path would be widened from 8 feet to 11 feet providing additional lateral clearance. Safety railing would also be applied at specific lengths as determined necessary.

Each alternative alignment is situated above the flood line of the river and would not be subject to closure due to flooding.

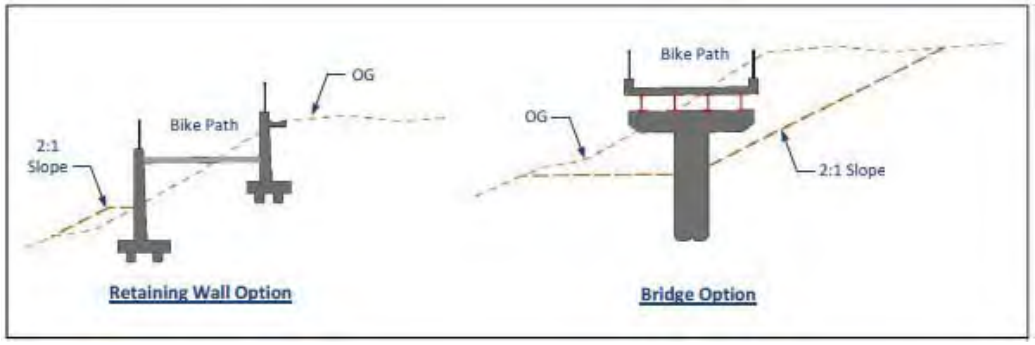


Fig. 4-5
Structural options for the bridge undercrossing

Alternative 2a: Crossing Below Highway 39 Bridge with a 20 mph curve.

Option A: Retaining Wall Option (preferred alternative)

The preferred alternative path swings away from the highway as it descends down and curves underneath the bridge between the abutment and the first column (Bent 2) without touching the bridge itself. Retaining walls are required on both sides of this alternative; retaining on the right and filling on the left as it descends towards the river. The bike path would curve underneath the bridge with a 90 foot radius curve providing a bicycle design speed of 20 mph. This design speed is lower

than the Caltrans Mandatory Design Standards for a Class I Bike Path by 5mph and may require and exception if approved as shown. This alignment extends outside of Caltran's right-of-way and into the Water Conservation Authority property. However, this curvature alignment avoids encroachment into the California Department of Fish and Game (CDFG) Conservation Easement located adjacent to the San Gabriel River. Removal of bedrock would be necessary to provide the 10 feet of vertical clearance required by Caltrans. A showing that this will not effect the footings of the current bridge by a geotechnical engineer is required as well.

Alternative 2b: Crossing Below Highway 39 Bridge with a 20 mph curve.

Option B: Bridge Option (rejected alternative)

The bridge option uses the same layout as Option A except that the structure would be a free standing curved bridge on girders. This alternative does provide some visual improvements but it was determined that the higher cost was not justified. During public meetings it became apparent that the public favored the construction of the retaining wall option in order to reduce cost and potentially allow the combination of Roundabout Alternative 1 with the Retaining Wall Alternative 2a.

Further details are presented in the Bike Path Extension Feasibility Study attached as Appendix A.

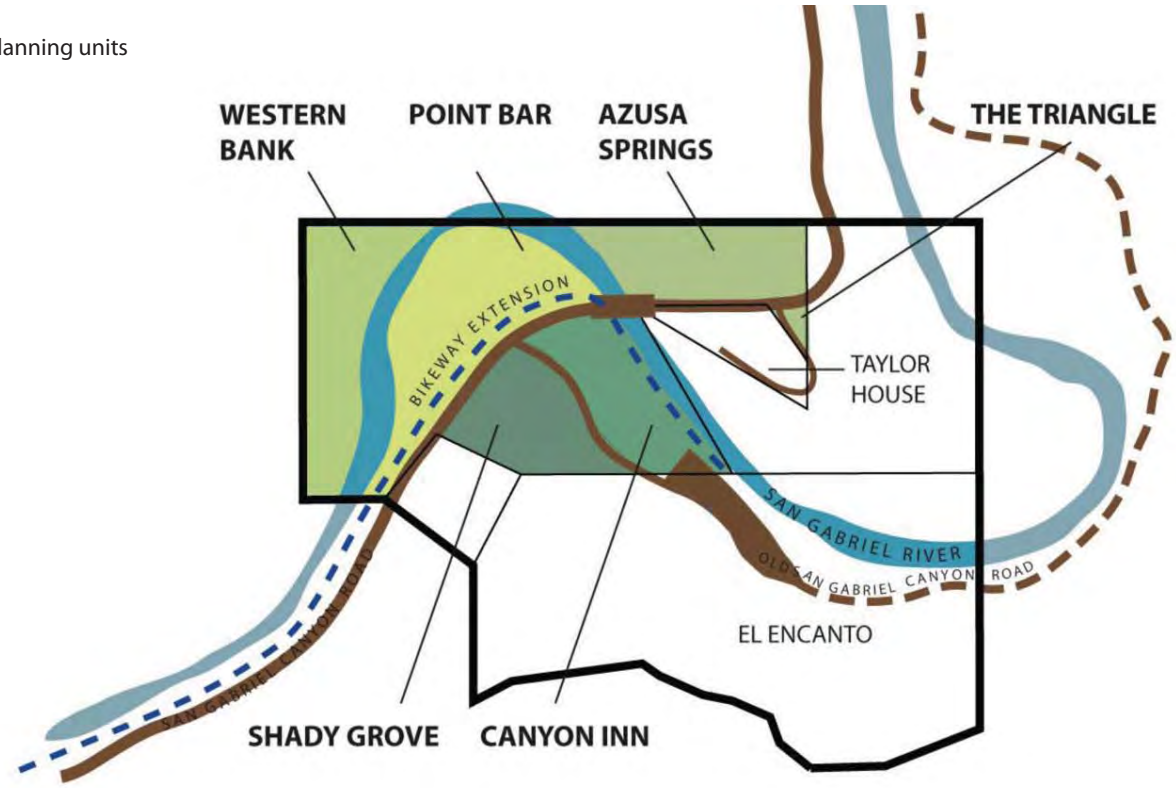
Fig. 4-6
Conceptual rendering of Highway 39 Bike Path undercrossing

Chapter 5:
PROJECT AREAS, PROGRAM ANALYSIS & PLAN ALTERNATIVES

5.1 Project Planning Areas

The Canyon Inn Property can be divided into eight distinct planning units that are physically separated by the highway, the entrance road, or the river. Developing names for these eight project areas assisted both the public and the design team in navigating the complex site for planning and communication. Each of the distinct planning units were addressed individually in the design process.

Fig. 5-1
The project planning units



Canyon Inn Site

This is the vacant area east of the highway and west of the El Encanto parking lot that was formerly occupied by the Canyon Inn Restaurant and Bar that was a popular spot for weekend travelers. The building has been demolished by the previous owners of the property and the area is now a flat barren area with mostly ruderal vegetation. The river bank is littered with debris and miscellaneous utility poles, fencing and concrete footings are still present at the site. This area constitutes the largest available developable area of the property and is most appropriate for the envisioned structural park improvements of this project.

Shady Grove

The Shady Grove area is a flat elevated area perched against the steep slope south of the access road and the Canyon Inn site. The area has been graded to include a small driveway and a building site. A number of large trees provide a screen to create a secluded park area. The steep north facing slope above is dominated by dense stands of Coast Live Oak and Southern Mixed Chaparral.

Highway 39

State Route SR39 consists of a highway easement through the River Wilderness Park. The 100-foot wide easement includes the roadway, the San Gabriel River bridge, the

road shoulders, and the engineered embankments associated with the road construction. Areas next to the easement may be used for overlooks, signage, interpretive elements, or other destinations and the shoulder may be modified to provide access to these.

The Triangle

The triangle is a small piece of land in the northeast corner of the property that has been in joint use with the operators of the Rainbow Ranch as a storage place and maintenance yard. There is a small gate uphill of the entry road to Rainbow Ranch and the Taylor House.

The Azusa Springs

This site constitutes the northwestern quadrant of the property west of the highway and north of the river. This beautiful area is the location of the "oasis" a small pond fed by a collapsed water tunnel initially constructed by a water company. This area abuts the Angeles National Forest and ephemeral drainages drop from the steep ridge behind the area. A large meadow and former building site straddle the boundary between the property and the Angeles National Forest. Access to this site is only possible through a small road segment on the property of Rainbow Ranch. The road continues under the highway bridge and becomes the west-side trail along the river. This trail formerly continued south along the river to the City of Duarte, but a small portion of the old road was destroyed by a rockslide making it currently impassable. The site affords spectacular views of the river and pristine natural habitat.

Fig. 5-2
The old road cut on the Western Bank hillside

The Point Bar

This area is the large gravel point bar west of the highway on the south side of the river. The area has a small access road and gate along Highway 39 and was formerly used to quarry river gravels. Most of the site is now protected by a conservation easement precluding development and public access.

The Bike Path

The flat area west of the highway between the highway shoulder and the fence to the point bar is named the bike path. This area extends from the current end of the bike path to the highway bridge and constitutes the planning area for a potential bikeway extension.

Western Bank

The western bank is the southwestern corner of the property. This area was formerly connected to the Azusa Spring area through a historic trail on the west side of the river. It consists of the steep slope and a large gravel bar on the west side of the river that is currently protected by a conservation easement.

5.2 Program Analysis

The planning process started with extensive conversations with the stakeholders and agency staff to develop a broad list of potential or desired improvements and alternative program elements at the property site. An extensive list was created that included all suggested project elements. The list was further expanded by input from the steering committee. Concurrently, the consultant teams performed an existing conditions review of all relevant planning areas of the site, producing a large set of known planning requirements, as well as factual constraints and conflicts. The list of planning elements was then checked against existing planning documents including the El Encanto Master Plan, the San Gabriel River Corridor Master Plan and the City of Azusa Rio Vision Plan. Elements with known conflicts and infeasible elements were eliminated.

This ultimately led to the formulation of three feasible alternative plans that were intended to show the entire breadth of available options for all planning areas. Concurrently an engineering study for feasible alternatives for the extension of the bikeway into the River Wilderness Park was performed prior to the presentation of alternatives to the public. This was done to assure that no infeasible project elements were presented to the public.

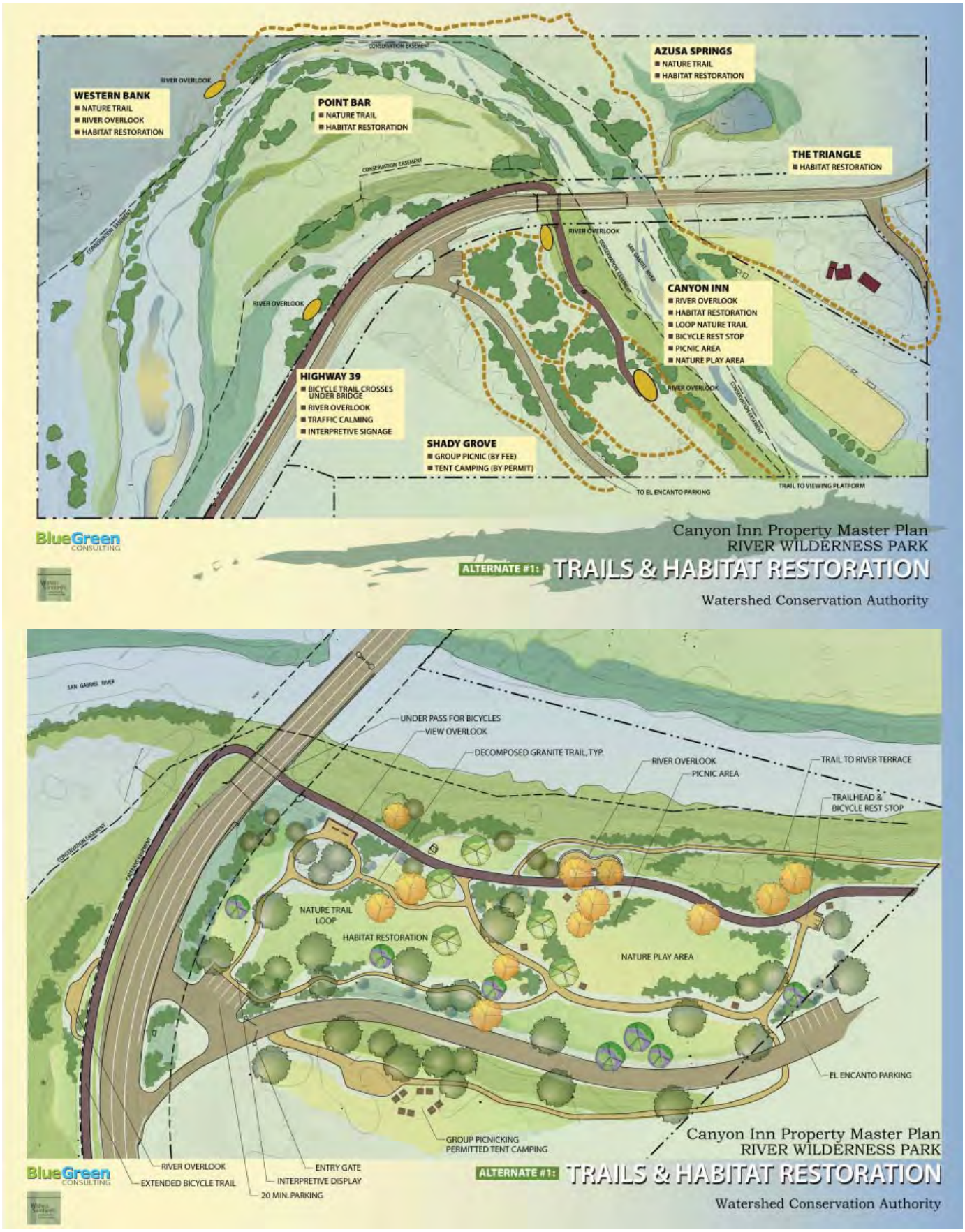
5.3 Alternative Plan Selection

Three Alternative Plans were developed and presented to the Steering Committee and the public. Each of the three alternatives was illustrated at two scales to show the former Canyon Inn site in detail and to show the larger extent of the project area. Alternatives were developed to show a broad range of feasible programming options and to establish alternatives with an increasing environmental foot print and cost, so that it was possible to gage public input with regard to the degree of development that would be taking place at the site.

ALTERNATIVE 1: TRAIL AND HABITAT

This low-impact alternative stresses nature experience, habitat restoration and a minimized development footprint. The alternative would provide most park amenities within the flat site that was formerly the Canyon Inn. The design is geared to accept visitors with the intent to enjoy nature and trails in the vicinity. A bike rest stop would welcome cyclists arriving at the site and only a limited amount of parking would be available. The bikeway would be extended under the bridge but there would be no at-grade improvements for access. Areas for individual picnicking, a nature play area, a small loop nature trail, and a river overlook would provide a close nature experience. This would be enhanced by substantial restoration of habitat

Canyon Inn Site Plan



at the site. The area would also serve as a trailhead for visitors who continue to the gaging station. The shady grove area would act as a group picnic and camp site that would require reservations.

There would be a river overlook on the west side of the highway with traffic calming measures and interpretive signage. This overlook and limited parking on the east side of the highway was intended to allow visitors to stop for a view without actually entering the park. These areas would also have a limited amount of interpretive elements. All other areas such as the triangle, Azusa Springs, the western bank and the point bar would be restored habitat with only a small trail along the northern river bank to reach a vista point.

ALTERNATIVE 2: SPECIAL USE PAVILION

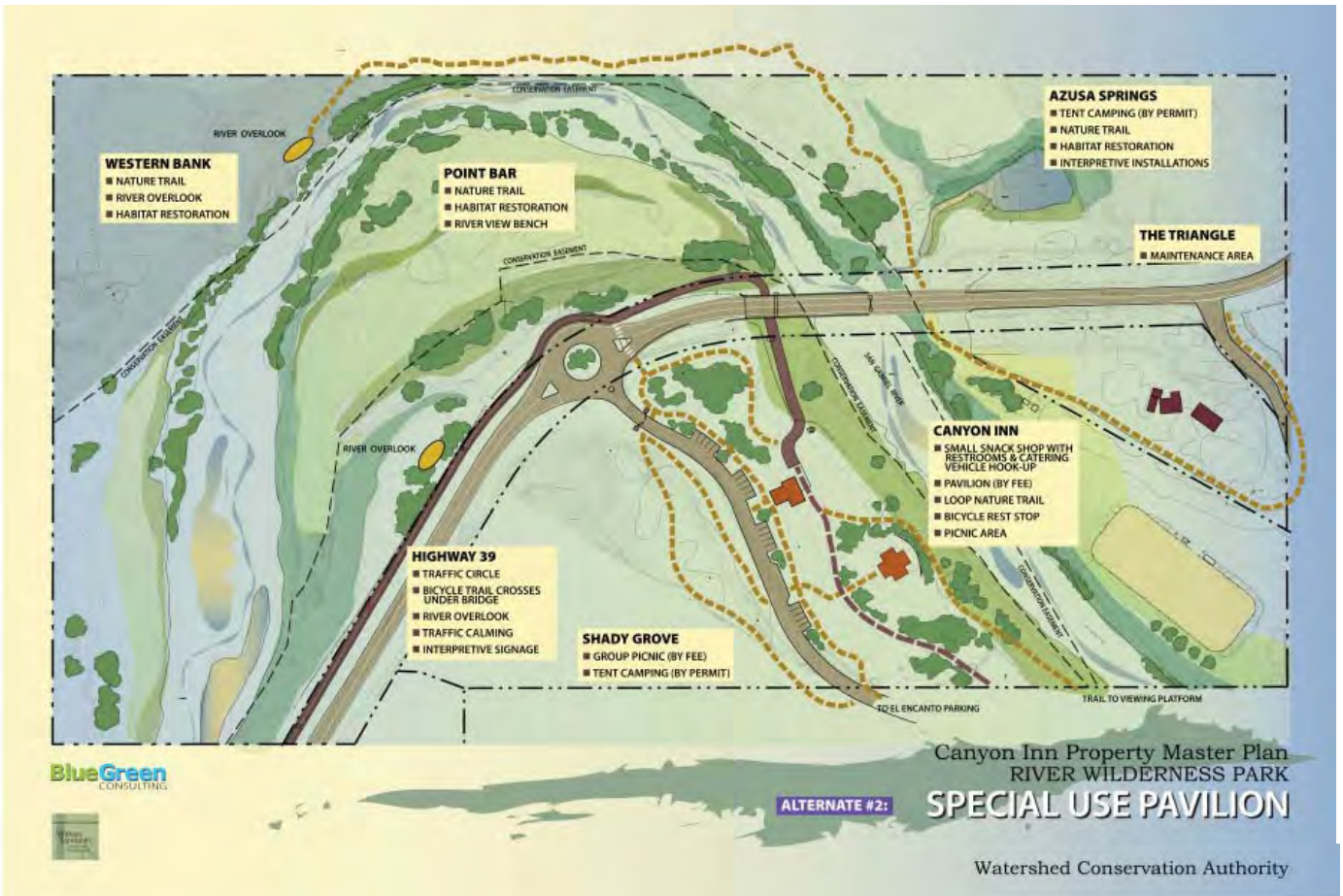
This alternative increased the number of recreation amenities and the degree of development substantially improving access, parking, and use of the site. A snack shack with restrooms and a open-air paviion structure was added. The pavillion was envisioned as a multi-use facility that could host weddings or family reunions and could bring needed revenue to the park. The snack shack would be run by a concessionaire or would only provide a parking spot for a catering vehicle.

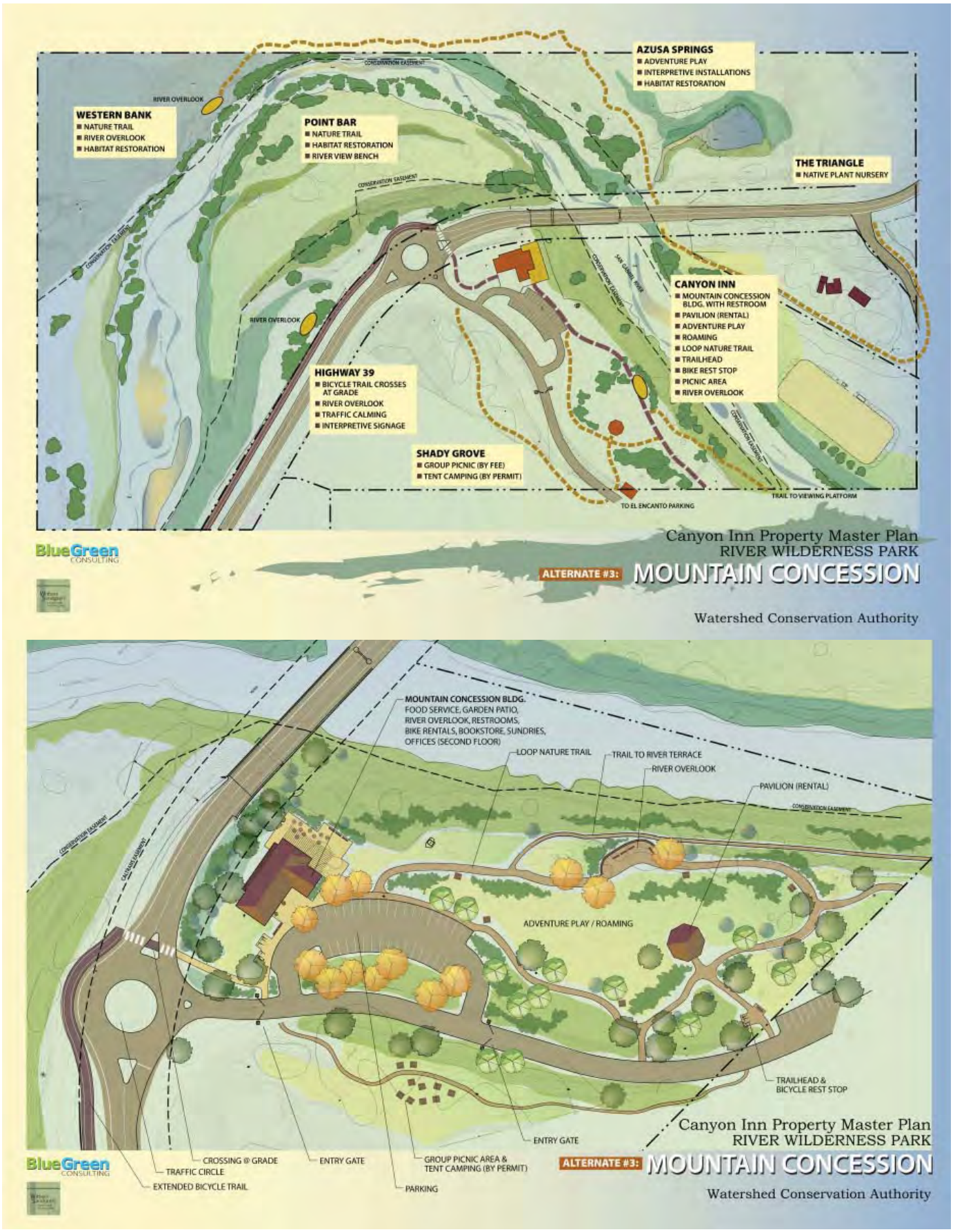
This alternative would have both a roundabout and an under bridge crossing. Areas for picnicking, a nature play area, a small loop nature trail and a river overlook would provide a close nature experience. The area would also serve as a trailhead with interpretive signage and the shady grove area would serve as a group picnic and camp site that would require reservations. There would be a river overlook on the west side of the highway with traffic calming measures and interpretive signage. The triangle site would become a maintenance area and the Azusa Springs area would have a nature trail, habitat restoration, and permitted group camping and interpretive installations. The western bank would be restored habitat with only a small trail along the northern bank to reach a vista point. On the point bar a small trail outside the conservation easement would allow limited access and a bench.

ALTERNATIVE 3: MOUNTAIN CONCESSION

The last alternative was the most developed option with a mountain concession building with restrooms, food service, a small shop with basic mountain sports provisions, out-door patio and river overlook. Adjacent parking would be provided and a small pavilion would provide event space for the public. The bicycle trail would extend to the concession via a cross walk.

Canyon Inn Site Plan




AZUSA SPRINGS
ADVENTURE PLAY
INTERPRETIVE INSTALLATIONS
HABITAT RESTORATION
WESTERN BANK
NATURE TRAIL
RIVER OVERLOOK
HABITAT RESTORATION
POINT BAR
NATURE TRAIL
HABITAT RESTORATION
RIVER VIEW BENCH
THE TRIANGLE
NATIVE PLANT NURSERY
CANYON INN
MOUNTAIN CONCESSION BLDG. WITH RESTROOM
PAVILION (RENTAL)
ADVENTURE PLAY
ROAMING
LOOP NATURE TRAIL
TRAILHEAD
BIKE REST STOP
PICNIC AREA
RIVER OVERLOOK
HIGHWAY 39
BICYCLE TRAIL CROSSES AT GRADE
RIVER OVERLOOK
TRAFFIC CALMING
INTERPRETIVE SIGNAGE
SHADY GROVE
GROUP PICNIC (BY FEE)
TENT CAMPING (BY PERMIT)
TO EL ENCANTO PARKING
TRAIL TO VIEWING PLATFORM
BlueGreen CONSULTING
Canyon Inn Property Master Plan
RIVER WILDERNESS PARK
ALTERNATE #3: MOUNTAIN CONCESSION
Watershed Conservation Authority
MOUNTAIN CONCESSION BLDG.
FOOD SERVICE, GARDEN PATIO, RIVER OVERLOOK, RESTROOMS, BIKE RENTALS, BOOKSTORE, SUNDRIES, OFFICES (SECOND FLOOR)
LOOP NATURE TRAIL
TRAIL TO RIVER TERRACE
RIVER OVERLOOK
PAVILION (RENTAL)
ADVENTURE PLAY / ROAMING
TRAILHEAD & BICYCLE REST STOP
ENTRY GATE
CROSSING @ GRADE
TRAFFIC CIRCLE
EXTENDED BICYCLE TRAIL
ENTRY GATE
PARKING
GROUP PICNIC AREA & TENT CAMPING (BY PERMIT)
BlueGreen CONSULTING
Canyon Inn Property Master Plan
RIVER WILDERNESS PARK
ALTERNATE #3: MOUNTAIN CONCESSION
Watershed Conservation Authority

Chapter 6:
FINAL SITE DESIGN PLAN

6.1 Final Canyon Inn Site Plan

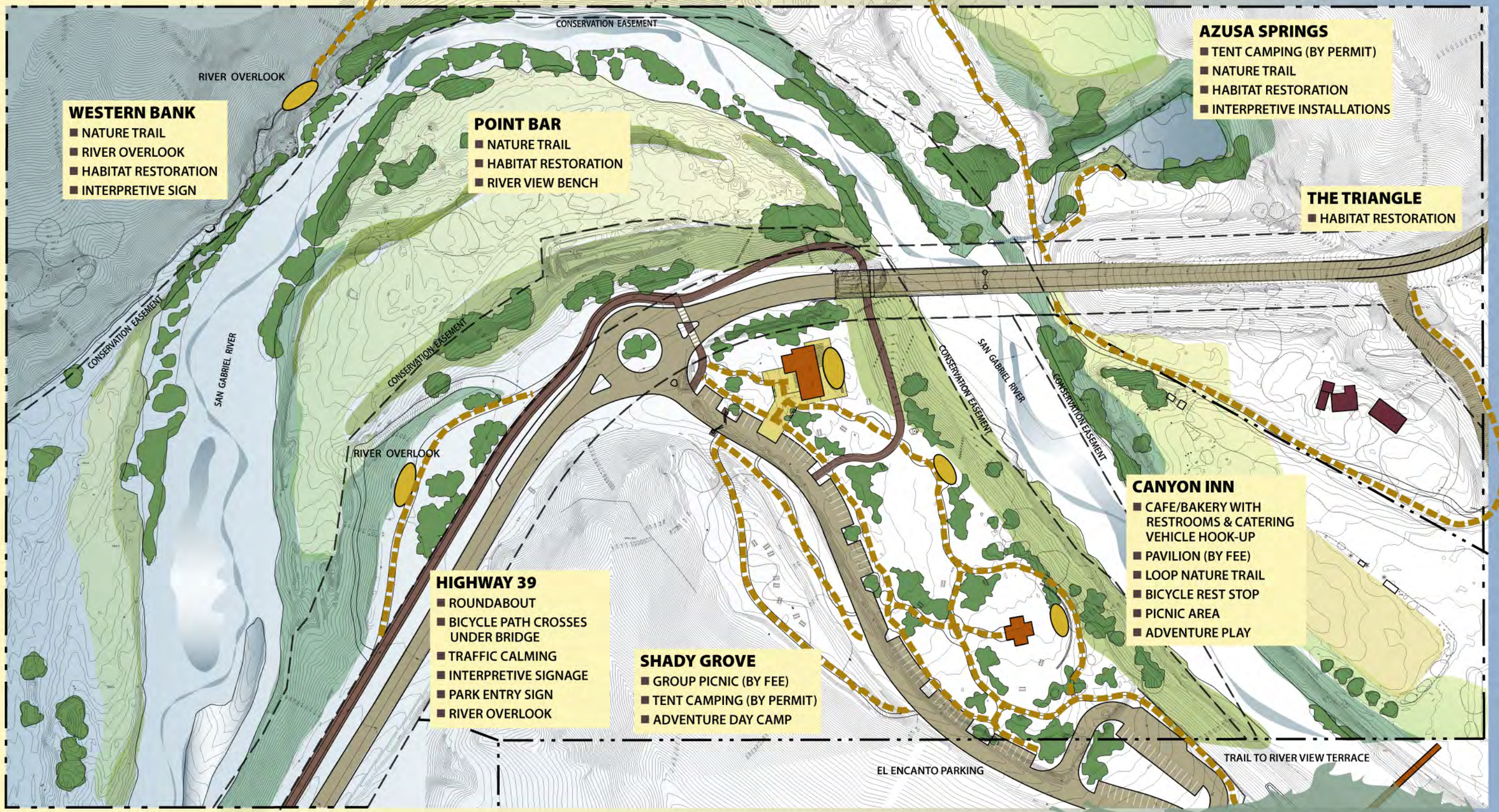
The selected preferred alternative for the Canyon Inn was the Special Use Pavilion Plan. The plan was revised to incorporate some features from the Mountain Concession Plan that were proposed by the public and the steering committee during the comment period. Other improvements were made to follow the spirit and the goals put forth in the "Nature Experience" theme of the initial El Encanto Master Plan. Some changes to the parking and entry areas were made to seamlessly integrate the Canyon Inn Plan into the El Encanto Master Plan.

The preferred alternative extends the bike path underneath the highway bridge to the site of the former Canyon Inn using a retaining wall design that does not impact the conservation easement along the river. In addition, a roundabout provides both traffic calming and safe pedestrian crossings at-grade. Main features of the park site will be a small concession building and a public pavilion. The following narrative details improvement for the various planning areas.

6.2 Former Canyon Inn Site

A modest concession building with restrooms was included in the plan in response to overwhelming support by participants during the public outreach for the availability of food services. The facility is expected to be a source for park revenue and an amenity for park users. The modest park structure would house a café and small shop for outdoor provisions and maps. Food services, public restrooms and patio seating overlooking the river will create a new "Trail's End" destination for the San Gabriel River Bike Path. The building footprint on the proposed site plan is 2500 square feet with a 25' setback from the Highway 39 easement.

Fig. 6-3
The concession building should reflect the natural elements of the mountains



BlueGreen CONSULTING

Withers Sandgren Landscape Architecture

WATERSHED CONSERVATION AUTHORITY

CANYON INN SITE PLAN

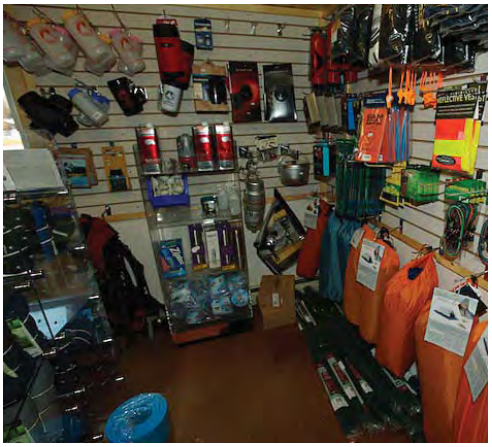
RIVER WILDERNESS PARK

BlueGreen CONSULTING

Withers Sandgren Landscape Architecture

CANYON INN SITE PLAN

RIVER WILDERNESS PARK



The concession building would be located at the terminus of the bike trail and will serve as the rest stop for bicycle riders. A generous patio and an open area towards the river will provide spectacular views. Amenities will include bike racks, benches, bear-resistant trash receptacles and interpretive displays.

Not far from the concession building, a separate river overlook provides visitors with a safe place to view the San Gabriel River. Low stone walls will create a protected lookout space for park visitor and informal gatherings. Amenities include benches and bear resistant trash receptacles.

Envisioned as both a source of park revenue and an amenity for public park users, a new multi-purpose park pavilion will be constructed of wood and natural stone. The roofed open air structure will be constructed of heavy timbers with a massive stone foundation. The flexible indoor/outdoor space will be designed to be used as a rental facility, which accommodates both intimate and large park events. Lighting, electrical outlets and built-in storage will be available at the Pavilion. The proposed pavilion footprint is 1800 square feet. Space for a catering vehicle will be located near the park pavilion.

An important goal of the site design is to provide a balance that allows the nature experience to remain an over-arching theme. An ADA compliant loop nature trail system provides a series of interconnected loops designed for strolling and park circulation that integrates native plants and interpretive elements and allows for explorative play by children.

Several areas of the park incorporate opportunities for adventure play to encourage children to roam and play freely. A water play feature such as a water pump designed for safe play will allow kids to interact with nature via water, sand, rocks, mud and sticks.

Individual picnic tables will be provided throughout the Canyon Inn property. A grouping of picnic tables will be located near the Park Pavilion.

The Old San Gabriel Canyon Road is the primary axis of the park's vehicular circulation and trail system. This historic mountain route once functioned as the gateway into San Gabriel Canyon prior to the Highway 39 Bridge construction. Today Old San Gabriel Canyon Road extends from SR39 to the gauging station below Morris Dam. The road is paved through the River Wilderness Park. Past El Encanto the road is gated.

The road through the park site will be realigned and repaved. In following the initial River Wilderness Master Plan this plan proposes to remove the existing parking lot and end public vehicular traffic at the property boundary between Canyon Inn and El Encanto. A new parking lot with turnaround and drop-off would be located here that also serves as trailhead for hikers. Whether entering by bike, trail, or car, visitors will likely pass through the site and arrive at this fully accessible trailhead that includes way-finding displays designed to orient visitors to trails and other park areas. The area will act as starting point for the trail to the gaging station, a popular hike with picturesque river views. People accessing the special use area would also leave their vehicles behind at this point. A new gateway structure will signal the availability of park resources beyond, but allow only permitted vehicles to pass beyond this point.

Moderate head-in parking will be provided along the Old San Gabriel Canyon Road for 88 vehicles. The perpendicular parking spaces on the north side of the entry road will include 3 ADA spaces and a parking bay with an electrical outlet for a catering vehicle. Coast Live Oaks will be planted to shade parking. Areas are indicated where additional parking for up to 30 vehicles could occur if desired/required. A limited number of short term parking spaces will be provided near the park entry.

The landscape planting at the Canyon Inn feature species occuring in Coast Live Oak Woodlands; coast live oak (*Quercus agrifolia var. agrifolia*), holly-leafed cherry (*Prunus ilicifolia ssp. ilicifolia*), cofffeeberry (*Rhamnus californica ssp. californica*), hollyleaf redberry (*Rhamnus ilicifolia*), golden current (*Ribes aureum var. gracillimum*), California wild rose (*Rosa californica*), western elderberry (*Sambucus mexicana*), snowberry (*Symphoricarpos mollis*) and California bay laurel (*Umbellularia californica*).

6.3 Shady Grove

Located south of the park entrance at Old San Gabriel Canyon Road the Shady Grove project area offers a distinct and easily accessible flexible space. Mature exotic trees give this area a secluded feeling. The Shady Grove was a former building site and has a graded entry drive and a large flat pad. The existing grades and vegetation obscure this area from view and create an opportunity for isolated group outdoor activities.

This site will be available for rent as a group picnic and day camp site. The design will accommodate a moderate size gathering. Amenities include picnic tables, drinking fountain, water faucet, trash receptacles, vehicle access and a limited num-

ber of ADA and temporary parking spaces. A removable bollard will restrict unauthorized vehicle access. When Shady Grove is rented for a set fee, casual park visitors will be restricted from entering the area.

Adventure play elements such as notched logs for building forts encourage active play. Interpretive elements may reflect "Treasure Hunts." Other elements may be horseshoe pitches, tug-o-war matches, and game play amenities.

The site will allow a limited amount of "permitted" over-night tent camping by scouting organizations. The design for this area can incorporate landmarks and interpretive features into orienteering activities. Areas will be designated for outdoor skill building activities such as bow and arrow target practice.

The Shady Grove will be planted with Mixed Chaparral/Coast Live Oak Woodland species which dominate the northeastern facing slope above the Canyon Inn Site. Plantings will include coast live oak (*Quercus agrifolia*), flowering ash (*Fraxinus dipetala*) goldern yarrow (*Eriophyllum confertiflorum*), heartleaf penstemon (Keckiella cordifolia), western virgins bower (*Clematis ligusticifolia*), California bay laurel (*Umbellularia californica*), and blue-eyed grass (*Sisyrinchium bellum*).

6.4 Bike Path

A key component of the site plan is the extension of the San Gabriel River Bike Path into the River Wilderness Park. The extension of this regional recreation facility will create a northern destination and end point. Currently the trail abruptly ends alongside Highway 39.

The under bridge crossing will allow for the uninterrupted flow of bicycles and pedestrians below Highway 39. It creates a grade separation between the recreational trail and the highway vehicles providing safe assess to the River Wilderness Park. The structure will use a retaining wall design and pass between the bridge column and the bridge abutment without actually touching the bridge. The structure will stay outside the conservation easement. This new trail will be ADA compliant.

A small river overlook area with a pedestrian trail will be included in the extension of the bike trail on the western side of Highway 39 between the current end of the bike path and the ramp crossing. Amenities will include metal benches, a bear-resistant trash receptacle and interpretive signage.

The rocky north facing slopes adjacent to the undercrossing may provide habitat for the sensitive, endemic San Gabriel River dudleya (*Dudleya cymosa crebrifolia*) and San Gabriel Mountains Live-forever (*Dudleya densiflora*), a special status species known to occur in the River Wilderness Park. These dudleyas could be planted with fairy lantern (*Calochortus albus*), skunk brush (*Rhus trilobata*) and chaparral yucca (*Hesperoyucca whipplei*).

Fig. 6-3
Conceptual rendering of Highway 39 Bike Path undercrossing

6.5 Highway 39

High speed, curves, and obstructed sight lines create an unsafe environment for pedestrians, bicyclists and motorists as Highway 39 cuts through the River Wilderness Park. There are currently no measures indicating that this reach of highway and the San Gabriel River bridge lie within a park. Implementing both passive and active traffic calming strategies will increase public safety and enhance the park environment.

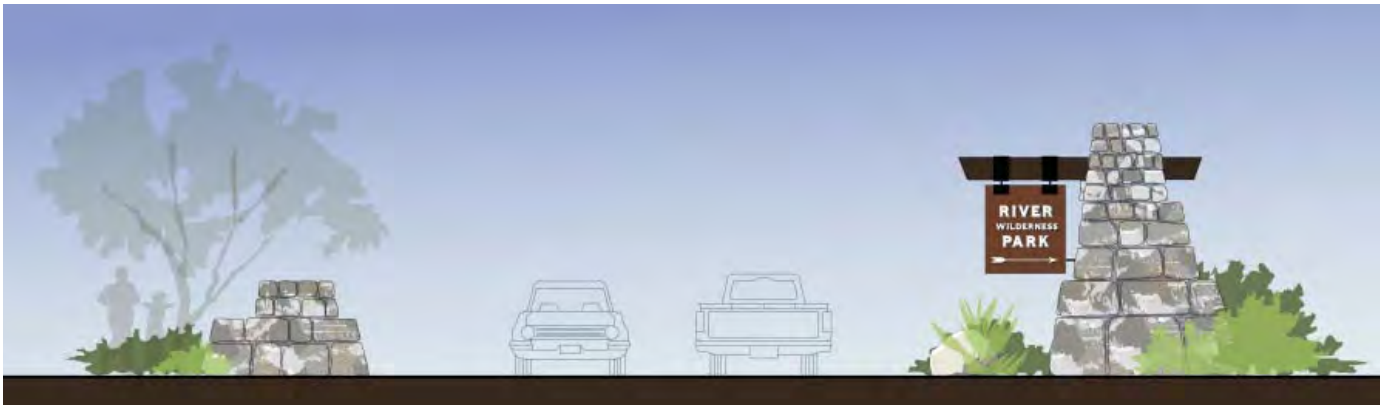
Greater use of the park facility will result in larger numbers of vehicles entering and exiting the park. In particular, the left turn exit towards Azusa, and the left turn entry coming from the mountains are problematic as sightlines are obscured and vehicles generally exceed the 40 mph speed limit. In addition, many bicycles continue on

into the mountains on the highway and have to cross the road, and many pedestrians are tempted to cross the road directly to reach the park, suggesting that further traffic calming activities need to be considered. Hence, a roundabout and additional traffic calming measures such as medians, striping, crosswalks, illumination, and signs are part of the preferred alternative.

Caltrans engineers recommended the use of a roundabout as an intervention following a site visit to the River Wilderness Park. The traffic roundabout is a relatively new concept for highway intersections and relies upon a circular traffic flow pattern and the use of yield control on each approach to the intersection. The modern roundabout is recognized nationally as a traffic control measure providing unique and operational and safety benefits over a wide range of traffic volumes and conditions. The single-lane version is especially effective in reducing collision frequency and/or severity for all highway users.

Passive traffic calming refers to measures that do not force a change in driver behavior, but provide visual or other cues that can encourage drivers to travel at slower speeds. Passive traffic calming measures include color and texture, streetscape improvements, and integrated street design. In this alternative a major gateway structure and monument identifying the River Wilderness Park will provide a passive traffic calming function along Highway 39.

The rustic "National Park Service-style" gateway with low stone walls and durable signs will identify the River Wilderness Park as a distinct nature destination. To vehicles entering the park, the gateway structure will indicate a change in the roadway environment, from a mountain highway to a pedestrian-speed park district. The gateway will combine safety elements such as lane narrowing, crosswalks, medians, and signs, with aesthetic or architectural elements such as plantings, monument signs, and lighting.



A well-designed roadway lighting system will improve pedestrian comfort and safety. If provided, sufficient overhead lighting can allow motorists to see pedestrians in time to stop. High visibility crosswalks will be used to improve safety and to emphasize the recommended path for crossing an intersection.

HIGHWAY LANDSCAPING IMPROVEMENTS & HABITAT RESTORATION

The Highway 39 park corridor landscape will be enhanced with informal plantings of Coast Live Oaks and chaparral yucca. The Coast Live Oak trees will receive irrigation for a three year establishment period.

Ruderal areas and slopes which are impacted by construction will be revegetated with a mosaic of California Sagebrush Scrub, dominated by California sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*) and California buckwheat (*Eriogonum fasciculatum*), and Southern Mixed Chaparral which includes chamise (*Adenostoma fasciculatum*), ceanothus (*ceanothus* spp.), ceanothus, scrub oak (*Quercus berberidifolia*), and coast live oak (*Quercus agrifolia*).

6.6 Azusa Springs and Western Bank

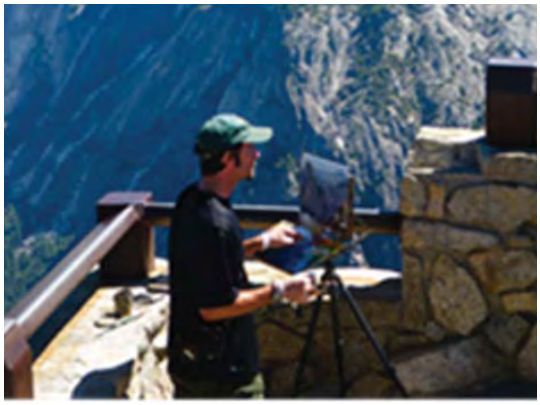
The Azusa Springs area abuts the Angeles National Forest and public access to the Azusa Springs area will inadvertently allow access to a portion of US Forest Service land. An old road traverses the area from the Highway 39 Bridge across the Azusa Springs area onto Forest Service property and back onto a remote area of the Canyon Inn property referred to as the Western Bank. Parts of this road have been obscured by vegetation and buried in landslide debris. It is anticipated that a Categorical Exclusion will be issued by the USFS for access and trail improvements.

Plans for this area are to allow low impact public access for nature exploration and limited access for group activities. There will be no dedicated parking for this area and access will be on foot. A limited amount of public ADA parking may become feasible at the City owned Taylor House in the future. The old road will be turned into a nature trail to connect to a river overlook along the western bank. Other improvements will include interpretive installations that center around the role of the San Gabriel Mountains and the Azusa Springs water tunnel in securing the region's water supply. Other interpretive elements may include habitat and conservation, and geomorphology.

Overnight group camping for a fee will be possible, but contingent on the future availability of a restroom facility at the Taylor House location. It is assumed that use of this area for limited camping would be tied to organized activities at the Taylor House. Camping would be limited to primitive low impact/dry camping without dedicated amenities.

The Western Bank trail will provide extraordinary views of the River, mountains, and the large expanse of the River Wilderness Park. For the nature trail the existing road bed will be cleared of debris from landslides and brush to allow for a narrow nature trail.

The nature trail will terminate at a river overlook. The overlook will be constructed of stone and include a small landing and low walls for seating and safety. The overlook will create a rewarding park destination for nature lovers. An interpretive display at the overlook may feature descriptions of the flora, fauna found along the San Gabriel River.



One major component of this plan would include habitat restoration. The river banks, upland, and pond area will be restored to enhance native habitat. Exotic non-native plants will be removed. The new planting plan will maximize high-quality riparian habitat. The area will feature Sycamore Woodlands habitat plantings, a riparian community dominated by California sycamore (*Platanus racemosa*) associated species include Western Elderberry (*Sambucus mexicanus*), toyon (*Heteromeles arbutifolia*), mule-fat (*Baccharis salicifolia*), and mugwort (*Artemisia douglasii*) with patches of Nevin's barberry (*Mahonia nevinii)* and woolly bluecurls (*Trichostema lanatum*).

Around the water pond or "oasis" the invasive exotic Mexican fan palms will be removed. The new planting will transform the site from an oasis to a mountain spring. Rushes (*Juncus* species), sedges (*Carex* species), meadow rue (*Thalictrum fendleri var. polycarpum*), and giant chain fern (*Woodwardia fimbriata*) will surround the pond.

Opportunities exist to introduce areas of Southern Willow Scrub habitat along the drainages in this area. This riparian community is dominated by a mix of willow species and would include arroyo willow (*Salix lasiolepis*) and sandbar willow (*salix exigua*), mugwort (*Artemisia douglasiana*), tarragon (*Artemisia dracunculus*), blue wild rye (*Elymus glaucus*), golden current (*ribes aureum*), skunkbrush (*Rhus trilobata*), mulefat (*Baccharis salicifolia*), creeping wild rye (*Leymus triticoides*), and western elderberry (*Sambucus mexicana*).

The riverbed and banks lie within the Fish & Game Conservation Easement. The conservation easement is managed and monitored as a part of a separate habitat mitigation project and should not be impacted by improvements or visitors to the River Wilderness Park. Thorny thickets of California wild rose (*Rosa californica*) and California blackberry (*Rubus ursinus*) can be planted adjacent to the DFG Conservation Easement to inhibit human access.

The Western Bank of the San Gabriel River has a healthy margin of riparian vegetation which has been identified as patches of Southern Willow Scrub and White Alder Riparian and an extensive reach of Mule-fat Scrub. The steep slope above the Western Bank supports sparse vegetation which has been classified as California Sagebrush Scrub with the dominant species being (*Artemisia californica*), California

buckwheat (*Eriogonum fasciculatum*), California brickellbush (*Brickellia californica*), Chaparral yucca (*Hesperoyucca whipplei*), white sage (*Saliva apiana*), wishbone bush (*Mirabilis californica*) and local dense patches of prickly-pear cactus (*Opuntia littoralis*), with scattered larger shrubs of laurel-leafed sumac (*Malosma laurina*) and lemonadeberry (*Rhus integrifolia*). Due to the steep terrain planting is not recommended for this area except where warranted to prevent erosion near the trail.

Invasive exotic and ruderal plants such as caster bean (*Ricinus communis*) and fountain grass (*Pennisetum* species) have colonized the old roadbed and should be eradicated from this area.

6.7 Point Bar

The majority of the site is protected by the DFG Conservation Easement. The Point Bar Area is bounded by the dramatic river bend and SR-39. A nature trail will be created which overlooks the San Gabriel River and the Point Bar area. The trail will extend along the upper river terrace and will be outside and above the riparian zone and conservation easement. A portion of the trail follows the existing dirt access road then loops back to the top of bluff and highway. Benches will be located along the nature trail. The benches will be sited to optimize habitat viewing opportunities. All benches will be located outside of the DFG Conservation Easement. Current fencing will be removed and replaced with rustic wood post barriers, and thorny thickets will be placed to prevent access to the DFG Conservation Easement. The rustic wood fencing will allow movement of wildlife across the boundaries of the easement.

On the slopes above the Conservation Easement, restoration is needed where exotic weed species have taken hold. Restoration will utilize a combination of species found in Coastal Sagebush Scrub and Southern Mixed Chaparral vegetation communities and will include; California sage brush, (*Artemisia californica*) bigberry manzanita (*Arctostaphylos glauca*), Nevin's barberry (*Berberis nevinii*), chaparral yucca (*Hesperoyucca whipplei*), toyon (*Heteromeles arbutifolia var. arbutifolia*), deerweed (*Lotus scoparius*), foothill needlegrass (*Nassella lepida*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), sugar bush (*Rhus ovata*), giant wild rye (*Leymus condensatus*), California encelia (*Encelia californica*), and coyote brush (*Baccharis pilularis var. pilularis*). Thorny thickets of California wild rose (*Rosa californica*) and California blackberry (*Rubus ursinus*) can be planted adjacent to the DFG Conservation Easement to inhibit human access.

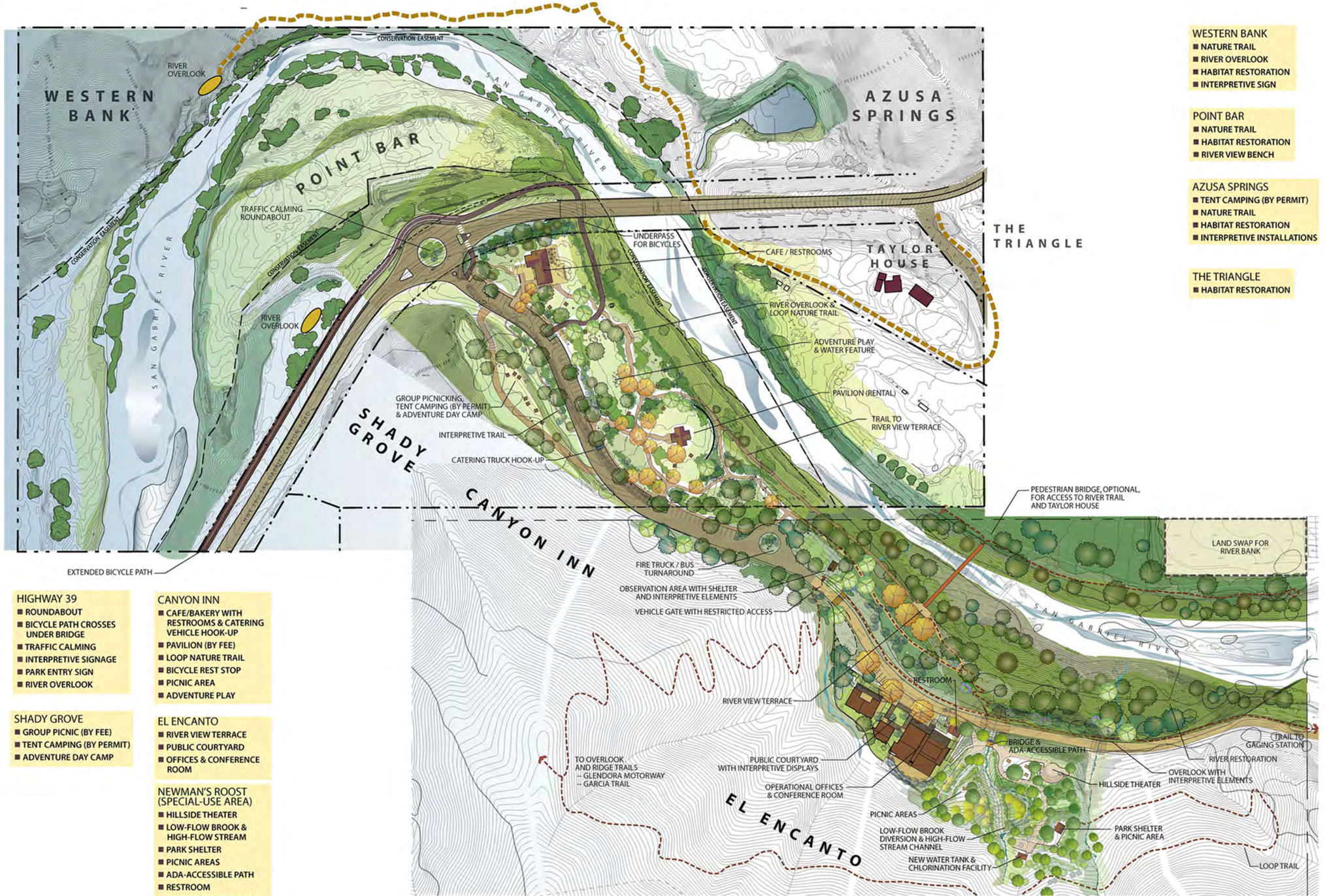
6.8 The Triangle

This triangularly shaped area was formerly used as a maintenance yard has been graded flat, is fenced and contains sparse ruderal vegetation. This upland area will be restored with Coastal Sagebrush Scrub (CSS) species appropriate for this dry hot exposure which will include California sage brush (Artemisia californica), laurel sumac (Malosma laurina), foothill needlegrass (Nassella lepida), black sage (Salvia mellifera) sticky monkey flower (Diplacus aurantiacus), deerweed (Lotus scoparius), California fuschia (Epilobium canum ssp. canum), and chaparral yucca (Hesperoyucca whipplei).

6.9 River Wilderness Park Master Site Plan

Following the selection of the preferred Canyon Inn Site Plan, the River Wilderness Park Master Site Plan was generated to illustrate the updated vision of the park. The plan incorporates the Canyon Inn Site Plan, the El Encanto Master Plan and design plans for Newman's Roost (the "Special use area"/former mobile home park).

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report



WESTERN BANK
- NATURE TRAIL
- RIVER OVERLOOK
- HABITAT RESTORATION
- INTERPRETIVE SIGN

POINT BAR
- NATURE TRAIL
- HABITAT RESTORATION
- RIVER VIEW BENCH

AZUSA SPRINGS
- TENT CAMPING (BY PERMIT)
- NATURE TRAIL
- HABITAT RESTORATION
- INTERPRETIVE INSTALLATIONS

THE TRIANGLE
- HABITAT RESTORATION

HIGHWAY 39
- ROUNDABOUT
- BICYCLE PATH CROSSES UNDER BRIDGE
- TRAFFIC CALMING
- INTERPRETIVE SIGNAGE
- PARK ENTRY SIGN
- RIVER OVERLOOK

SHADY GROVE
- GROUP PICNIC (BY FEE)
- TENT CAMPING (BY PERMIT)
- ADVENTURE DAY CAMP

CANYON INN
- CAFE/BAKERY WITH RESTROOMS & CATERING VEHICLE HOOK-UP
- PAVILION (BY FEE)
- LOOP NATURE TRAIL
- BICYCLE REST STOP
- PICNIC AREA
- ADVENTURE PLAY

EL ENCANTO
- RIVER VIEW TERRACE
- PUBLIC COURTYARD
- OFFICES & CONFERENCE ROOM

NEWMAN'S ROOST (SPECIAL-USE AREA)
- HILLSIDE THEATER
- LOW-FLOW BROOK & HIGH-FLOW STREAM
- PARK SHELTER
- PICNIC AREAS
- ADA-ACCESSIBLE PATH
- RESTROOM
- INTERPRETIVE DISPLAYS
- TRAIL TO GAGING STATION

RIVER WILDERNESS PARK MASTER PLAN

WATERSHED CONSERVATION AUTHORITY

BlueGreen CONSULTING

Withers Sandgren

Chapter 7:

SITE DESIGN OBJESTIVES AND GUIDELINES

The River Wilderness Park is a "Nature Park" set against the background of the Angeles National Forest. The overall site design objective is to create a simple timeless rustic foothill retreat. Simple durable, natural materials feature rock, heavy timbers, core-ten steel, and plaster. The landscape planting will reflect the site's natural plant associations. The vegetation map of the River Wilderness Park will be used to guide both habitat restoration activities and general landscape improvements.

7.1 General Park Improvements

ROADWAYS AND PARK CIRCULATION

The River Wilderness Park is a "Nature Park" and this theme should be integrated throughout the park including in the selection of paving materials, and the overall design of roadways, paths, trails and signage. Park drives will be shaded by large native trees. Standard concrete curbs with gutters and abutting sidewalks will not be used. Drives, paths and trails will be designed to drain to bio swales and rain gardens. See section below for paving material guidelines.

A well-designed roadway lighting system will improve pedestrian comfort and safety. If provided, sufficient overhead lighting can allow motorists to see pedestrians in time to stop. Along the highway, roadway lighting must be designed in accordance with Caltrans design standards and illumination requirements. If used, poles should be placed along both sides of the street for maximum uniformity of illumination.

High visibility crosswalks should be used to improve safety and to emphasize the recommended path for crossing an intersection. A high visibility crosswalk should be at least 10 feet wide and have 'piano' style markings, where the bars of the ladder are placed in a pattern that avoids the typical wheel paths of crossing vehicles. Where the crosswalk is to be 15 feet wide or wider, a double ladder or double piano style crosswalk may be installed. The ladder 'piano' style pattern requires less maintenance if painted to allow the tires of motor vehicles to track between the painted lines.

Crosswalk locations are not to be placed indiscriminately. An engineering study should be performed before crosswalks are installed at uncontrolled locations. Crosswalks at un-signalized or otherwise uncontrolled mid-block locations are not recommended, and must be designed in conjunction with the roundabout system.

Caltrans' current policy and basic information on traffic roundabouts is contained in California Department of Transportation Design Information Bulletin No. 80-01 (http://www.dot.ca.gov/hq/oppd/dib/dib80-01.htm). A comprehensive source of general and technical information concerned with roundabout installations in the United States is the FHWA publication, "Roundabouts: An Informational Guide," June 2000. This document can be accessed from the FHWA Internet Homepage, under the webpage on Intersection Safety (www.tfhrc.gov/safety/intersect.htm).

PARKING

The River Wilderness Park has parking for 84 vehicles located along Old San Gabriel Canyon Road. The perpendicular parking spaces on the north side of the entry road will include 3 ADA spaces and a parking bay with an electrical outlet for a catering vehicle. Coast Live Oaks will be planting to shaded parking. Areas are indicated where additional parking for up to 30 vehicles could occur if desired/required. A limited number of short term parking spaces will be provided near the park entry.

The park agency may choose to charge parking fees for day use. "Iron Rangers" are cylindrical metal containers that receive donations and/or fees for park use and parking. Some park agencies use colorfully painted Iron Rangers to solicit donations to fund educational programs and conservation projects in the parks. "Iron Ranger Painting Programs" have improved the look of park agencies' Iron Rangers, and in some instances, donation levels have increased by more than 50%.

SIGNAGE

The River Wilderness Park will have a visual look created by consistent park signage. The signage will add a distinct sense of place, and history to the visit.

The typology and style of signage for the Canyon Inn area will conform to the guidelines for the River Wilderness Park as established in the document "River Wilderness Park Signage Guidelines", reference Appendix E. The guidelines indicate signage will establish the Park's identity by guiding the visitor's experience through way-finding and site interpretation. Topics to explore include site history, plant identification, wildlife, and the San Gabriel River.

Signage materials for the Canyon Inn are to conform to the distinctive style of the Park's rustic aesthetic. Examples of materials to be used are stone bases constructed of angular blocks of natural granite, timber posts, high pressure laminate signs, and Core-ten steel with cut-out lettering, see Appendix E for more specific details.

7.2 Landscape Architectural Guidelines

PLANTINGS IN DEVELOPED AREAS

The goal of the planting design is to utilize plants native to the site as much as possible and to restore the surrounding areas to natural habitat as much as feasible. The plantings which surround the structure will reflect the coast live oak woodland plant community with an emphasis on the most ornamental plants. They will feature

gooseberries and currents (*Ribes* species), sages (*Salvia* species), giant chain fern (*Woodwardia fimbriata*), monkey flower (*Mimulus aurantiacus*), toyon (*Heteromeles arbutifolia*), deergrass (*Muhlenbergia rigens*), maidenhair fern (*Adiantum jordanii*), California fuchsia (*Epilobium canum*) California wild rose (*Rosa californica*) and desert grape (*Vitis girdiana*). A limited number of cultivars may be introduced including California lilac (Ceanothus species), penstemon (*Penstemon* species), coyote brush (*Baccharis pilularis*), lupine (*Lupinus* species), yarrow (*Achillea* & *Eriophyllum* species) and manzanita (*Arctostaphylus* species).

Section 7.4 further details restoration planting standards for all remaining areas.

RIVER OVERLOOKS

River overlooks are small vista points paved with stone and surrounded with low stone walls. Stone should be granite or similar to the local native stone. Large slabs of stone incorporated into flagstone paving should be "High Desert" which is also sold as "Iron Mountain" and "Bouquet Canyon". Each River Overlook should have a unique design in response to its location. The design should maximize scenic views, create a safe place, and provide a sense of shelter.

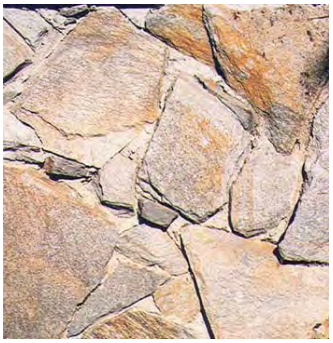
WATER PLAY ELEMENTS

Park elements can both engage and educate visitors. Interactive water play elements may include working pumps, natural streams, and panning for gold. Design considerations may include recirculation, drainage, and vector management.

PATIOS

A generous patio adjacent to the new park concession building will be used for outdoor dining and special events. A second patio area will be incorporated near the Multi-Use Pavilion and other small patio features may be incorporated into restroom structures or other park areas. Patios should be large enough to accommodate small groups and be sited to maximize scenic views. Like the river overlooks, patios should have stone (or weathered concrete) paving and low rock walls to create a sense of enclosure.

PAVING



Paving materials should have a natural timeless look. A variety of paving materials: decomposed granite, crushed rock, weathered concrete, and asphalt with chip seal, could all contribute to a consistent aesthetic if colors and finishs are considered.

Surface	Material
Hiking Trail	Native Earth, Decomposed Granite, Crushed Rock
Park Drive	Asphalt with Chip Seal
Bike Path	Concrete / Asphalt with chip seal
Terrace Trail	Decomposed Granite with steel edgings
Overlooks	Flagstone "High Desert" Large Slabs
Patios	Flagstone "High Desert" Large Slabs

SITE FURNISHING GUIDELINES

Benches - Metal

Keystone Ridge - READING Series Bench with back. Steel bench with powder coat finish. Available in 4′, 5′, 6′, 8′ lengths. Color to be Bronze. Bolt down support.

Steel Sizes rect. tube 1/8″ x 1″ x 2″; flat ¼ x 1″; flat ¼ x 2″; rect. tube 3/16″ x 2″ x 3″; sq. tube 1/8 ″ x 2″; solid half round 2″ O.D.; solid half round 2½″ O.D.; flat ¼ x 3″.

Benches can be embellished with custom cast plaques and laser cut designs. Dedication plaques can be used to acknowledge donors for fundraising.

Benches - Wood

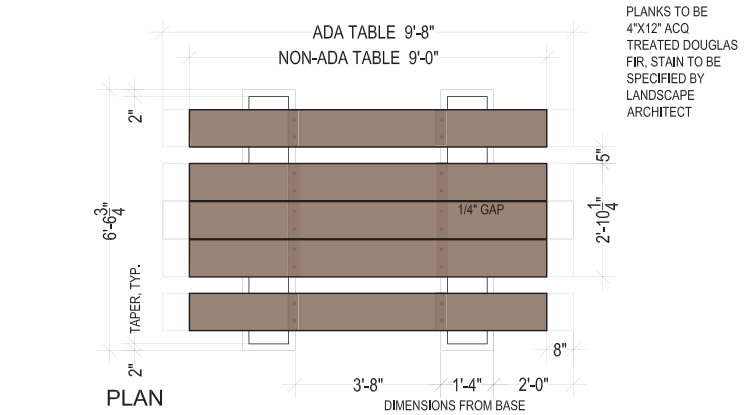
Log Craft Picnic Table (360) 306-8672 www.precisionjoinery.com or custom design. Secure bench to concrete footing.

Picnic Tables

Log Craft Picnic Table (360) 306-8672 www.precisionjoinery.com or custom design.

Fencing and Railings

Log rail barriers 6″ x 8′ round log rail, item #055001, on 5″ x 5′ round log post - Item #0068001 American Timber and Steel (800) 551-9663, www.americantimberandsteel.com

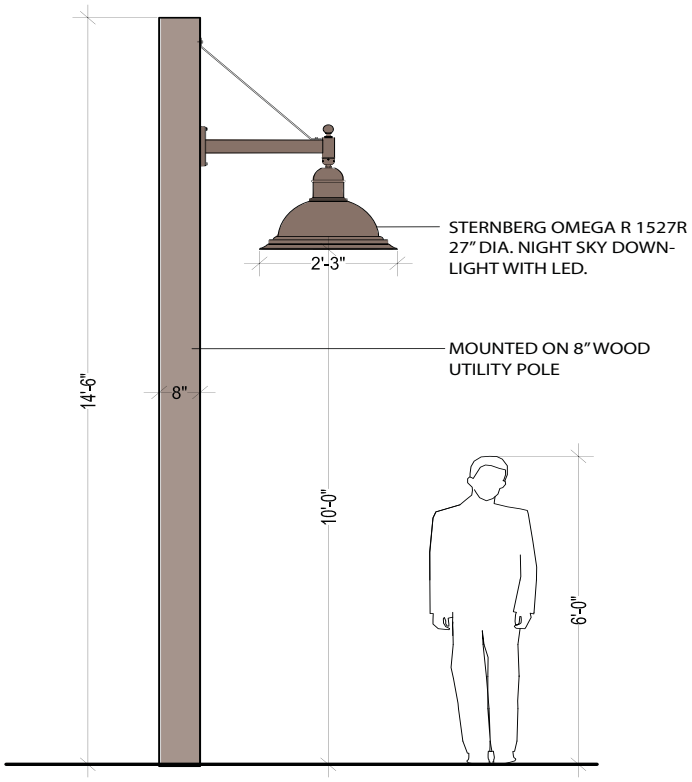


Trash Receptacle

Bear Proof Trash Container HA Series: Model HA-P ADA Compliant and Universally Accessible. Manufactured by Bearsaver 1390 Milliken Avenue, Ontario, CA 91761 www.bearsaver.com (800) 85103887 Color to be Forest Brown. Provide concrete slab and epoxy receptacle to slab.

Bear Proof trash container with a single liner. 40 gallon capacity. Uses (1) rigid plastic liner (included). Versatile and easy to maintain. ADA Compliant and Universally Accessible . Standard color to be Forest Brown. Standard decals are TRASH, RECYCLE, PLASTIC, GLASS, ALUMINUM OR RECYCLE LOGO. Recycled plastic wood option (Cedar or Weathered Redwood) available for an additional charge.

Bear Proof Trash Container HA2 Series:
Model HA-P, ADA Compliant and Universally Accessible. Double Bear Proof trash container with (2) liners. 80-gallon capacity. Uses (2) rigid plastic liners (included). Versatile and easy to maintain. ADA Compliant and Universally Accessible. Standard color to be Forest Brown. Standard decals are TRASH, RECYCLE, PLASTIC, GLASS, ALUMINUM OR RECYCLE LOGO.



Lighting - Bollard Light

Phillips Gardco Round with full cutoff bollard BR842 with steel base tenon with motion response. Finish to be bronze.

Lighting - Standard

Sternberg Omega R 1527R 27" Diameter night sky downlight with LED mounted on wood pole with custom size Steinberg OB bracket.

Drinking Fountains - Wall Mounted Drinking Fountains

HAWS Model 1431 wall mounted, wheel chair accessible drinking fountain shall include a white enameled-iron basin, push-button operated stainless steel valves with front-accessible cartridge and flow adjustment, 100% lead-free waterways, dual polished chrome-plated brass vandal-resistant bubbler heads, polished chrome-plated brass vandal-resistant waste strainer, vandal-resistant bottom plate, and chrome-plated 1-1/2" IPS trap. www.hawsco.com

HAWS Model 1501 "Hi-Lo" wall mounted barrier-free drinking fountain shall include dual white enameled-iron basins, push-button operated stainless steel valves with front-accessible cartridge and flow adjustment, 100% lead-free waterways, polished chrome-plated brass vandal-resistant bubbler heads, polished chrome-plated brass vandal-resistant waste strainers, vandal-resistant bottom plates, white powder-coated stainless steel back panel with matching in-wall mounting plate, and 1-1/4" IPS traps. www.hawsco.com

Drinking Fountains - Freestanding

Murdock Model M-23-2-AVAF Wheelchair-Accessible Drinking Fountain Dual Bowl with Jug Filler, Pneumatically Actuated. Murdock Select Series M-23 features design simplicity, incorporating a wheelchair arm to accommodate disabled users in compliance with the Americans with Disabilities Act. Unit is furnished with two fountain bowls and a jug filler located on the side of the pedestal. Water flow to each outlet is controlled by a push button, which operates a pneumatically controlled valve located below the frost line in a canister. Maximum depth of bury is 37 inches. Heavy-duty construction ensures durability, and field-serviceable components are easily accessible. Dog waterers and jug filler with hose threads are optional.

7.2 Architectural Guidelines

PARK SHELTERS

Park shelters provide shaded rest stops and opportunities for orientation, wayfinding, and interpretive displays. All park shelters are to be constructed using local rock and metal beams finished to resemble heavy timbers, and share style elements with the Columbian farmhouse style to be used throughout the River Wilderness Park. Roof materials shall be clay tile or standing seam core-ten steel.

PARK PAVILION

The pavilion is a multi-purpose structure constructed of heavy timbers (or metal beams finished to resemble wood), and natural stone. The roofed open air structure will be grounded with a substantial stone foundation. The flexible indoor/outdoor space will be designed to be used as a rental facility which accommodates both intimate and large park events. Lighting, electrical outlets and built-in storage will be designed into the Pavilion. The roof material shall be clay tile or standing seam core-ten steel. The pavilion footprint shown on the proposed site plan is 1800 square feet.

RESTROOM (ALTERNATIVE)

This plan locates the park restroom in the Park Concession Building. The WCA may find it desirable to install a free standing restroom structure should the funding not be available for the Concession Building. The costs for a two room prefabricated restroom is included in the cost estimate as a bid alternate cost. The prefabricated restroom shall be customized with stone foundation details, stucco walls, clay roof tiles and detailing consistent with the Columbian Farm House style. Stone seating walls shall be integrated into the area surrounding the restroom

PARK CONCESSION BUILDING

The park concession building should have a mountain resort character. Stone foundations, exposed heavy timber posts and beams, with open rafter ceilings and large picture windows to capture river and mountain views. A fireplace with oversized hearth will create a welcoming and cozy feel.

The building design will need to meet the functional needs of the "concessionaire" if this structure is to house a viable revenue-generating business. The public has express an interest in building a café and small shop for outdoor provisions and maps. Food services, public restrooms and patio seating which overlooks the river will create a new "Trail's End" destination for the San Gabriel River Bike Path. The building footprint on the proposed site plan is 2500 square feet with a 25' setback from the Highway 39 easement.

7.4 Restoration Standards

LANDSCAPE RESTORATION PLANTINGS

The "Vegetation Types" map (Appendix C) of the River Wilderness Park is used as a guide for the habitat restoration planning. Areas of the park which have ruderal or disturbed vegetation are to be restored to the appropriate vegetation type. Referencing the vegetation map in addition to accessing the surrounding natural landscape, identifying areas with similar slope aspect, exposure, substrate, etc. provides insight as to the appropriate vegetation type/plant association to reintroduce.

Table 7-1, **Dominant Vegetation Type(s) by Project Area**

Project Area	Dominant Vegetation Type
Highway 39	California Sagebrush Scrub/Coast Live Oak Woodland
Canyon Inn	Southern Mixed Chaparral/Coast Live Oak Woodland
Shady Grove	Southern Mixed Chaparral/Coast Live Oak Woodland
Azusa Springs	Sycamore Woodland/Southern Willow Scrub/ California Sagebrush Scrub
Western Bank	California Sagebrush Scrub
Point Bar	Scalebroom Scrub/California Sagebrush Scrub
The "Triangle"	California Sagebrush Scrub

A lists of plant species for found in the vegetation communities is included in Appendix H.

GENERAL STANDARDS FOR PROTECTION OF BIOLOGICAL RESOURCES

The River Wilderness Park Plan is designed to be highly compatible with the continued ecological function of the sites biological resources. The retention of existing natural biologic resources should be ensured. Comprehensive management practices should include:

- Protection and maintenance of the habitat of core populations of extremely rare species including San Gabriel Mountain Dudleya (Dudleya densiflora).
- Protection of habitat linkages and wildlife corridors
- Prohibit public access and recreation from DFG conservation easement and core habitat areas.
- Protect and restore wetlands, riparian habitats, and streambeds
- Protect and restore upland habitats
- Retain rare communities with adequate buffers so as to allow for the long term viability and integrity of plant communities as a whole. Rare communities include: oak woodland, oak riparian woodland, southern willow scrub, and alluvial fan scrub.

ERADICATION OF INVASIVE EXOTIC PLANTS

A key habitat restoration strategy is the removal and long-term suppression of non-native exotic invasive vegetation most notably Mexican fan palm (*Washingtonia robusta*), caster bean (*Ricinus communis*) and exotic annual grasses. Where feasible all invasive non-native vegetation should be removed with the exception of a limited number of mature trees in the Shady Grove area.

RESTORATION STANDARDS BY AREA

Canyon Inn

The landscape planting at the Canyon Inn feature species occuring in Coast Live Oak Woodlands; coast live oak (*Quercus agrifolia var. agrifolia*), holly-leafed cherry (*Prunus ilicifolia ssp. ilicifolia*), cofffeeberry (*Rhamnus californica ssp. californica*), hollyleaf redberry (*Rhamnus ilicifolia*), golden current (*Ribes aureum var. gracillimum*), California wild rose (*Rosa californica*), western elderberry (*Sambucus mexicana*), snowberry (*Symphoricarpos mollis*) and California bay laurel (*Umbellularia californica*).

Revegetation techniques will include container plantings, hydroseeding and irrigation. Native species to be used as "lawn substitute" are yarrow (*Achillea millifolium*) and field sedge (*Carex praegracillis*). Western Sycamore (*Platanus racemosa*) will be planted for shade around park structures and picnic areas.

Slope revegetation shall achieve a mix of California Sagebrush Scrub and Coast Live Oak Woodland. Deep rooted species and erosion control materials such as wattles and geotextiles will be installed in area where grading occurs on steep slopes. Formidable slope plants include false indigo (*Amorpha fruticosa*), California sagebrush (Artemisia californica), mountain mahogany (*Cercocapus betuliodes*), Nevin's barberry (*Mahonia nevinii*), holly-leafed cherry (*Prunus ilicifolia*), black sage (*Salvia mellifera*) and chaparral yucca (*Hesperoyucca whipplei*).

At the base of the slope along the riverbank is a healthy band of Scalebroom Scrub. Opportunities for restoration include removal of non-native exotic plants and revegetation in areas where construction activities impact habitat. Plant species to include scale broom (*Lepidospartum squamatum*), California buckwheat (*Eriogonum fasciculatum var. fasciculatum*), golden yarrow (*Eriophyllum confertiflorum*), pinebush (*Ericameria pinifolia*), California Sagebrush (*Artemisia californica*), common California aster (*Lessingia filaginifolia var. filaginifolia*), hairy yerba santa (*Eriodictyon trichocalyx var. trichocalyx*) and chaparral yucca (*Hesperoyucca whipplei*). Thorny thickets of California wild rose (*Rosa californica*) and California blackberry (*Rubus ursinus*) can be planted adjacent to the DFG Conservation Easement to inhibit human access.

Shady Grove

The Shady Grove will be planted will the Mixed Chaparral/Coast Live Oak Woodland species which dominates the northeastern facing slope above the Canyon Inn Site. Plantings will include coast live oak (*Quercus agrifolia*), flowering ash (*Fraxinus dipetala*) goldern yarrow (*Eriophyllum confertiflorum*), heartleaf penstemon (*Keckiella cordifolia*), western virgins bower (*Clematis ligusticifolia*), California bay laurel (*Umbellularia californica*), and blue-eyed grass (*Sisyrinchium bellum*).

The north facing slopes are the known habitat for sensitive, endemic (occurring naturally in only a particular region) species including San Gabriel River dudleya (*Dudleya cymosa crebrifolia*) and San Gabriel Mountains Live-forever (*Dudleya densiflora*). San Gabriel Mountains Live-forever is a special status species known to occur on the site and could be introduced to this area on the steep rocky slope above the group picnic site and can be planted with fairy lantern (*Calochortus albus*) and chaparral yucca (*Hesperoyucca whipplei*). Temporary irrigation will be supplied to only the flat portion of this area during plant establishment. Trees will receive on-going irrigation supplied by bubblers.

Highway Landscaping Improvements & Habitat Restoration

The Highway 39 park corridor landscape will be enhanced with informal plantings of Coast Live Oaks and chaparral yucca. The Coast Live Oak trees will receive irrigation for a three year establishment period. Ruderal areas and slopes which are impacted by construction will be revegetated with a mosaic of California sagebrush Scrub, dominated by California Sagebrush (*Artemisia californica*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*) and California buckwheat (*Eriogonum fasciculatum*), and Southern Mixed Chaparral which includes chamise (*Adenostoma fasciculatum*), ceanothus (*ceanothus* spp.), ceanothus, scrub oak (*Quercus berberidifolia*), and coast live oak (*Quercus agrifolia*).

Special Consideration: SR 39 Highway Easement **-** The WCA is the fee owner of the approximately 2000' reach of SR 39. Caltrans holds a 100' foot wide easement, for State highway purposes. All improvement within the highway easement will require a permit from California Department of Transportation District 7. Extensive improvements to the roadway such as the roundabout discussed above will require a traffic study.

Bikeway Under Pass

The rocky north facing slopes adjacent to the undercrossing may provide habitat for the sensitive, endemic species San Gabriel River dudleya (*Dudleya cymosa crebrifolia*) and San Gabriel Mountains Live-forever (*Dudleya densiflora*), a special status species known to occur with the River Wilderness Park. These dudleyas could be planted with fairy lantern (*Calochortus albus*), skunk brush (*Rhus trilobata*) and chaparral yucca (*Hesperoyucca whipplei*).

Azusa Springs

Exotic non-native plants will be removed. New planting will be designed to maximize high-quality riparian habitat. The area will feature Sycamore Woodlands habitat plantings this riparian community is dominated by California sycamore (*Platanus racemosa*) associated species include Western Elderberry (*Sambucus mexicanus*), toyon (*Heteromeles arbutifolia*), mule-fat (*Baccharis salicifolia*), and mugwort (*Artemisia douglasii*) with patches of Nevin's barberry (*Mahonia nevinii*) and woolly blue-curls (*Trichostema lanatum*).

Invasive exotic Mexican fan palms will be removed. The new planting will transform the site from an oasis into a mountain spring. Rushes (*Juncus* species), sedges (*Carex* species), meadow rue (*Thalictrum fendleri var.polycarpum*), giant chain fern (*Woodwardia fimbriata*) will surround the pond.

Opportunities exist to introduce areas of Southern Willow Scrub habitat along the drainages in this area. This riparian community is dominated by a mix of willow species and would include arroyo willow (*Salix lasiolepis*) and sandbar willow (*Salix exigua*), mugwort (*Artemisia douglasiana*), tarragon (*Artemisia dracunculus*), blue wild rye (*Elymus glaucus*), golden current (*ribes aureum*), skunk brush (*Rhus trilobata*), mulefat (*Baccharis salicifolia*), creeping wild rye (*Leymus triticoides*), and western elderberry (*Sambucus mexicana*).

The riverbed and banks lie within the Fish and Game Conservation Easement. The conservation easement is managed and monitored as a part of a separate habitat mitigation project and should not be impacted by improvements or visitors to the River Wilderness Park. Thorny thickets of California wild rose (*Rosa californica*) and California blackberry (*Rubus ursinus*) can be planted adjacent to the DFG Conservation Easement to inhibit human access.

Special Consideration: US Forest Service Property - The access and proposed use of this existing remnant trail triggers NEPA regulations. The National Environmental Policy Act (NEPA) establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. It is anticipated that a Categorical Exclusion will be issued by the USFS for access and trail improvements.

Special Consideration – Fish & Game Conservation Easement - The CDFG holds a conservation easement which includes the entire reach of the San Gabriel River bank to bank for the length of the entire Canyon Inn Site. (see plan, Fig. 6-1). This easement restricts public access and requires fencing in certain locations.

Special consideration should be given to design natural and aesthetic barriers to prevent public entry; these include trail locations and access points, placement of thorny plants including native rose and blackberry and the placement of simple wood post barriers.

Western Bank

The Western Bank of the San Gabriel River has a healthy margin of riparian vegetation which has been identified as patches of Southern Willow Scrub and White Alder Riparian and an extensive reach of Mule-fat Scrub. The steep slope above the Western Bank supports sparse vegetation which has been classified as California Sagebrush Scrub with the dominant species being (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), California brickellbush (*Brickellia californica*), Chaparral yucca (*Hesperoyucca whipplei*), white sage (*Saliva apiana*), wishbone bush (*Mirabilis californica*) and local dense patches of prickly-pear cactus (*Opuntia littoralis*), with scattered larger shrubs of laurel-leafed sumac (*Malosma laurina*) and lemonadeberry (*Rhus integrifolia*). Due to the steep terrain planting is not recommended for this area except where warranted to prevent erosion near the trail.

Invasive exotic and ruderal plants such as caster bean (*Ricinus communis*) and fountain grass (*Pennisetum species*) have colonized the old roadbed and should be eradicated from this area.

Special Consideration – Fish & Game Conservation Easement - The DFG Conservation Easement is located at the base of the Western Bank and is generally inaccessible because of the steepness of the slope. Where suitable, yucca will be planted as a barrier to prevent access into the DFG Conservation Easement.

Point Bar

On the slopes above the Conservation Easement, restoration is needed where exotic weed species have taken hold. Restoration will utilize a combination of species found in Coastal Sagebush Scrub and Southern Mixed Chaparral vegetation communities and will include; California sage brush, (*Artemisia californica*) bigberry manzanita (*Arctostaphylos glauca*), Nevin's barberry (*Berberis nevinii*), chaparral yucca (*Hesperoyucca whipplei*), toyon (*Heteromeles arbutifolia var. arbutifolia*), deerweed (*Lotus scoparius*), foothill needlegrass (*Nassella lepida*), white sage (*Salvia apiana*), black sage (*Salvia mellifera*), sugar bush (*Rhus ovata*), giant wild rye (*Leymus condensatus*), California encelia (*Encelia californica*), and coyote brush (*Baccharis pilularis var. pilularis*).

Thorny thickets of California wild rose (*Rosa californica*) and California blackberry (*Rubus ursinus*) can be planted adjacent to the DFG Conservation Easement to inhibit human access.

Special Consideration – Fish & Game Conservation Easement - The DFG Conservation Easement includes much of the Point Bar Area. This area is being restored and monitored under a separate project and should not be impacted other than to remove exotic invasive vegetation as necessary. Where suitable, wood post barriers and thorny thickets will be placed to prevent access to the DFG Conservation Easement.

The Conservation Easement stipulates fencing along SR 39.

Chapter 8:
PROJECT PHASING

8.4 Phase I 1-5 Years 2012-2016

The initial efforts will focus on raising funds for capital improvement and improving public access to the River Wilderness Park. The San Gabriel River Bike Path will be extended into the park via a new crossing below the Highway 39 Bridge. Phase I park improvements include entry gateway and park signage.

- Bike Path Underpass
- Reconfigure Existing Parking
- Entry Gateway
- Signage
- Trail Improvements
- River Overlooks
- Shady Grove Group Picnic Facility
- Grading Drainage Improvements
- Landscape Plantings
- Western Bank
- Point Bar
- The Triangle
- Azusa Springs

8.5 Phase II 6-10 Years 2017-2021

Capital improvements will focus on the construction of two new park structures: the multi-use pavilion and a new restroom. The realignment of Old San Gabriel Canyon Road will include perpendicular parking incorporated along the north side.

- Special Use Pavilion
- Restroom Structure
- Utility Infrastructure
- Realignment Old San Gabriel Canyon Road
- Completion of Shady Grove

8.6 Phase III 11-15 Years 2024-2028

The final phase of construction will include improvements to Highway 39 including traffic calming features and the Roundabout. The new custom concession facility will be designed and constructed.

- Concession Structure
- Roundabout and Traffic Calming

Appendices

A. Bike Path Extension Feasibility Study
B. Preliminary Geotechical Study
C. Update to the 2008 Biological Reconnaissnace Survey and Contraints Analysis for the El Encanto River Wilderness Park Project
D. Memorandum for CEAQ and NEPA Recommendations
E. River Wilderness Signage Guidelines
F. Stakeholders
G. Programming Opportunities and Constraints
H. Canyon Inn Plant Palettes
I. Canyon Inn Geomorphic and Hydraulic Site Conditions
J. Canyon Inn Cost Estimate and Phasing

Bike Path Extension Feasibility Study

For

Extension of the San Gabriel River Bike Path at San Gabriel River Bridge

Prepared by

MTS

Prepared for

Watershed Conservation Authority

June 2011

TABLE OF CONTENTS

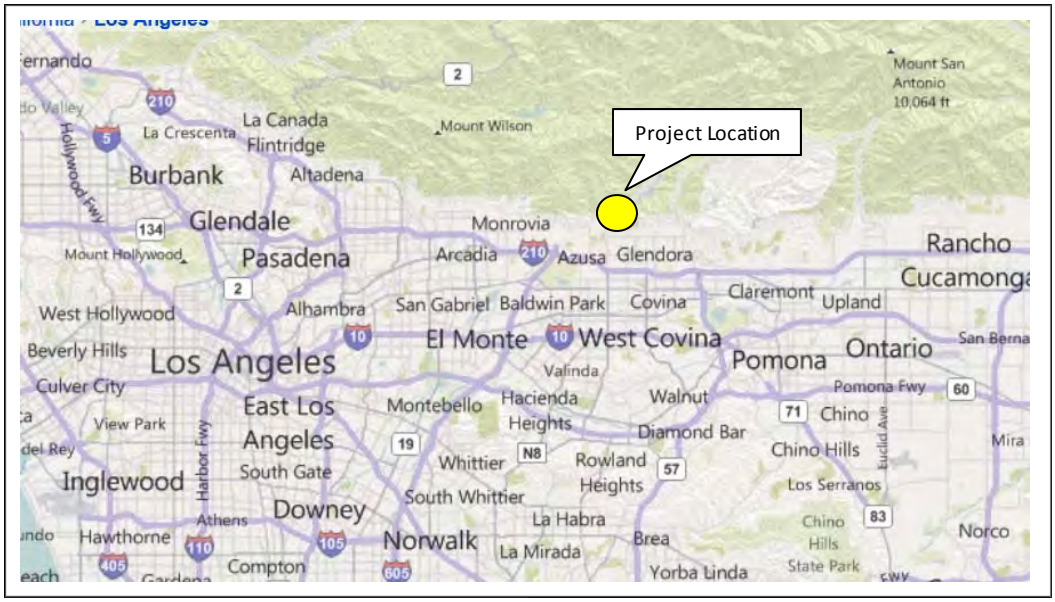
APPENDICIES

1. INTRODUCTION

The Watershed Conservation Authority (WCA) is a joint powers entity of the San Gabriel & Lower Los Angeles Rivers & Mountains Conservancy (RMS) and the Los Angeles County Flood Control District (LACFCD). This partnership was established to conduct joint projects and provide comprehensive programs to expand and improve the open space and recreational opportunities within the San Gabriel and Lower Los Angeles Rivers watersheds. The City of Azusa and WCA have jointly developed the "Azusa River Wilderness Park Vision".

The Azusa River Wilderness Park is the vision of a river park that would encompass a total of 89 acres of open space. The WCA recently acquired the Canyon Inn property. In addition to their current El Encanto property, both properties are planned to be integrated into the Azusa River Wilderness Park Master Plan (Master Plan). The park is of regional importance because it is located at a major gateway to the Angeles National Forest, where millions of visitors pass each year to the mountains. On a regional scale, it is envisioned that the Azusa River Wilderness Park will connect the mountains with a multitude of projects along the San Gabriel River, the Rio Hondo, and the Los Angeles River. On a local scale, there are opportunities to connect the site to the San Gabriel River Bike Path, Fish Canyon Trail, the Forest Service Entrance Station, Roberts Creek Trail, Garcia Trail, and the Glendora Ridge Motorway.

The park has strong public support and was identified as a priority project in the San Gabriel River Corridor Master Plan. An environmental report was approved for the Master Plan on August 23, 2009.



Regional Vicinity Map

1.1 Project Location

The Master Plan project site is located in the City of Azusa within the San Gabriel Canyon and south of the Angeles National Forest. West of the site is the Mountain Cove residential development and to the north is Morris Dam. Regional access to the site is available from the Azusa Avenue exit from Interstate 210 to San Gabriel Canyon Road (Highway 39). Within the project site, the San Gabriel River flows underneath Highway 39.

Project Vicinity Map

1.2 Project Description

The San Gabriel River Bike Path is a significant recreational resource of regional importance. The bike path extends along the east side of the river from the Pacific Ocean at Seal Beach to the San Gabriel Mountains. The path currently ends 700 feet south of the Old San Gabriela Canyon Road, the entrance road to the El Encanto site. As part of the Master Plan, the extension of the existing San Gabriel River Bike Path has been identified as a priority for connection to the El Encanto property. Hence, the purpose of this feasibility study is to develop conceptual engineering designs to evaluate the feasibility of extending the existing bike path to the El Encanto site.

1.2.1 Surrounding Jurisdictions

There are several jurisdictional areas located in the vicinity of the project site. Federal agencies with adjacent jurisdictional areas include:

- ***National Forest Service*** - Manages the Angeles National Forest lands to the north and east
- ***United States Army Corps of Engineers (Corps)*** - Manages the San Gabriel River flood control channel downstream of the site. In addition, the Corps has a mandated interest in the management of dams and channels upstream of the site, and has jurisdiction over any changes to the stream channel at the site.

- ***Los Angeles County Flood Control District (County Flood Control District)*** – Maintains the San Gabriel River channel through the project site.
- ***Metropolitan Water District (MWD)*** – Owns the Morris Dam, the nearest of three upstream dams, but is managed and operated by the County Flood Control District.
- ***California Department of Fish and Game (CDFG)*** - Has jurisdiction over the biological resources of the San Gabriel River and holds a nearby conservation easement that encompasses the San Gabriel River, which is owned by WCA.
- ***State of California Department of Transportation (Caltrans)*** - Has jurisdiction of Highway 39, as well as the San Gabriel River Bike Path within the project limits.

1.2.2 Existing Roadway

Highway 39 is a north-south route that heads into the Angeles National Forest. Within the project vicinity, the highway is a two-lane undivided road with 12-foot lanes and 2-foot paved outside shoulders, with a posted speed limit of 40 mph. The highway is located in a mountainous terrain with the San Gabriel River generally along the west side of the highway and steep mountainous slopes on the east side. Just south of the San Gabriel River, the Old San Gabriel Canyon Road connects to Highway 39 as an unsignalized tee-intersection as the entrance road to the El Encanto site.

Highway 39, looking northward

1.2.3 Existing Pedestrian and Bicycle Facilities

The San Gabriel River Bike Path extends along the east side of the San Gabriel River from the Pacific Ocean at Seal Beach to the San Gabriel Mountains. The trail currently ends 700 feet south of Old San Gabriel Canyon Road. Within the project vicinity, the bike trail is a standard 8-foot wide Class I bikeway and is located west of Highway 39. It has a 20 foot separation from the Highway's edge of pavement and is within Caltrans' right of way.

Bike path along Highway 39, looking northward

2. ALIGNMENT ALTERNATIVES

Several alternatives for extending the bike path were analyzed for feasibility of consideration to be carried forth in future project development phases. Objectives that were used as a measure to determine feasibility were:

- Providing a safe route for pedestrians to access the El Encanto site
- Minimizing environmental impacts
- Local community and stakeholders approval
- Cost-effectiveness

Several alternatives were analyzed by the Technical Steering Committee, which included the agencies of the surrounding jurisdictions, and two were determined to be feasible based on the above criteria.

2.1 Alternative 1 – Roundabout with Pedestrian Crossing

Sample of a one-lane roundabout

Alternative 1 would provide a traffic calming measure to reduce vehicle speeds in the project vicinity as well as a crossing for the bike path into the El Encanto site. To reduce vehicle speeds, a roundabout would be constructed as a traffic calming measure. Advanced traffic warning signs would be installed to inform drivers of the roundabout as well as a speed reduction to 25 mph. A traffic study would be required in subsequent project development phases to support the speed reduction. The geometry would be a one-lane roundabout with an approximate 120-foot wide footprint. The footprint of the roundabout would extend beyond the existing Caltrans 100-foot right of way width. WCA has indicated that additional right of way could be provided. Curb and gutter would be provided along the outside diameter of the roundabout, and the inside circle would be landscaped to match the landscaping features of the Master Plan. The existing bike path would extend northward along the west side of Highway 39. The bike path would be an 8-foot wide asphalt path, to match the existing path, with a fence located approximately 8 feet to the west of the path along Caltrans' right of way line. Metal beam guard railing would be placed between the bike path and Highway 39 as needed for safety. The bike path would be constructed generally at the existing elevation and cross Highway 39 at the northern leg of the roundabout. This alternative was discussed and concurred with by Caltrans at a May 13, 2011 Technical Meeting as a feasible alternative. The preliminary layout plan for Alternative 1 is located in Appendix A.

2.2 Alternative 2 – Under Bridge Crossing

Alternative 2 would extend the bike path northward along the west side of Highway 39, similar to Alternative 1. As the bike path approaches the bridge, the bike path would descend approximately 15 feet below grade. Retaining walls would be required on either side of the bike path to:

1) Retain the earth on the right side from Highway 39 above, and
2) Provide a fill on the left side above the hillside below

Additional information for the retaining wall feasibility type is discussed in Section 3 - Structures. Where walls are needed, the bike path width would be widened by 3 feet to provide additional clearance to the wall, and safety railing would be provided as required.

As the bike path approaches the San Gabriel River, it would curve underneath the bridge with a 90-foot radius curve, providing a bicycle design speed of 20 mph. The footprint of the bike path curvature would extend outside of Caltrans' right of way and into WCA's right of way. Since Caltrans' design speed standard for a Class I bike path is 25 mph, coordination with Caltrans and approval of a *Fact Sheet Exception to Mandatory Design Standards* may be required in a subsequent project development phase. However, mitigations for the lower design speed could be provided with warning signs for reduced speeds. Under the bridge, the bike path is proposed between the bridge abutment and Bent 2. Partial removal of bedrock would be required for the bike path, and no impacts to the bridge are anticipated. Ten feet of vertical clearance would be provided under the bridge to adhere to Caltrans standards.

Alt 2: Bike path between the abutment and Bent 2

As the bike path ascends on the east side of the bridge, the final alignment of the bike path as it approaches the El Encanto site would be coordinated and developed as part of the Master Plan.

Approximately one mile downstream of the project site, the Army Corps of Engineers maintains a flood control structure which monitors the high flood peaks of the upstream dams. During high flood peaks, the water rises to a maximum elevation of 820 feet, which is four feet below the bike path low point elevation of 824 feet, as it descends underneath the bridge. Therefore, flooding of the bike path is not anticipated.

Two Public Meetings were held on April 28, 2011 and May 26, 2011 where this alterative was presented to the public. There has been positive feedback from the public for this alternative as it would provide a crossing to the El Encanto site without physically traversing across Highway 39. Since the construction limits of the bike path are not anticipated to encroach on the Conservation Easement, this alternative has received positive feedback from CDFG. In addition, at the May 13, 2011 Technical Coordination Meeting, Caltrans concurred that this alternative was also feasible. The preliminary typical sections, layout, and profile design for Alternative 2 are located in Appendix A.

2.3 Rejected Alternatives

Alternative 1a – Pedestrian Crosswalk: This alternative would extend the bike path northward along the west side of Highway 39 up to Old San Gabriel Canyon Road. A crosswalk would be provided across Highway 39 to connect the bike path to the El Encanto site. To provide a safe crossing for pedestrian users, traffic calming measures would be considered such as:

- Construction of a raised median to provide a refuge area for pedestrians
- Installation of pedestrian actuated flashing beacons to warn traffic of pedestrian crossings
- Installation of a traffic signal to stop vehicles during pedestrian crossings

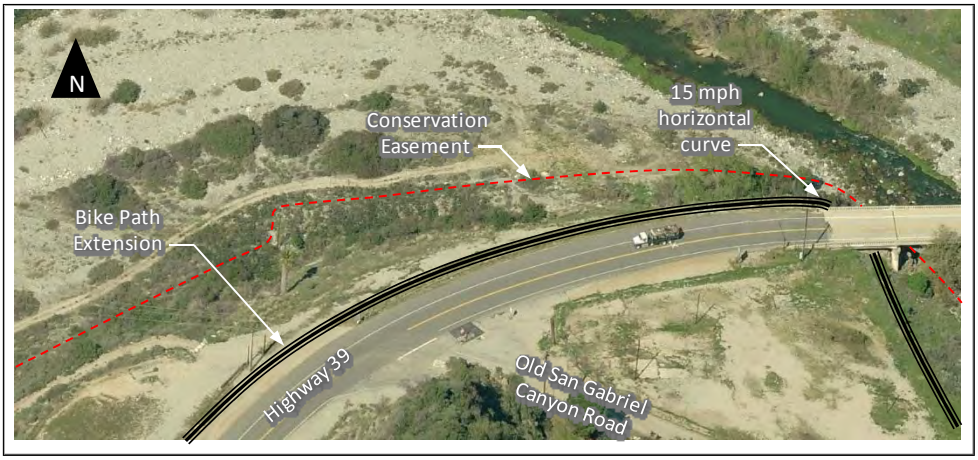
Raised Median

Flashing Beacon

Traffic Signal

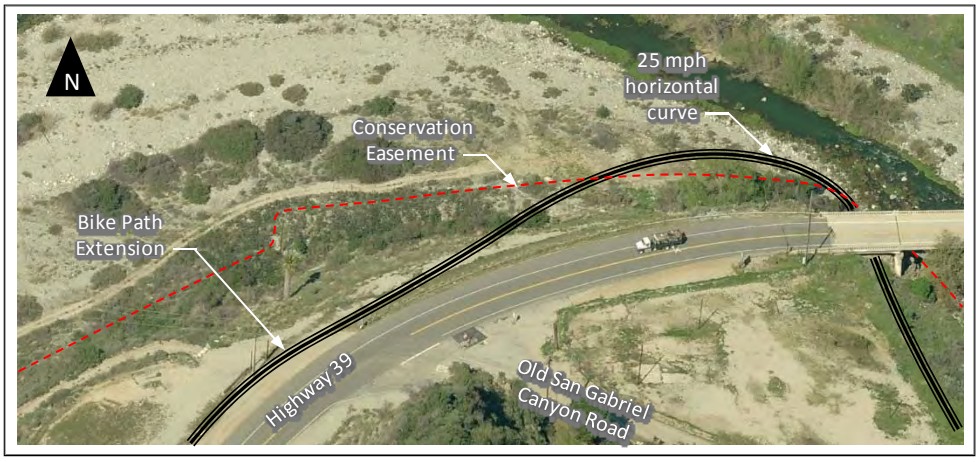
This alternative provides the least environmental impacts as well as being cost effective. However, at the April 28, 2011 and May 26, 2011 public meetings, the general consensus of the public was opposition to an at-grade crossing of Highway 39, due to a perception of reduced safety in comparison to a grade-separated crossing.

Alternative 2a – Nonstandard 15 mph design speed: Alternative 2a provides the same concept as Alternative 2, except that a smaller curve radius of 46 feet is provided prior to the bridge. This geometry would provide a design speed of 15 mph and would not meet the Caltrans standard of 25 mph. Even though this alternative would provide less environmental impacts than Alternative 2, it was not a preferred design by Caltrans due to the nonstandard horizontal curve and design speed.



Alt 2a Bike Path geometry for a nonstandard 15 mph design speed

Alternative 2b – Standard 25 mph design speed: Alternative 2b provides the same concept as Alternative 2, except that a larger curve radius of 155 feet is provided prior to the bridge. This geometry would meet the Caltrans standard design speed of 25 mph. However, due to



Alt 2b Bike Path geometry for a standard 25 mph design speed

the large footprint of the bike path horizontal curvature, this alternative would encroach into the Conservation Easement. Hence, this alternative was not preferred by CDFG.

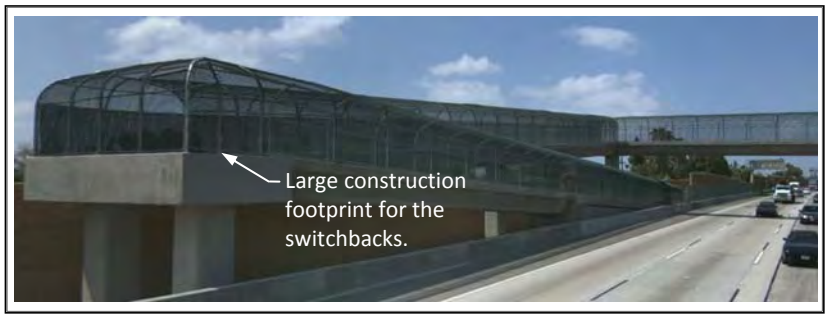
Alternative 3 – Bike path north of Bent 2: Alternative 3 is similar to Alternative 2 except that the bike path would cross underneath the existing bridge north of Bent 2, instead of between the bridge abutment and Bent 2. Placing the bike path further north would potentially result in a construction encroachment into the Conservation Easement. Since the construction of this alternative would impact the San Gabriel River, it was not preferred by CDFG.

Alt 3: Bike path north of Bent 2

Alternative 4 – Truss Bridge: This alternative would include a pedestrian structure that would hang on the existing bridge truss. This concept was rejected because any additional loads that are placed on the existing bridge would alter the structural integrity of the bridge and require a structural analysis. The results may include retrofit or reconstruction of the bridge, which is beyond the scope of the project.

Alt 4: Hang pedestrian crossing on existing truss

Alternative 5 - Pedestrian Bridge over Highway 39: This alternative was considered as an option for passage across Highway 39 without going underneath the existing bridge. However, it was rejected due to the large environmental and visual impacts, as well as the high construction costs. Construction of the pedestrian overcrossing would require a large footprint to construct the pedestrian ramps (switchbacks) leading to the overcrossing. Having a large above-ground structure would result in a visual impact which was not preferred by the Mountain Cove residential development and local stakeholders.



Sample pedestrian bridge over Caltrans roadway

3. STRUCTURES

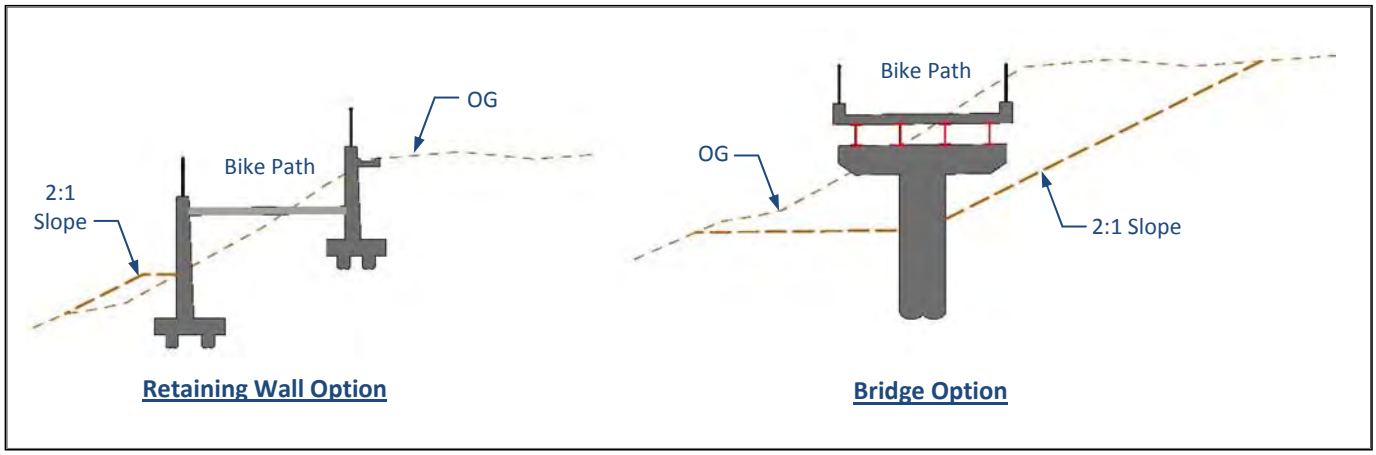
For the feasible alignment alternatives, as discussed in Section 2, the associated structural elements were investigated to identify potential constructible and cost effective options. In support of the structural options, a preliminary geotechnical feasibility study was conducted by Geotechnologies Inc. to identify site parameters which may have significant impacts on the structure type and cost, such as local site geology, groundwater, and seismic hazards. Additionally, preliminary recommendations for foundation types were provided. For additional details and recommendations of the geotechnical feasibility study, see Appendix B.

3.1 Alternative 1 – Roundabout with Pedestrian Crossing

There are no structures anticipated for this alternative.

3.2 Alternative 2 – Under Bridge Crossing

As described in Section 2.2 Alternative 2 – Under Bridge Crossing, retaining walls would be required as the bike path descends and approaches the existing San Gabriel River Bridge. In addition to using retaining walls to support the bike path, a bridge option was also considered.



Under Bridge Crossing Options

3.2.1 Retaining Wall Option

As discussed in the geotechnical feasibility study, several retaining wall types were considered including:

- Conventional cast-in-place concrete walls (Caltrans Type 1)
- Masonry block
- Mechanical Stabilized Earth (MSE)
- Soil Nail

Based on the site conditions, conventional concrete walls supported on cast-in-drilled-hole (CIDH) pile foundations are likely the most feasible retaining wall type. However, this would need to be validated with geotechnical borings and additional analysis at subsequent phases of the project development. This option was discussed with Caltrans District 7 Local Assistance and Structures at the May 13, 2011 Technical Meeting, and was considered feasible as long as the walls does not impact the structural integrity of the existing San Gabriel River Bridge. Additionally, the use of Caltrans standard wall designs was suggested in order to

minimize the review time needed for approval by Caltrans local assistance staff. If non-standard retaining walls are used, review and approval would be required by Caltrans Headquarters, which typically is a more time intensive process.

Based on the public meetings that have been held to date, the general concern of the public is the visual impacts of the retaining walls. As an option to minimizing the visual impacts, manufactured stone veneer could be applied to the visual surfaces of the retaining walls to emulate the adjacent native stone outcroppings.

A preliminary layout plan and typical sections for the Retaining Wall Option are located in Appendix A.

3.2.2 Bridge Option

In an effort to reduce the amount of retaining walls to accommodate the bike path profile as well as introduce an aesthetic visual break, a bridge structure could be provided for a portion of the path. Similar to the retaining wall option, cast-in-drilled-hole (CIDH) piles are likely the most feasible foundations for the bridge. This option was also discussed with Caltrans at the May 13, 2011 Technical Meeting and was considered feasible as long as the bridge does not impact the structural integrity of the existing San Gabriel River Bridge.

Several different bridge superstructures types were considered feasible for this project site, which includes:

- Deck slab on Steel Girders
- Deck slab on Precast Concrete Girders
- Concrete Box Girder

Since the bridge structure would be located within Caltrans' right-of-way, the review and approval for a selected bridge type would be required by Caltrans Headquarters.

A preliminary layout plan and typical sections for the Bridge Option are located in Appendix A.

4. CONSTRUCTION COST

Below are approximate ranges of construction costs, excluding right of way, for the alternatives.

Alternative 1: $750,000 to $850,000

Alternative 2a: $2,900,000 to $3,100,000

Alternative 2b: $3,800,000 to $4,000,000

Assumptions:

- No utility impacts are anticipated
- Additional right of way to be provided by WCA, as needed

5. AGENCY COORDINATION

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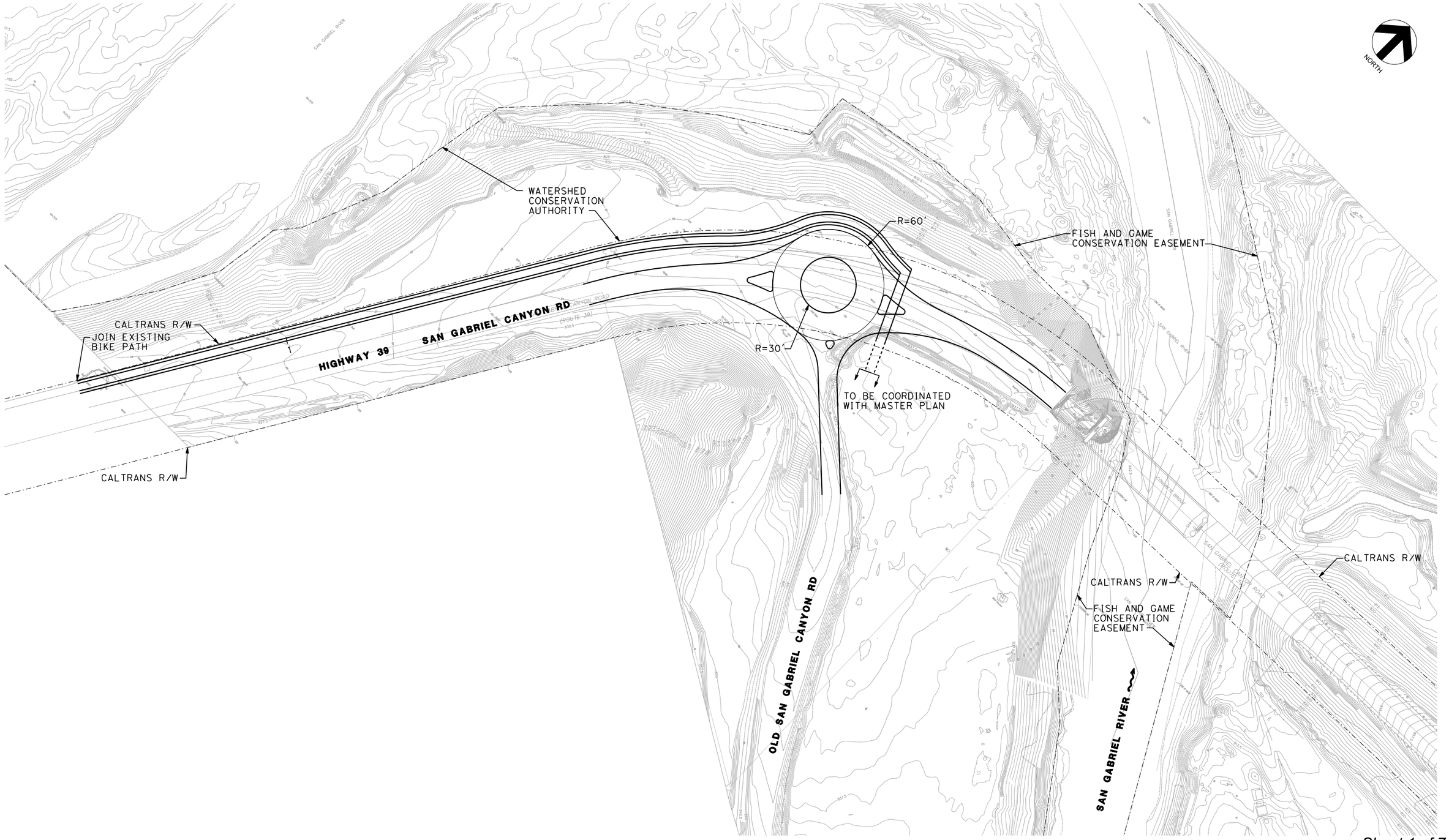
Rivers and Mountains Conservancy Marybeth Vergara, Project Analyst/Property Manager 100 N. Old San Gabriel Canyon Road Azusa, CA 91702 (626) 815-1019 x111 mvergara@rmc.ca.gov	**Caltrans District 7** Dale Benson, Local Assistance Bike Coordinator 100 S. Main St, #12-420 Los Angeles, CA 90012 (213) 897-2934 Dale.Benson@dot.ca.gov
City of Azusa James Makshanoff, Assistant City Manager 213 E. Foothill Blvd Azusa, CA 91702 (626) 812-5238 jmakshanoff@ci.azusa.ca.us	**California Department of Fish and Game (CDFG)** Sarah Rains, Streambed Alteration Team (805) 498-2385 srains@dfg.ca.gov
U.S. Forest Service L'Tanga Watson, District Ranger San Gabriel River Ranger District Office 110 N. Wabash Avenue, Glendora, CA 91741 (626) 335-1251 lwatson02@fs.fed.us	**Los Angeles County Department of Public Works** Andrew Ross, Watershed Management Division 900 S. Fremont Avenue, Alhambra, CA 91803 (626) 458-7148 aross@dpw.lacounty.com

APPENDIX A

BIKE PATH EXTENSION ALIGNMENT ALTERNATIVES



Canyon Inn Bike Path

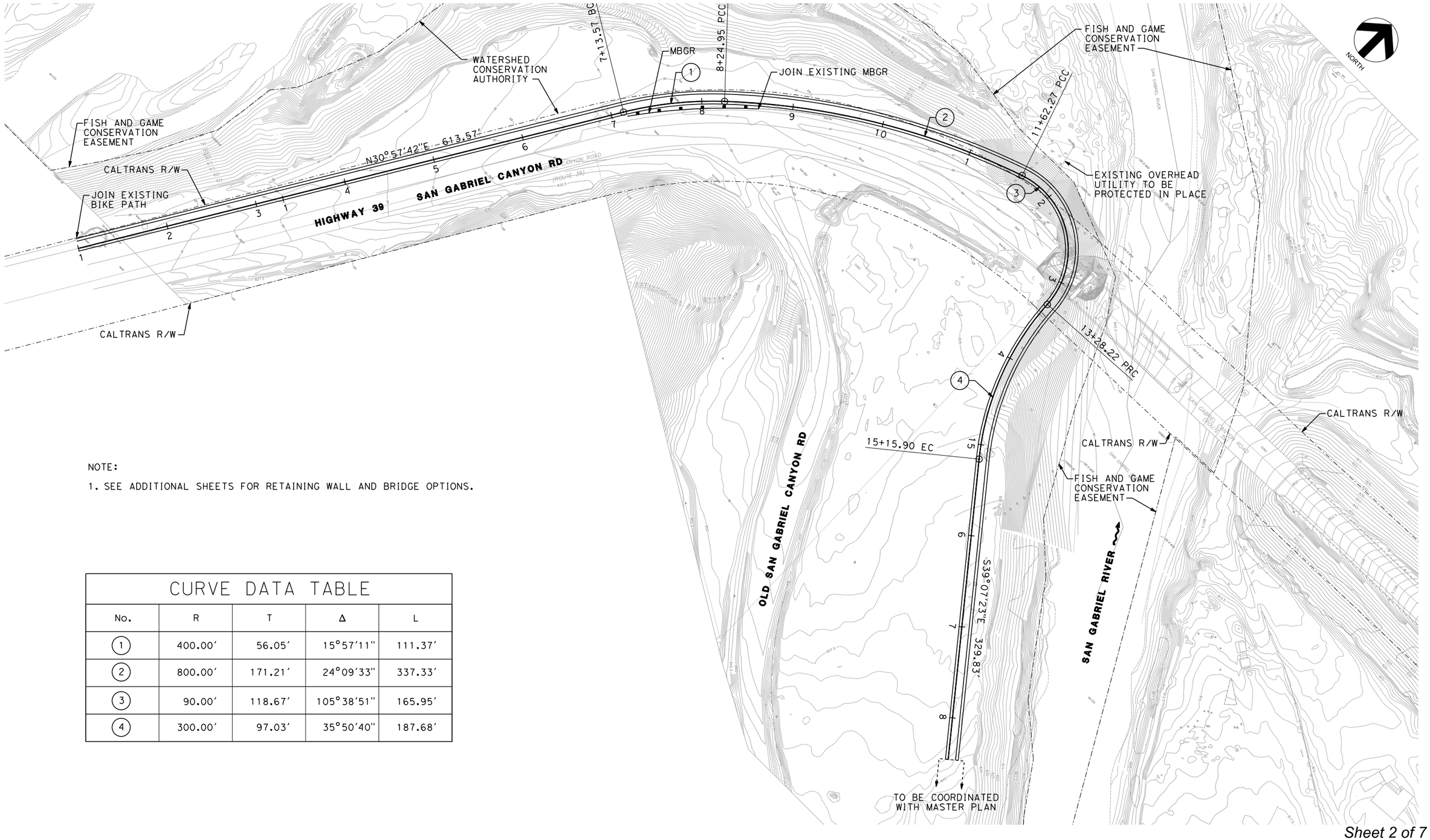
Alternative 1 - At Grade Crossing (Roundabout)

50 0 100

SCALE: 1"=100'

MTS

June, 2011



NOTE:

1. SEE ADDITIONAL SHEETS FOR RETAINING WALL AND BRIDGE OPTIONS.

CURVE DATA TABLE				
No.	R	T	Δ	L
(1)	400.00′	56.05′	15°57′11"	111.37′
(2)	800.00′	171.21′	24°09′33"	337.33′
(3)	90.00′	118.67′	105°38′51"	165.95′
(4)	300.00′	97.03′	35°50′40"	187.68′

Canyon Inn Bike Path

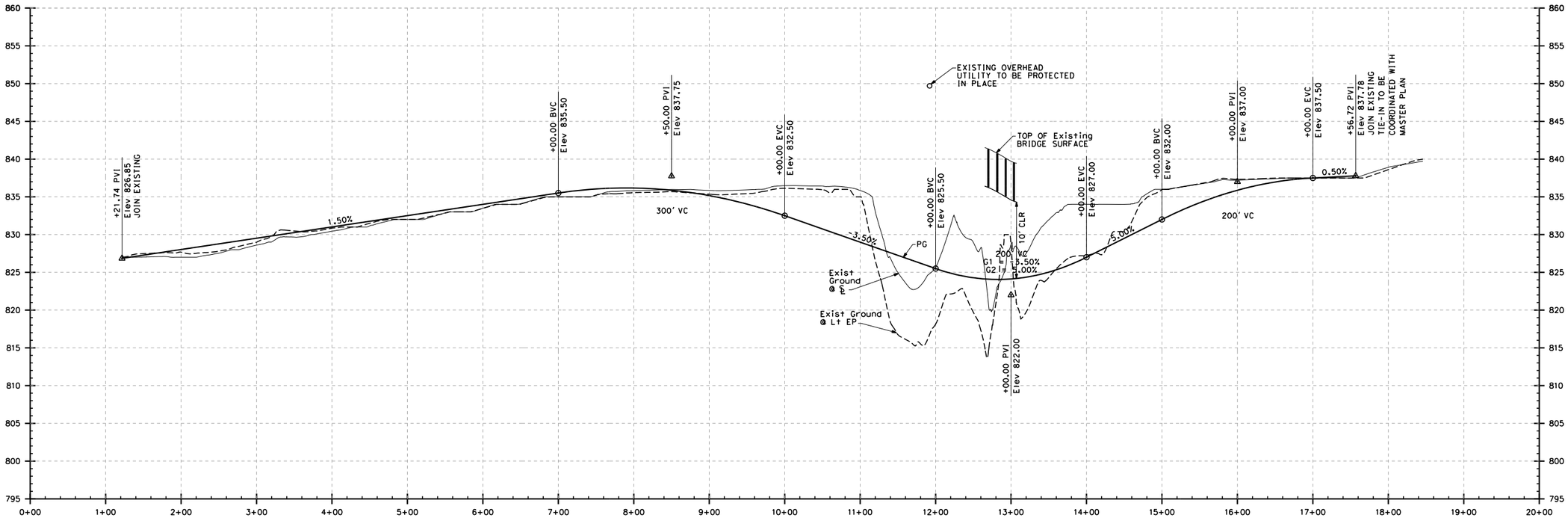
Alternative 2 - Under Bridge Crossing

50 0 100

SCALE: 1"=100'

MTS

June, 2011



HORIZ 1"=150'
VERT 1"=15'

Sheet 3 of 7

Canyon Inn Bike Path

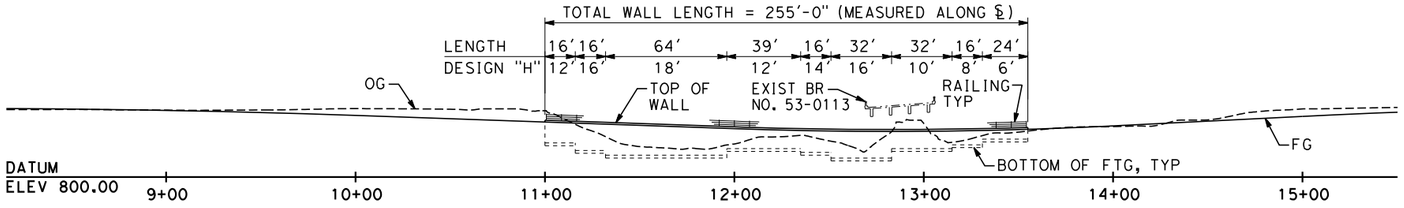
Alternative 2 - Profile

75 0 150

SCALE: 1"=150'

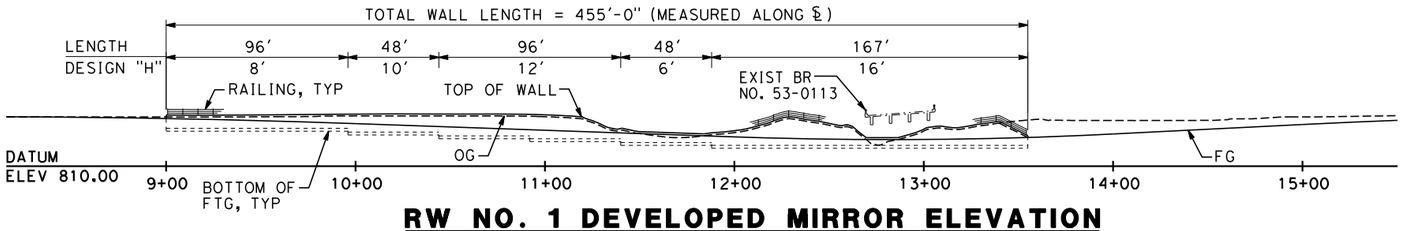
MTS

June, 2011



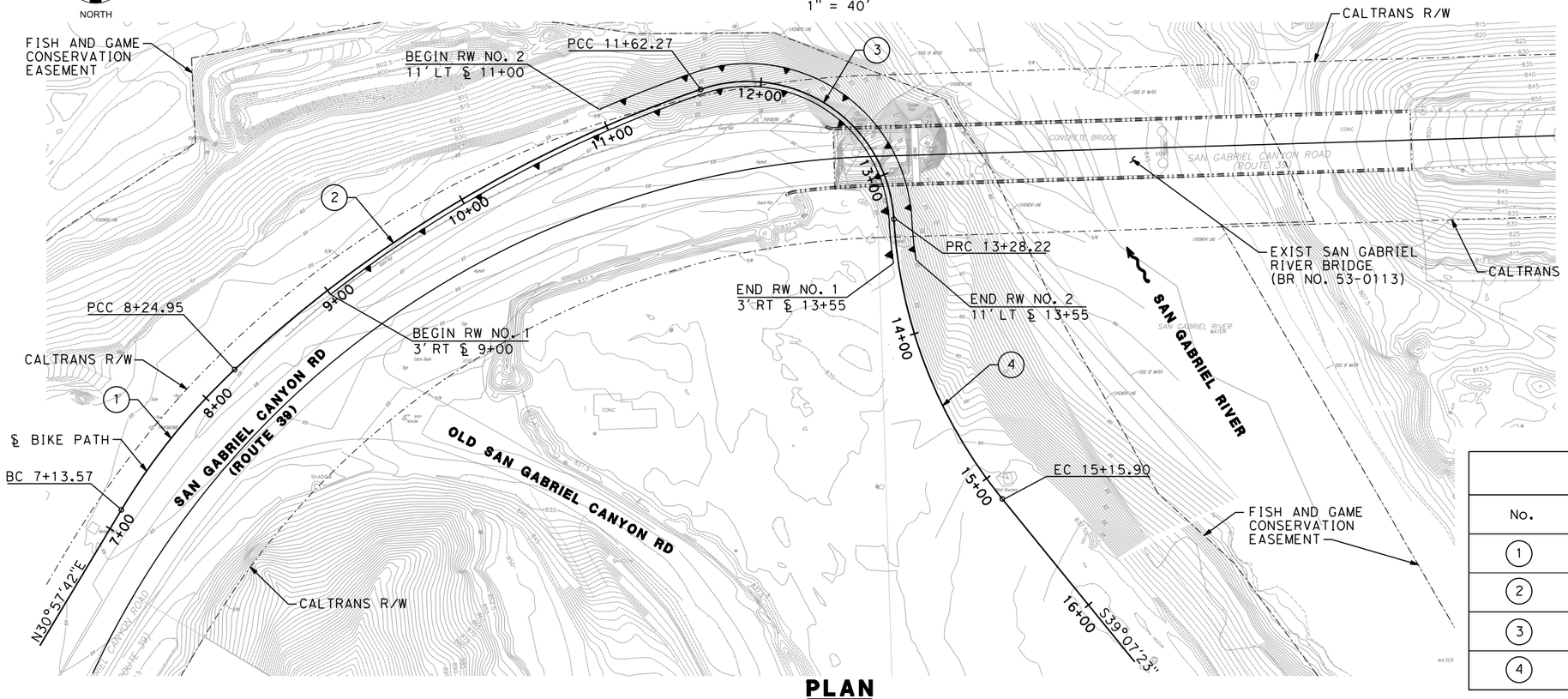
RW NO. 2 DEVELOPED MIRROR ELEVATION

1" = 40'



RW NO. 1 DEVELOPED MIRROR ELEVATION

1" = 40'



PLAN

1" = 40'

NOTES:

1. FOR TYPICAL SECTIONS, SEE "ALTERNATIVE 2 - RETAINING WALL OPTION TYPICALS" SHEET.
2. PILES NOT SHOWN IN ELEVATION VIEWS FOR CLARITY.

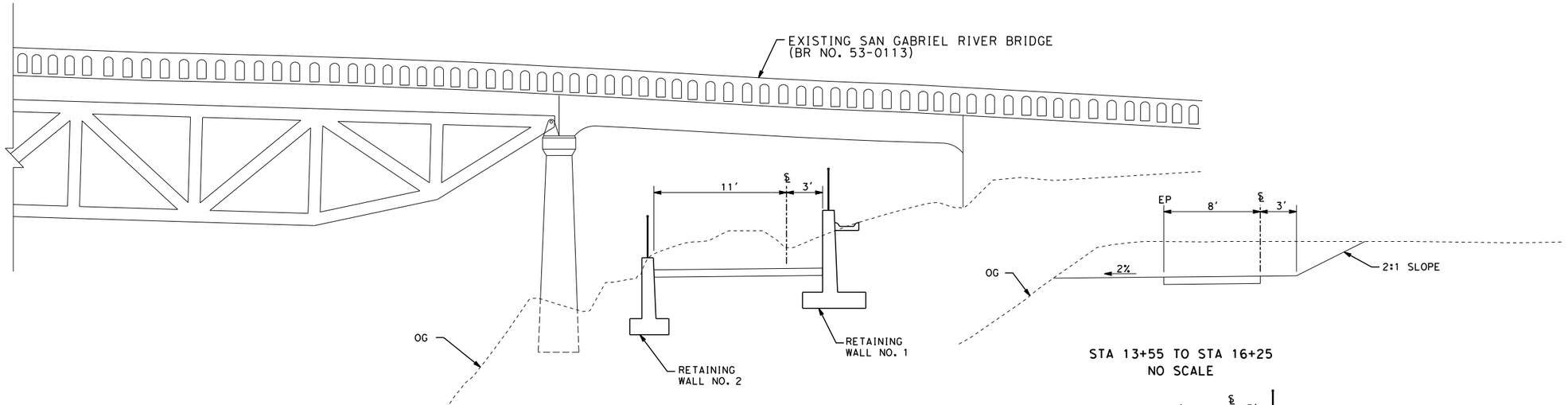
CURVE DATA TABLE				
No.	R	T	Δ	L
(1)	400.00'	56.05'	15°57'11"	111.37'
(2)	800.00'	171.21'	24°09'33"	337.33'
(3)	90.00'	118.67'	105°38'51"	165.95'
(4)	300.00'	97.03'	35°50'40"	187.68'

Canyon Inn Bike Path

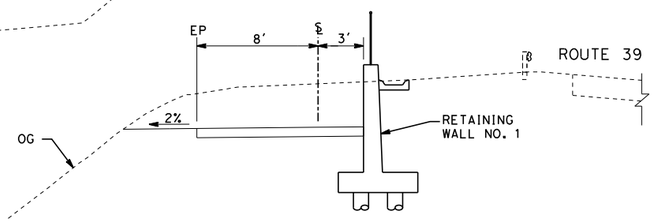
Alternative 2 - Retaining Wall Option

MTS

June, 2011



STA 12+75 TO 13+15 (UNDER BRIDGE)
NO SCALE



STA 9+00 TO STA 11+00
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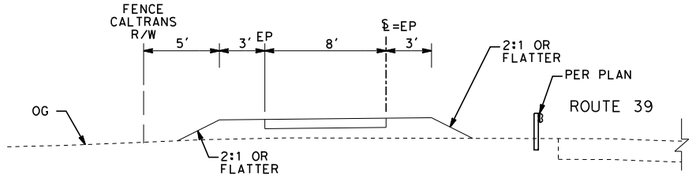
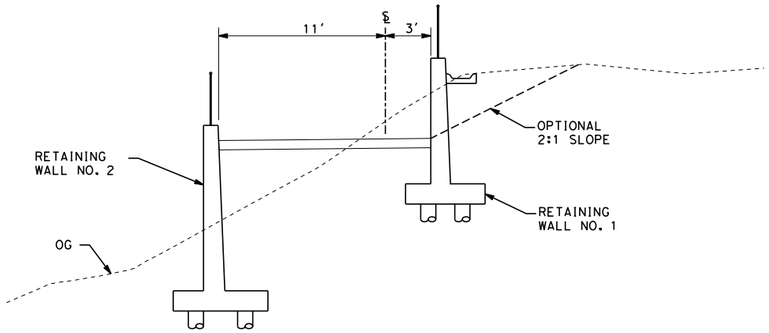


STA 1+00 TO STA 9+00
NO SCALE

STA 13+55 TO STA 16+25
NO SCALE



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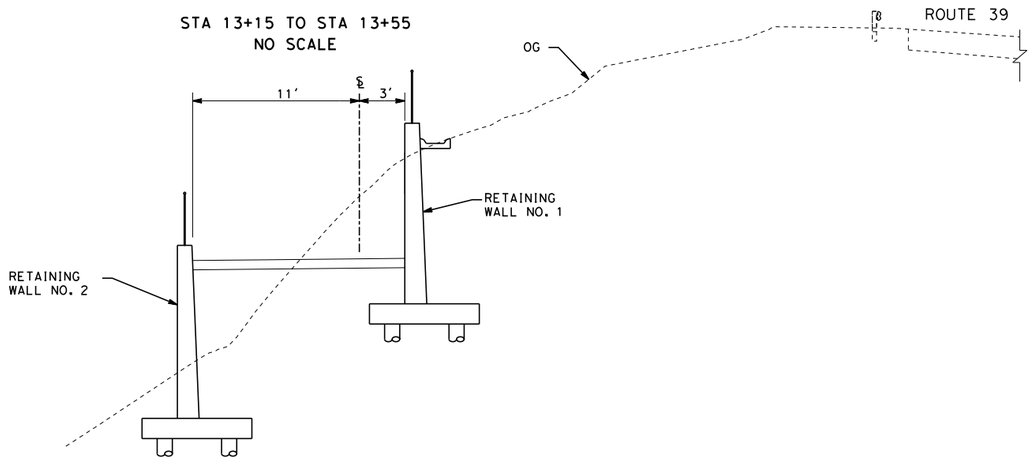


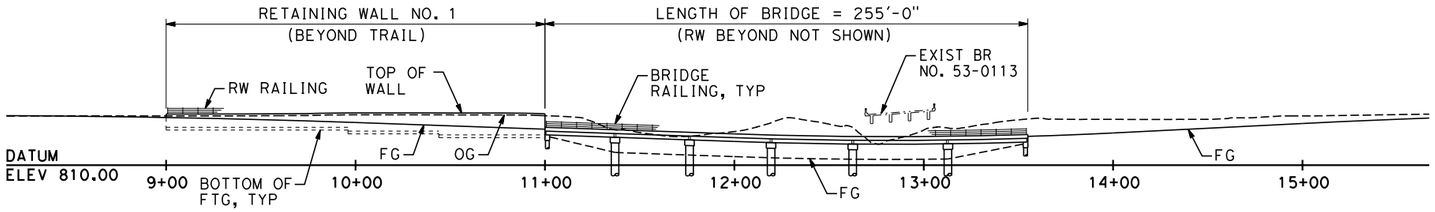
STA 11+00 TO STA 12+75
NO SCALE

Canyon Inn Bike Path

Alternative 2 - Retaining Wall Option Typical Sections

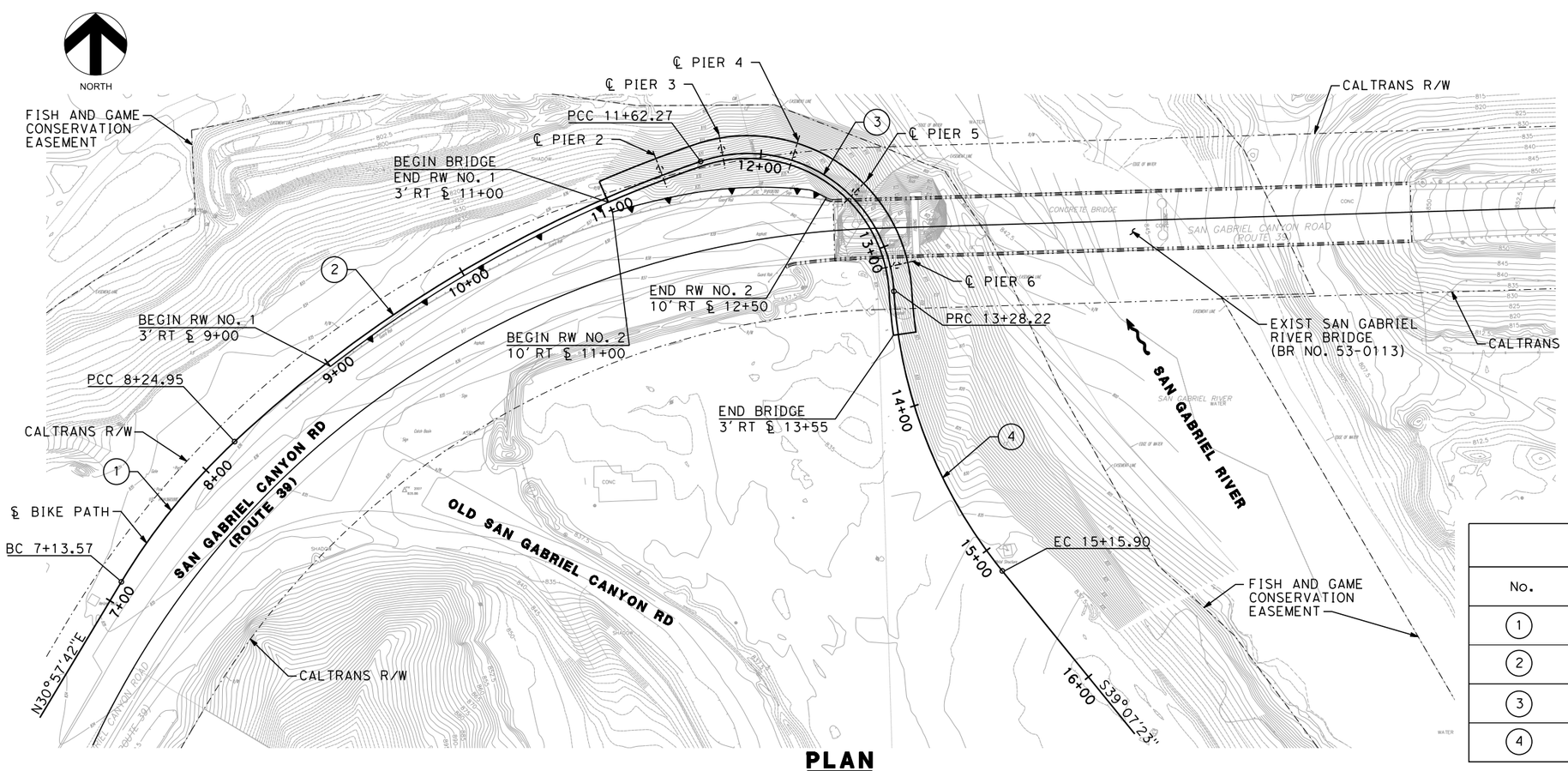
MTS

June, 2011



DEVELOPED MIRROR ELEVATION

1" = 40'



PLAN

1" = 40'

NOTES:

1. FOR TYPICAL SECTIONS, SEE "ALTERNATIVE 2 - BRIDGE OPTION TYPICALS" SHEET.

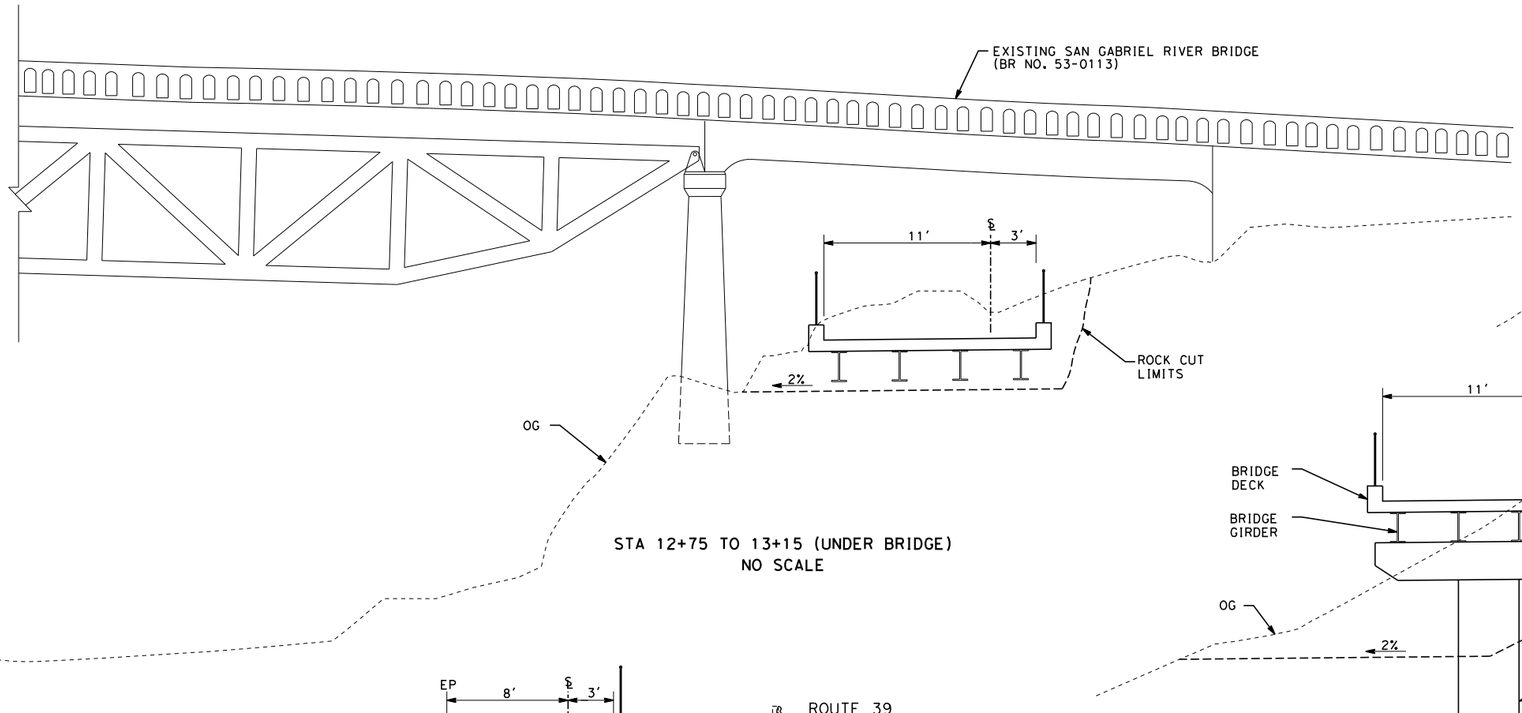
CURVE DATA TABLE				
No.	R	T	Δ	L
(1)	400.00'	56.05'	15°57'11"	111.37'
(2)	800.00'	171.21'	24°09'33"	337.33'
(3)	90.00'	118.67'	105°38'51"	165.95'
(4)	300.00'	97.03'	35°50'40"	187.68'

Canyon Inn Bike Path

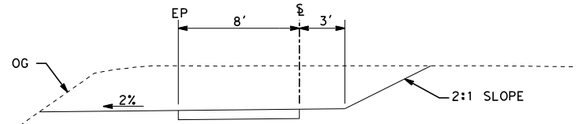
Alternative 2 - Bridge Option

MTS

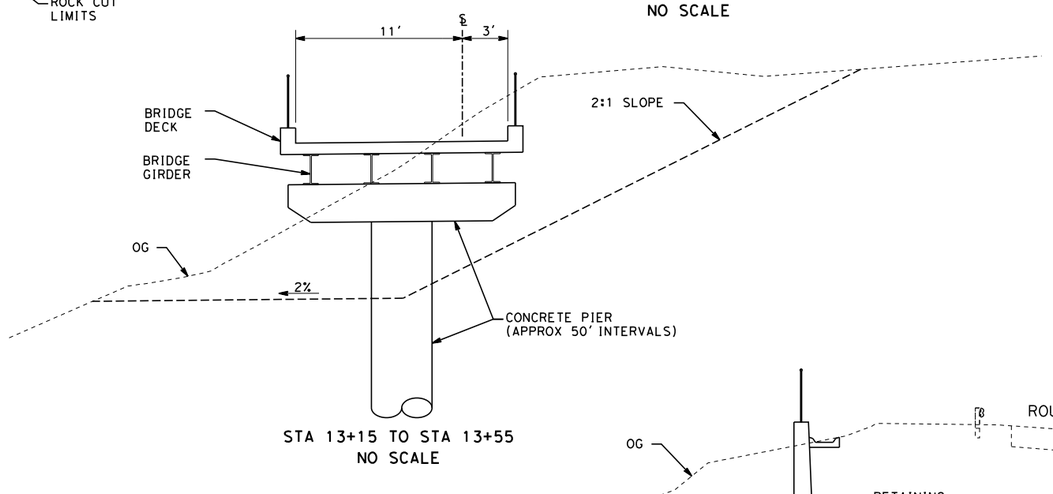
June, 2011



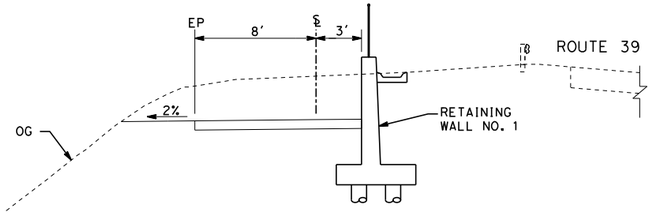
STA 12+75 TO 13+15 (UNDER BRIDGE)
NO SCALE



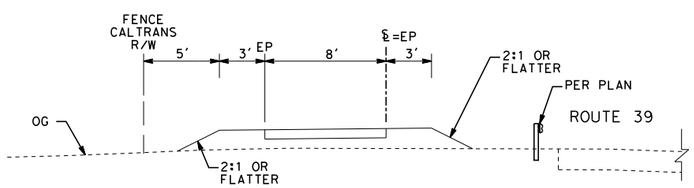
STA 13+55 TO STA 16+25
NO SCALE



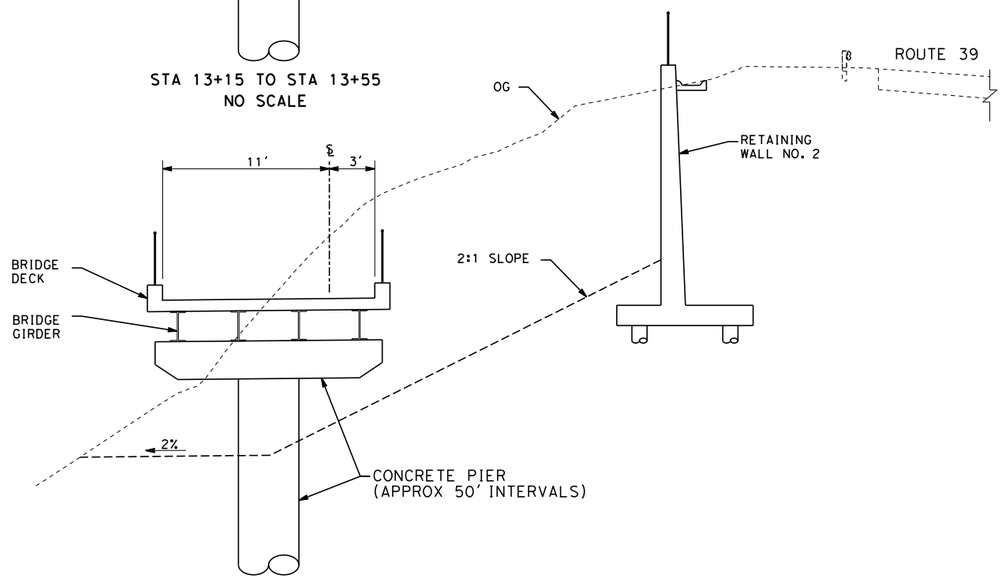
STA 13+15 TO STA 13+55
NO SCALE



STA 9+00 TO STA 11+00
NO SCALE



STA 1+00 TO STA 9+00
NO SCALE



STA 11+00 TO STA 12+75
NO SCALE

Canyon Inn Bike Path

Alternative 2 - Bridge Option Typical Sections

June, 2011

Geotechnologies, Inc.
Consulting Geotechnical Engineers
Celebrating 40 Years of Service 1971-2011

May 4, 2011
File No. 20092

BlueGreen Consulting
2616 Figueroa Street
Los Angeles, California 90065

Attention: Martin Kammerer, Ph.D.

Subject: Preliminary Geotechnical Feasibility Study
Proposed Bike Path
San Gabriel Canyon Road at San Gabriel River Bridge, Azusa, California

INTRODUCTION

This document presents the results of the preliminary geotechnical feasibility study for the proposed bike path project. The purpose of this study was to observe the surface geology at the site, present the anticipated geologic conditions, and to provide preliminary discussion of the geotechnical feasibility of the proposed project.

This document is not intended for submission to the local building department for permit purposes. No subsurface exploration, testing, or engineering analysis has been performed at this time. This assessment is based on limited observations of the subject site and review of published geologic and geotechnical documents. The actual geologic conditions underlying the site may vary substantially from the interpretations presented herein. Prior to design and construction of the proposed project, it will be necessary to conduct subsurface exploration, laboratory testing, and engineering analysis. The site location is shown on the enclosed Vicinity Map and the proposed bike path alignment is shown on the enclosed Plot Plan / Geologic Map.

PROJECT DESCRIPTION

Information concerning the proposed project was furnished by the client and the office of MTS. The proposed project consists of extending the existing San Gabriel River Bike Path to El Encanto Park. At this time, the existing bike path terminates on the western side of San Gabriel Canyon Road approximately 700 feet south of the intersection with North Old San Gabriel Road, which is the entrance road to El Encanto Park.

The most current proposed route extends the path northward along the west side of San Gabriel Canyon Road towards the San Gabriel River Bridge. Just past the western bridge abutment, the path turns eastward, extends below the bridge, and then continues towards El Encanto Park. The proposed alignment is shown on the enclosed Plot Plan / Geologic Map.

As discussed below, proposed elevations along the bike path are at, above, and below the existing ground surface elevations at various locations along the alignment. In some areas, the bike path is proposed to be constructed on existing slopes. Therefore, retaining walls will be utilized to create space for the bike path. At this time, retaining structures under consideration include concrete walls, concrete masonry unit (CMU) walls, soil nail walls, and mechanically stabilized earth (MSE) walls. Grading for the project would be expected to consist of subgrade preparations for the paved bike path and cutting or filling to achieve the desired alignment elevations.

PROPOSED ALIGNMENT

Between Stations 1+00 and 9+00, the proposed bike path will be constructed near the existing site grade, which are near the elevation of San Gabriel Canyon Road (see Cross Section A-A).

The path will begin to descend below existing grades near Station 9+00. A retaining wall up to approximately 10 feet in height is planned on the south side of the path between Stations 9+00 and 11+00 (see Cross Section B-B'). Portions of the retaining wall would be in close proximity to San Gabriel Canyon Road and may retain soils underlying the roadway.

Between Stations 11+50 and 12+50, retaining walls up to 10 to 15 feet in height are planned on both sides of the path (see Cross Section C-C').

Below the San Gabriel River Bridge (Stations 12+50 to 13+00), the current grades will be lowered by up to approximately 7 feet in order to provide adequate clearance below the bridge (see Cross Section D-D).

South of Station 13+00, the path will begin to ascend. From Stations 13+00 to 17+50, a retaining wall up to 8 feet in height is planned on the eastern (downhill) side of the path, and a 2:1 (h:v) cut slope (up to 10 feet high) is planned on the western side of the path (see Cross Section E-E').

It should be noted that Cross Sections A-A' through E-E' have been selected at various locations along the alignment to facilitate discussion of the project. The sections may not show the full retaining wall heights discussed above.

SITE CONDITIONS

The proposed alignment will be situated near the top of an existing slope that ascends above the San Gabriel River Bed. The top of the slope ranges between approximately 30 to 40 above the river bed. The existing slope gradient ranges between approximately 1:1 and 1.5:1 (h:v). The majority of the proposed alignment is currently undeveloped land. Vegetation consisting of grasses, bushes, and trees occupy portions of the proposed path alignment.

LOCAL GEOLOGY

The project site is situated near the mouth of the San Gabriel Canyon, which is located north of Azusa, California. Geology of the area has largely been shaped by the San Gabriel River. Over time, the river has gradually eroded downward through the San Gabriel Mountains, exposing relatively steep slopes comprised of quartz diorite, and occasionally leaving behind remnant alluvial deposits on stream terraces perched above the canyon floor.

The proposed alignment runs along the south bank of the San Gabriel River and near the top of west, north, and east facing slopes. The slopes are constructed of artificial fill placed near the base of the San Gabriel Mountains. The fill embankments were most likely placed during grading operations associated with the construction of San Gabriel Canyon Road.

According to the published geologic map (CDMG, 1973), the bottom of the San Gabriel Canyon consists of Quaternary alluvial sediments deposited by the San Gabriel River. Artificial fills are present along the base of the canyon and underlie the proposed alignment and San Gabriel Canyon Road. The canyon walls primarily consist of quartz diorite. Older alluvial deposits exist perched above the base of the canyon. Some of the canyon walls have developed relatively thick layers of colluvial deposits. Multiple landslides have been mapped in the vicinity of the site. Landsliding is likely the result of over steepening of the canyon walls and ongoing weathering of the bedrock materials. A copy of the geologic map provided in (CDMG, 1973) is enclosed in the Appendix. Although beyond the limits of the Local Geologic Map provided herein, the Sierra Madre Fault is located approximately three-quarters of a mile south of the subject site.

GEOLOGIC MATERIALS

Earth materials observed in the site vicinity consist of artificial fill materials, natural alluvium, landslide debris, and quartz diorite bedrock. The general distribution of geologic materials is shown on the enclosed Plot Plan / Geologic Map. Subsurface interpretations are shown on the enclosed Sections A-A' through E-E'.

Artificial Fill (af)

Fill materials observed in the site vicinity consist of sands and silty sands. The fill materials are generally fine to coarse grained and appear to contain substantial amounts of gravel, cobbles, and boulders. The total thickness of artificial fills could not be determined through surficial observations of the site. However, the artificial fills do extend from the river bed up to the surface elevation of San Gabriel Canyon Road, which is an elevation change of approximately 30 to 40 feet. Therefore, fill thicknesses between 30 and 40 feet most likely exist below the proposed alignment.

It is anticipated the artificial fills were placed in order to construct San Gabriel Canyon Road above the river bed. While these artificial fills may have been compacted at the time of placement, no documentation regarding placement, compaction, and testing of the existing fill is known to exist. The methods, procedures, and materials utilized during placement of the existing fill throughout the area of the proposed alignment are not known. Therefore, the fills are considered to be uncertified.

Alluvium (Qa)

Native alluvium observed in the site vicinity consists of silty sands and sands, which are generally fine to coarse grained with varying amounts of gravel, cobbles, and boulders. The alluvial soils consist of detrital sediments deposited by river and stream action.

Landslide Debris (Qls)

The observed landslide debris located towards the southern portion of the site vicinity primarily consists of loose sands and gravel, with cobble to boulder sized fragments of quartz diorite.

Bedrock (qd)

Mesozoic bedrock consisting of quartz diorite is the primary bedrock in the vicinity of the subject site and this area of the San Gabriel Mountains. The bedrock is generally gray to grayish brown, moist, highly weathered, massive and hard.

GROUNDWATER

According to the Seismic Hazard Zone Report of the Azusa 7½-Minute Quadrangle (CDMG, 1998, Revised 2006), the historic high groundwater level is not well defined in the vicinity of the site. This is likely due to the presence of poor water bearing bedrock material. A copy of the map "Historically Highest Groundwater Levels" is enclosed herein.

It is estimated that groundwater most likely occurs below the subject site near the elevation of the San Gabriel River bed. However, the water level likely fluctuates with seasons and the water level of the river.

Review of the Los Angeles Department of Public Works (LADPW) monitor well program indicates Well No. 4293 is located approximately ½ mile to the southwest of the site (LADPW, 2011). The approximate well location is shown on the enclosed Vicinity Map. The well logs are enclosed herein. Measurements from the well were recorded between November 1928 and May 1991. The measurements indicate the highest water level was near the ground surface.

SEISMIC HAZARDS

A primary geologic hazard at the site is moderate to strong ground motion (acceleration) caused by an earthquake on any of the local or regional faults. Design of the proposed project in accordance with the provisions of the 2010 California Building Code (2010 CBC), or most current applicable building code, is expected to adequately minimize the potential effects of ground shaking. Other seismic hazards including liquefaction, landsliding, surface rupture, and inundation are discussed below.

LIQUEFCATION

Review of the State of California Seismic Hazards Map of the Azusa Quadrangle (CDMG, 1999), indicates the proposed alignment is located in an area designated as "Liquefiable." A copy of the Seismic Hazards Map is enclosed in herein. It is recommended site specific liquefaction analyses be performed prior to design and construction of the proposed project. The analyses would require subsurface exploration, testing, and analysis.

LANDSLIDING AND SLOPE STABILITY

According to the Seismic Hazards Map (CDMG, 1999), portions of the slopes ascending above San Gabriel Canyon Road on the southern portion of the site are located in areas designated as potentially susceptible to "Earthquake Induced Landslides." Site observations indicate that landslide debris already exists in this area. Based on the nature of the proposed project near the base of the landslide, it is anticipated the proposed bike path would not be classified as a "Project" under the State of California Seismic Hazards Mapping Act. Therefore, a seismic slope stability analysis of the ascending slope would most likely not be required.

The proposed alignment is situated near the top of existing fill slopes, which descend to the river bed. The slopes are between approximately 30 and 40 feet in height, with gradients on the order of 1:1 to

1.5:1 (h:v). It is recommended the static and seismic stability of these slopes be analyzed prior to design and construction of the proposed project. The stability analyses should include any proposed improvements (i.e. retaining walls) or future grading.

SURFACE RUPTURE

Based on research of available literature and results of site reconnaissance, no known active or potentially active faults underlie the subject site. In addition, the subject site is not located within an Alquist-Priolo Earthquake Fault Zone. Based on these considerations, the potential for surface ground rupture at the subject site is considered low.

TSUNAMIS, SEICHES, AND INUNDATION

Review of the County of Los Angeles Flood and Inundation Hazards Map, Leighton (1990) indicates the site is not subject to inundation by tsunami. However, the site lies within the mapped potential inundation boundaries of the San Gabriel Dam and the Morris Dam.

PRELIMINARY CONCLUSIONS AND GEOTECHNICAL DISCUSSION

Based on the site observations and research, it is the preliminary finding of this firm the proposed bike path is considered feasible from the geotechnical standpoint. Subsurface exploration, laboratory testing, and engineering analysis were not performed as part of this study. Therefore, geotechnical design parameters are not provided herein. The discussion contained herein is intended to aid in preliminary project development and feasibility. This document is not intended for submission to the local building department for building permit purposes.

From the geotechnical standpoint, it is anticipated the primary factor affecting foundations, grading, and retaining structures on the site is the presence and depth of existing fill materials. Based on site observations, it is estimated at least 30 to 40 feet likely exists below the proposed alignment. No documentation regarding placement, compaction, and testing of the existing fill is known to exist. The methods, procedures, and materials utilized during placement of the existing fill throughout the area of the proposed alignment are not known. Therefore, the fills are considered to be uncertified. Uncertified fills are not suitable for support of structural foundations or additional fill.

It is recommended research be conducted with applicable agencies to determine if certifying documentation of the fill materials exists. Such documentation could substantially affect the design of the proposed project. The project geotechnical engineer must review and approve any certifying documentation. If acceptable, the geotechnical engineer should provide written recommendations for the use of existing certified compacted fill.

Due to the height and gradient of the existing slopes along the majority of the proposed alignment, it is anticipated it would not be feasible to utilize grading methods (i.e. fill and cut slopes) in order to create the bike path along the sides of the existing slopes. Retaining structures appear to be the most feasible method of creating space for the bike path. Various types of retaining structures are discussed below. It appears there would be sufficient space for cut slopes between Stations 13+00 to 18+50. General grading is discussed below.

Any required structural foundations should penetrate the existing fill and derive support from competent natural soils or bedrock. Due to the depth of existing fill throughout most of the alignment, it is anticipated friction pile foundations would be the most feasible foundation system. In the vicinity of the bridge, bedrock does outcrop. Conventional foundations bearing in bedrock could possibly be used in this vicinity. Additional information on foundations is provided below.

Review of the structural drawings for the existing San Gabriel River Bridge indicates the western bridge abutments are bearing in bedrock material. Grading for the bike path below the bridge is expected to lower the existing grades by as much as 7 feet. Removal of the material would not be expected to affect the bridge foundations, provided the excavations do not undermine the bridge foundations. It is recommended the bottom elevation of the western most abutment be verified by visual inspection prior to design and construction.

The water surface elevation of the San Gabriel River is expected to fluctuate with seasonal weather variations and release of waters stored in the Morris and San Gabriel Reservoirs. It is recommended a hydrology study be performed to determine the highest anticipated water surface elevation in the vicinity of the proposed project. The proposed improvements should be made at an acceptable height above the anticipated high water level.

Prior to design and construction of the proposed project, it is recommended a comprehensive geotechnical investigation be performed so that specific geotechnical recommendations may be provided. The investigation should include (but need not limited to) subsurface exploration and laboratory testing of the earth materials underlying the site. In addition, the investigation should evaluate site specific seismic hazards such as liquefaction and seismic slope stability. It is recommended the investigation be conducted prior to engineering for the final plan. Significant changes may be necessary as a result of the geotechnical investigation.

GRADING

The extent of future grading for the project is not currently well defined. All site grading should be conducted in general accordance with applicable sections of the 2010 CBC, including Appendix J. Subsurface exploration and testing will be required prior to development of site specific grading

recommendations. Any fill which is placed should be observed, tested, and verified by the project geotechnical engineer if used for engineered purposes.

At this time, it is anticipated the use of sidehill fill slopes constructed below the proposed bike path (to create space for the path) would not be feasible. Sidehill fills would need to be constructed at gradients of 2:1 (h:v) or flatter. This would place the toe of fill slopes within San Gabriel River, leaving it susceptible to erosion from river waters. Fills placed on inclined surfaces would require benching into competent earth materials. Sidehill fills would require the installation of subdrainage systems.

Much of the alignment (Stations 1+00 to 13+00) is adjacent to the San Gabriel Road or the bridge. Therefore, there is insufficient space to utilize cut slopes above the proposed bike path. South of the bridge (Stations 13+00 to 18+50), there appears to be space to utilize cut slopes. Any cut slope should not exceed a maximum gradient of 2:1. Prior to design and implementation of any slopes, slope stability analyses would be required.

FOUNDATIONS

Structural foundations would be required for support of concrete and/or CMU retaining walls. The 2010 CBC does not allow structural foundations to bear in unprepared fill. Unless acceptable certifying documentation is obtained, structural foundations shall penetrate the existing fill materials and derive support from competent natural soils or bedrock. The competency of natural soils underlying the site (including their resistance to liquefaction) must be evaluated through subsurface exploration and testing. Based on the thickness and anticipated nature of the existing fill materials, drilled cast-in-place friction piles are likely the most feasible foundation system. Conventional foundations bearing in bedrock could possibly be used in the vicinity of the bridge, where shallow bedrock is know to exist.

Site specific exploration, lab testing, and structural loading of the proposed development would be required to provide detailed pile recommendations. Friction piles are typically embedded at least 20 feet into competent materials. However, the total length of piles is dependant on the required capacity.

The earth materials underlying the proposed alignment are estimated to consist of granular materials containing cobbles and boulders, which would make drilling for piles difficult. In addition, the materials are most likely prone caving, and groundwater likely occurs near the river bed elevation. During installation of piles, methods to prevent caving, advance drilled shafts past large materials, and displace water would most likely be necessary.

Foundation and Building Setback Requirements

In accordance with section 1808.7 of the 2010 CBC, the following setback requirements would be required for the proposed project. Footings situated near the top of, or within, descending slopes shall be setback from the face of the slope a minimum of one third the height of the slope, but need not exceed 40 feet.

Although not anticipated at this time, structures shall be setback horizontally from the toe of slopes or retaining walls at the toe of adjacent ascending slopes for a distance equal to one half the height of the slope, but need not exceed 15 feet.

RETAINING WALLS

Retaining walls under consideration for the proposed development include concrete, CMU, MSE, and soil nail walls. Concrete and/or CMU walls would require structural foundations for support. As indicated above, structural foundations should penetrate the existing fill materials and derive support from competent natural earth materials.

All retaining walls should be equipped with drainage devices or weepholes to prevent the possible buildup of hydrostatic forces. Waterproofing should be considered where efflorescence would be objectionable. Retaining walls constructed at the toe of slopes should be equipped with freeboard and a drainage swale or brow ditch.

Mechanically Stabilized Earth (MSE) Walls

MSE walls (commonly known as keystone walls), generally consist of modular facing elements attached to geotextile reinforcements that extend horizontally into the backfill soils. MSE walls do not typically have a structural concrete footing. They are constructed upon a prepared subgrade. Due to their modular nature, they are able to tolerate differential settlements in excess of a typical concrete or CMU retaining wall. However, their stability relies upon the stability of the reinforced backfill material and subgrade in which they bear. The use of MSE walls on the proposed project could be feasible. However, specific setbacks from the face of existing slopes would be necessary. In addition, substantial space is required for construction of the reinforced backfill. Site specific investigation and testing would be required in order to evaluate the potential use of MSE walls and to provide design recommendations.

Soil Nail Walls

Soil nail walls are constructed as excavation proceeds. They are typically used for temporary shoring applications, but are also utilized for permanent support. Soil nails are drilled into the embankment to be retained, then shotcrete is sprayed across the embankment and the soil nails are tensioned against the face of the shotcrete. They are typically used in more cohesive soils because they rely, in part, on the ability of the soils to stand up to vertical excavation.

Pending subsurface exploration and testing, soil nail walls might be feasible on the proposed project. However, due to the estimated granular nature of the soils underlying the site, difficulties during installation would most likely occur (including caving of granular materials on the cut face and in drilled shafts). In addition, soil nail walls are passive systems, in which deflection of the wall and embankment is necessary to develop resistance. Therefore, it is recommended that any adjacent improvements be evaluated for tolerance to the deflection.

When evaluating the feasibility of soil nail walls, the project team should also consider that soil nails may extend below the existing roadway, which would likely require agreement from the road's operating authority. Some building officials do not allow the use of permanent soil nail walls. Therefore, it is recommended their use be cleared with the building official prior to design and construction.

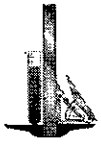
BIKE PATH PREPARATION

It is anticipated the proposed bike path surface will be paved with asphalt and/or concrete paving. Site specific exploration and testing will be required in order to provide paving and base course thicknesses. At this time, it is anticipated subgrade preparation prior to placement of paving could consist of removal and recompaction of the upper 1 to 2 feet of soils.

TEMPORARY EXCAVATIONS

The extent of temporary excavations during construction is not know at this time, nor are the engineering properties and distribution of the earth materials underlying the alignment. Preliminarily, soils underlying the subject site are expected to be suitable for vertical excavations up to approximately 3 feet in height, where not surcharged by adjacent traffic, structures, sloping ground, or adverse geologic structure.

It is anticipated unsurcharged excavations could be excavated at a 1:1 gradient up to heights on the order of 10 feet. Where excavations are surcharged, or where there is insufficient space to utilize sloped excavations, it would be necessary to install shoring to maintain stable excavations.



Shoring could consist of soldier piles and lagging. While exploration and testing would be necessary to develop shoring design values, it is anticipated the shoring design would be typical of most projects in the Southern California area.

LIMITATIONS AND CLOSURE

The scope of the geotechnical services provided did not include any environmental site assessment for the presence or absence of organic substances or hazardous/toxic materials in the soil.

This assessment is based on limited observations of the subject site and review of published geologic and geotechnical documents. The actual geologic conditions underlying the site may vary substantially from the interpretations presented herein. It will be necessary to conduct subsurface exploration, laboratory testing, and engineering analysis prior to design and construction of the proposed project.

Geotechnologies, Inc. appreciates the opportunity to provide our services on this project. Should you have any questions please contact this office.

Respectfully submitted;
GEOTECHNOLOGIES, INC.

MICHAEL A. CAZENEUVE
R.C.E. 71490 / C.E.G. 2546

MAC:km

Enclosures: References
Vicinity Map
Plot Plan / Geologic Map
Cross Sections A-A' through E-E'
Local Geologic Map, CDMG, 1973
Historically Highest Groundwater Levels Map
Seismic Hazard Zone Map
Groundwater Well Logs (9 pages)

Distribution: (1) Addressee
(1) MTS, Attn: David Lew

REFERENCES

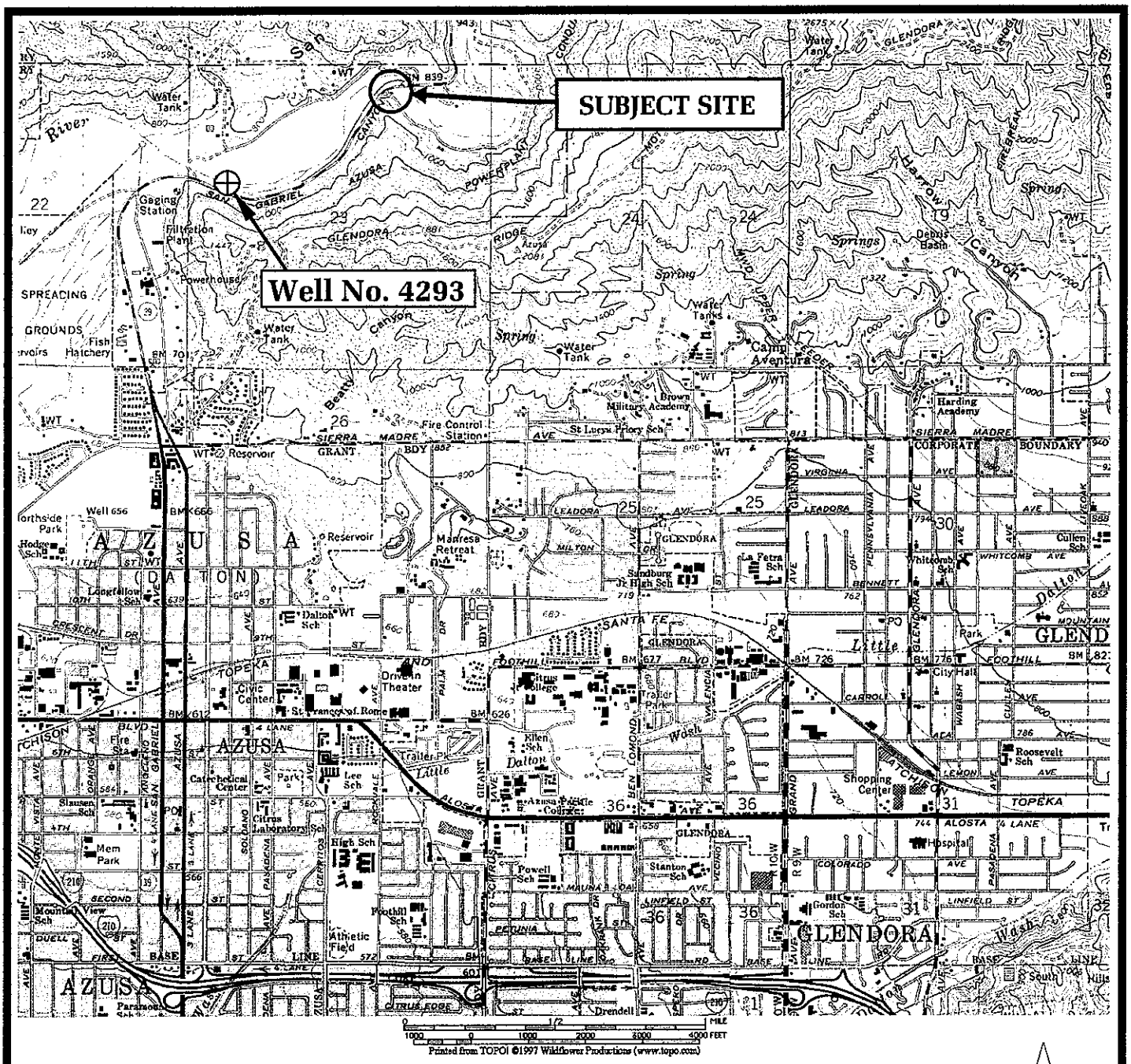
California Department of Conservation, Division of Mines and Geology, 1973, "Geology of Parts of the Azusa and Mount Wilson Quadrangles, San Gabriel Mountains, Los Angeles County, California," Special Report 105.

California Department of Conservation, Division of Mines and Geology, 1999, Seismic Hazard Zones Map, Azusa 7½-minute Quadrangle, CDMG Seismic Hazard Zone Mapping Act of 1990.

California Department of Conservation, Division of Mines and Geology, 1998 (Revised 2008), Seismic Hazard Zone Report for the Azusa 7 ½-Minute Quadrangle, Los Angeles County, California., C.D.M.G. Seismic Hazard Zone Report 021, map scale 1:24,000.

Leighton and Associates, Inc. (1990), Technical Appendix to the Safety Element of the Los Angeles County General Plan: Hazard Reduction in Los Angeles County.

Los Angeles Department of Public Works, 2011, Groundwater Wells Website http://gis.dpw.lacounty.gov/wells/viewer.asp..



REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, AZUSA, CA QUADRANGLE

VICINITY MAP

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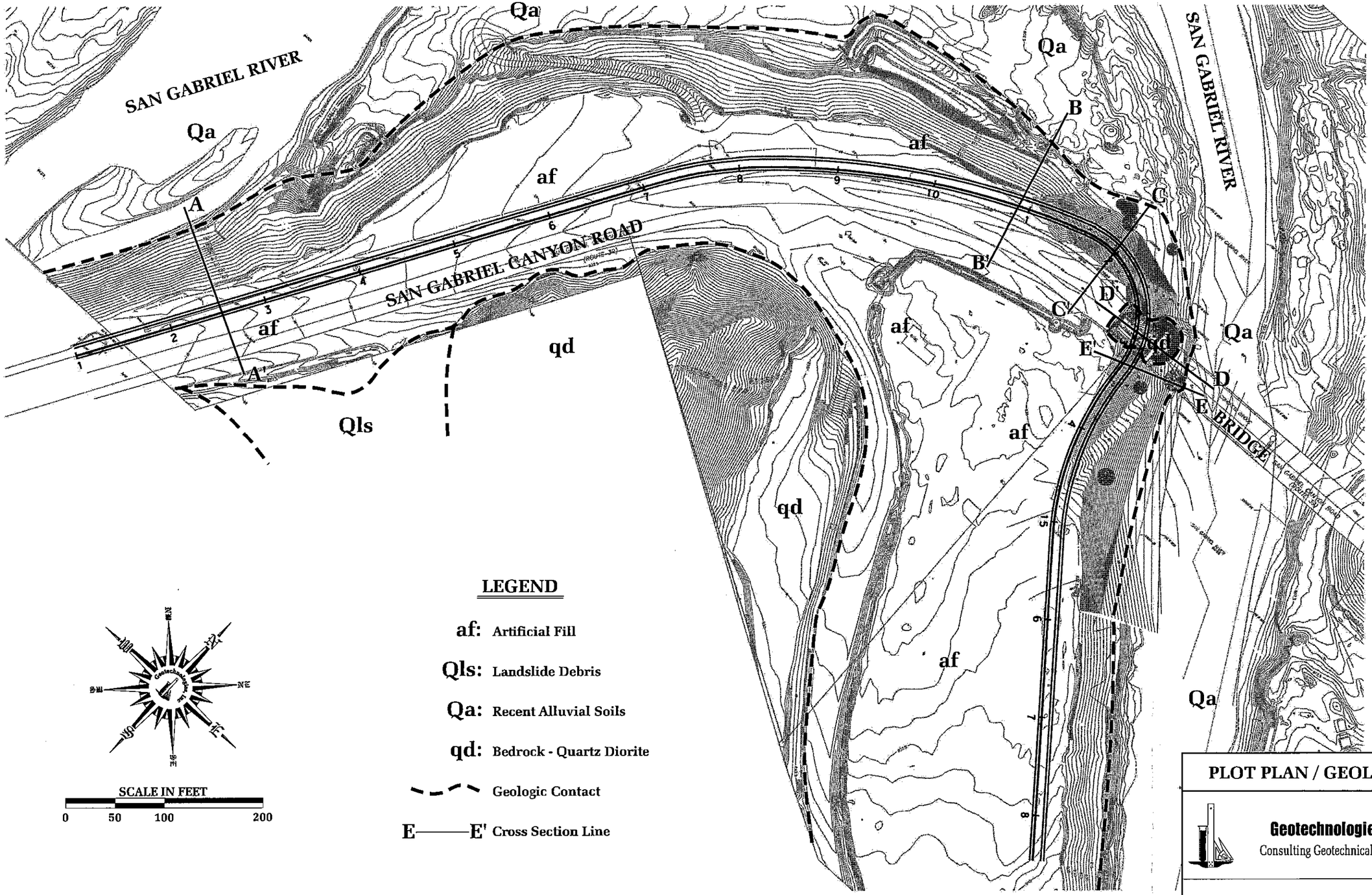
BLUEGREEN CONSULTING

FILE NO. 20092



SCALE IN FEET

0 50 100 200

LEGEND

- **af:** Artificial Fill
- **Qls:** Landslide Debris
- **Qa:** Recent Alluvial Soils
- **qd:** Bedrock - Quartz Diorite
- Geologic Contact
- **E——E'** Cross Section Line

REFERENCE:
SITE SURVEY AND PROPOSED ALIGNMENT PROVIDED BY MTS, NOT DATED.

PLOT PLAN / GEOLOGIC MAP

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BLUEGREEN CONSULTING

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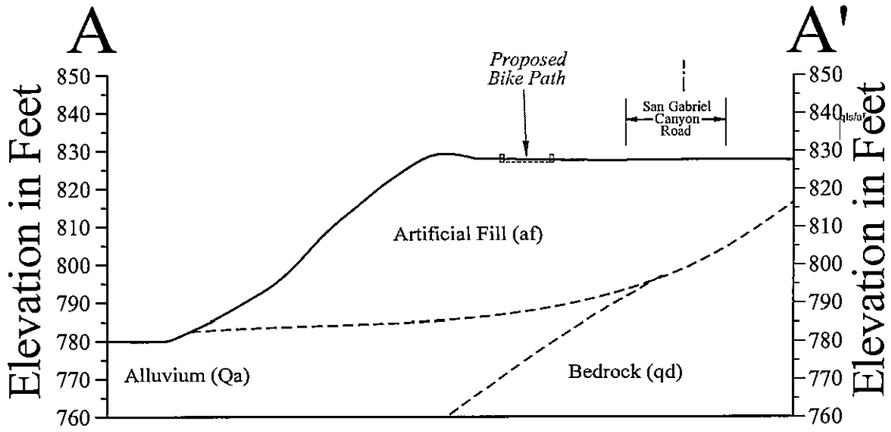

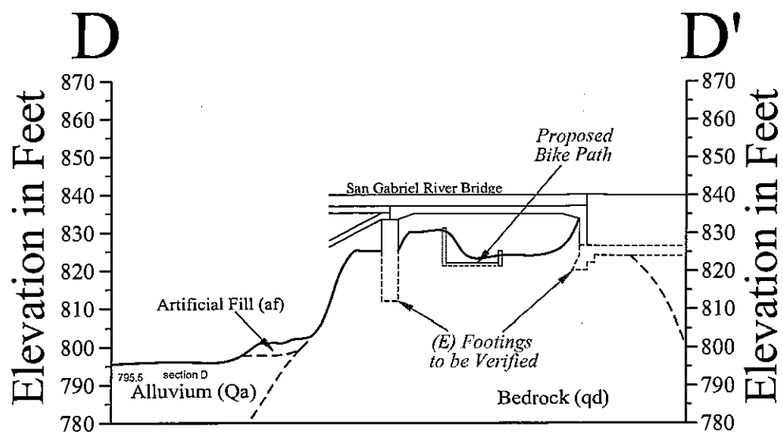

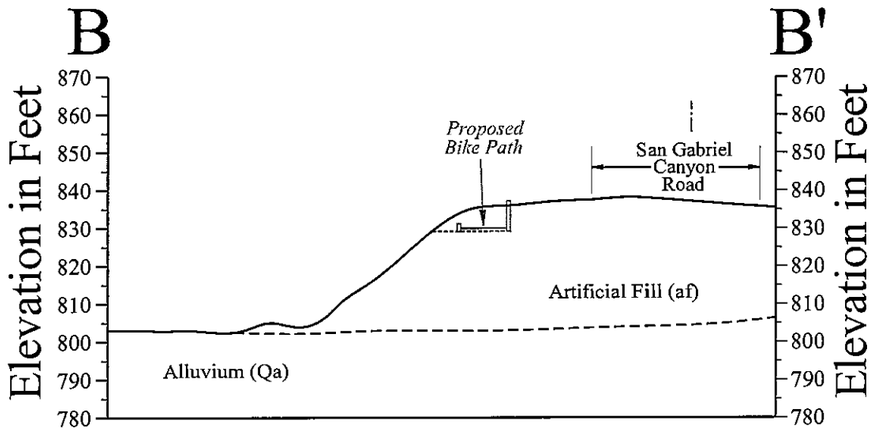

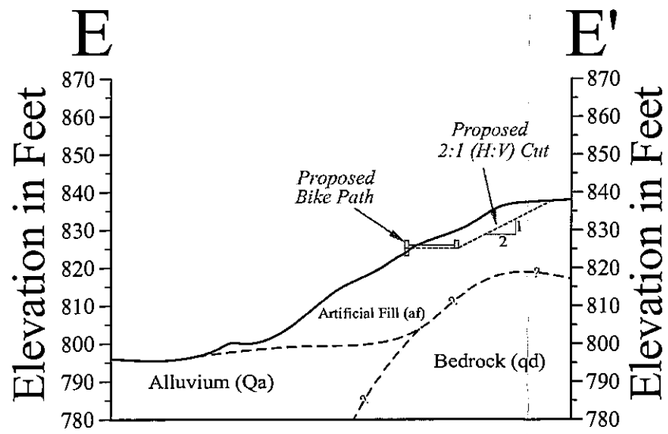

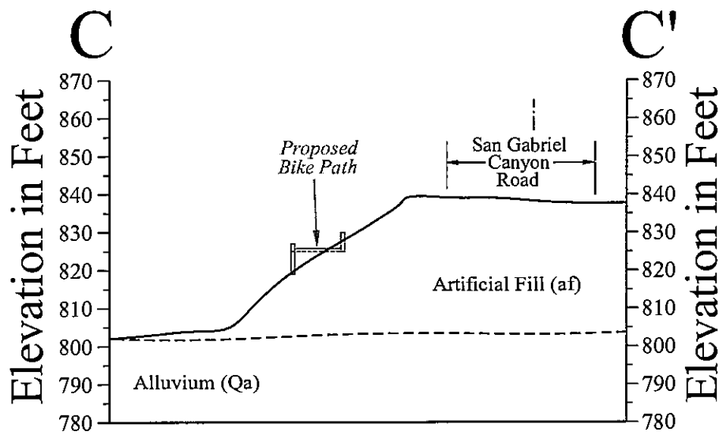

CROSS SECTIONS A-A' THROUGH E-E'

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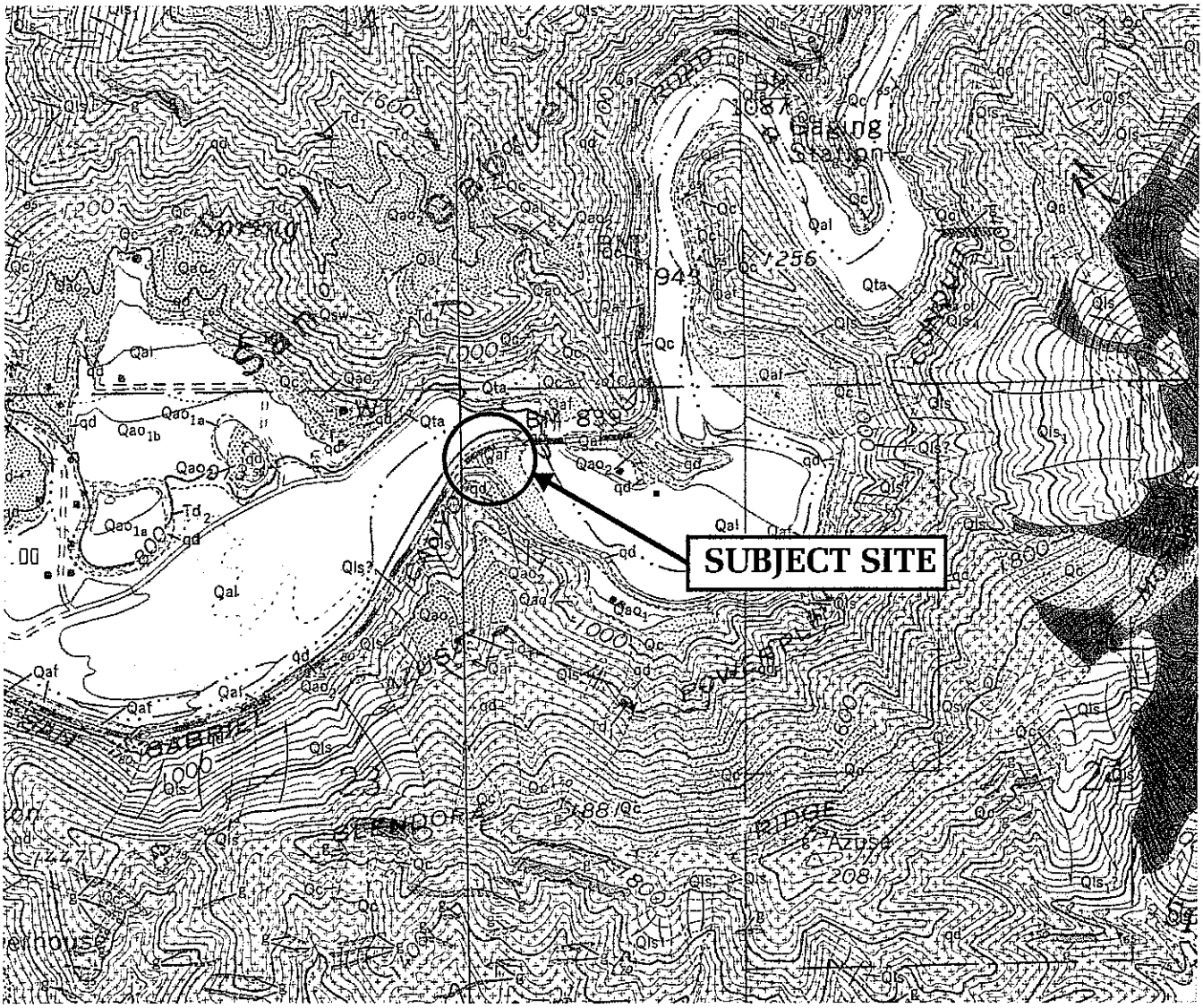
FILE No. 20092



LEGEND

SCALE IN FEET

0 1000 2000

Qaf: Artificial Fill - Fill which is compacted and/or uncompacted and is mainly locally obtained.

Qa: Alluvium - Unconsolidated, generally grayish alluvium on canyon floors within the mountains. San Gabriel River channel alluvium.

Qc: Colluvial debris - Includes, on ridge tops, decomposed rock which in large part may be in situ.

Qls: Landslide debris - Landslides that appear to have resulted from primarily slump-type failure (rotational) and that possess relatively well defined scarp areas and slump block(s) are designated Qls1. Landslide deposits fromed essentially by rock fall accumulations of angular rock fragments and blocks on or at the bases of steep slopes are designated Qls4. Deposits of inferred landslide origin are queried.

Qao2: Older alluvial deposits

Qao1: Older stream deposits - Where two adjacent terrace deposits are of different ages, the older (topographically higher) deposit is designated Qoa1a; the younger is designated Qoa1b.

Td: Dikes - (Td1) Hypabyssal dikes basic to intermédiate in composition. (Td2) Leucocratic hypabyssal dikes.

qd: Quartz diorite - Mostly quartz diorite; grades into granodiorite, quartz monzonite, and diorite.

N

Geotechnologies, Inc

REFERNCE: CDMG, 1973, Geology of Parts of the Azusa and Mount Wilson Quadrangles, San Gabriel Mountains, Los Angeles County, Special Report 105.

LOCAL GEOLOGIC MAP, CDMG 1973

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BLUEGREEN CONSULTING

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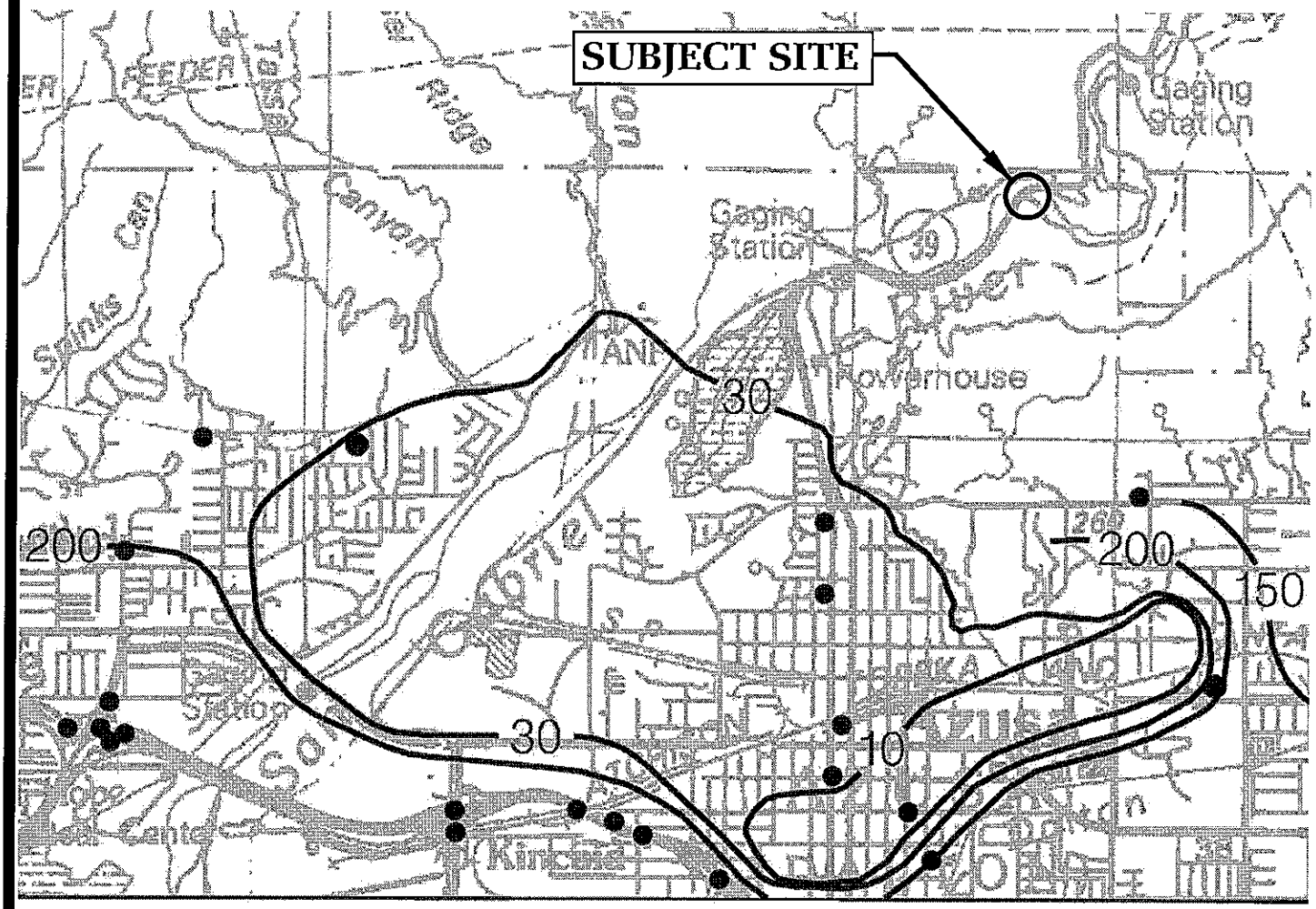

20 Depth to groundwater in feet

REFERENCE: CDMG, SEISMIC HAZARD ZONE REPORT, 021
AZUSA 7.5 - MINUTE QUADRANGLE, LOS ANGELES COUNTY, CALIFORNIA (1998, REVISED 2006)

HISTORICALLY HIGHEST GROUNDWATER LEVELS

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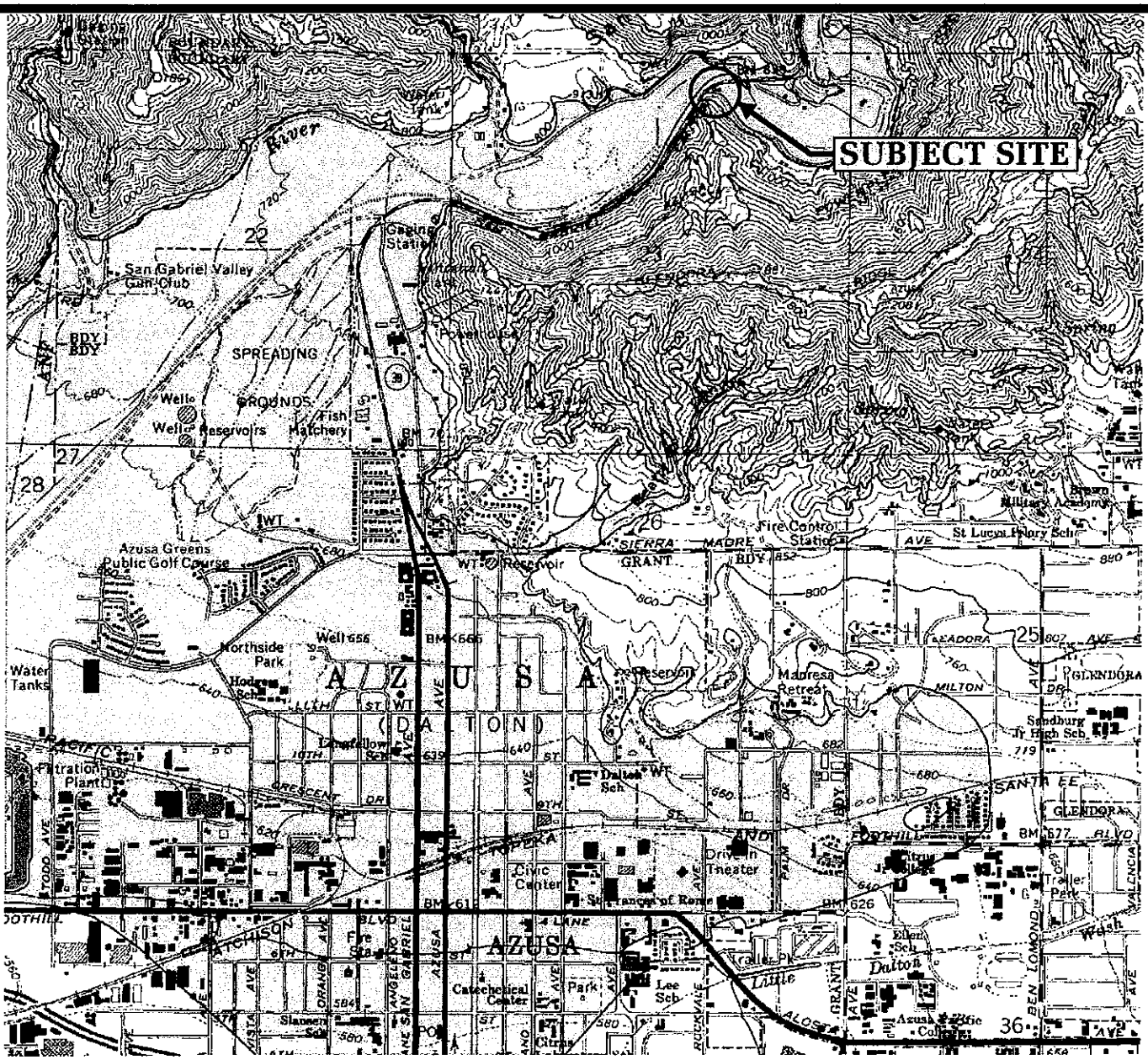

LIQUEFACTION AREA

EARTHQUAKE-INDUCED LANDSLIDE AREA

REFERENCE: SEISMIC HAZARD ZONES, AZUSA QUADRANGLE OFFICIAL MAP (CDMG, 1999)

SEISMIC HAZARD ZONE MAP

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Consulting Geotechnical Engineers

BLUEGREEN CONSULTING

FILE NO. 20092

Reading for well No. 4293

Thomas Guide Page: 568 **Grid:** J2
High Water Surface Elevation: 754.4 on 04/09/1958
Low Water Surface Elevation: 700.5 on 01/10/1930

Measure Date	Ground Surface Elevation	Ground Surface to Water Surface	Water Surface Elevation	No Measurement	Questionable Measurement
11/14/1999	0.0	0.0	0.0	Temporarily inaccessible	
4/27/1999	0.0	0.0	0.0	Temporarily inaccessible	
9/25/1993	0.0	0.0	0.0	Temporarily inaccessible	
4/20/1992	750.0	0.0	0.0	Temporarily inaccessible	
10/8/1991	750.0	0.0	0.0	Temporarily inaccessible	
5/30/1991	750.0	17.0	733.0		
3/27/1991	750.0	18.1	731.9		
10/18/1990	750.0	0.0	0.0	Pumphouse locked	
10/12/1989	750.0	2.3	747.7		
4/10/1989	750.0	0.8	749.2		
10/17/1988	750.0	4.2	745.8		
4/19/1988	750.0	6.4	743.6		
10/9/1987	750.0	7.8	742.2		
9/25/1986	750.0	26.8	723.2		
4/7/1986	750.0	1.7	748.3		
10/8/1985	750.0	0.0	0.0	Pumphouse locked	
11/7/1984	750.0	5.8	744.2		
4/16/1984	750.0	19.5	730.5		
11/8/1983	750.0	-1.0	751.0		
4/20/1982	750.0	2.5	747.5		
11/13/1981	750.0	-0.4	750.4		
4/15/1981	750.0	17.3	732.7		Oil in casing
11/16/1979	750.0	0.0	0.0	Pumphouse locked	
3/22/1979	750.0	0.0	0.0	Pumphouse locked	
11/6/1978	750.0	0.0	0.0	Pumphouse locked	
4/12/1978	750.0	-1.3	751.3		
1/23/1978	750.0	0.0	0.0	Pumphouse locked	
1/13/1978	750.0	0.0	0.0	Pumphouse locked	
11/18/1977	750.0	0.0	0.0	Pumphouse locked	
5/31/1977	750.0	24.1	725.9		
4/27/1977	750.0	27.4	722.6		
2/10/1977	750.0	2.8	747.2		
12/1/1976	750.0	21.9	728.1		
10/25/1976	750.0	4.4	745.6		
10/4/1976	750.0	20.4	729.6		
8/3/1976	750.0	25.4	724.6		
6/1/1976	750.0	21.0	729.0		
5/4/1976	750.0	9.8	740.2		
4/5/1976	750.0	1.0	749.0		
3/9/1976	750.0	-2.7	752.7		
2/17/1976	750.0	6.5	743.5		
1/19/1976	750.0	17.0	733.0		
12/7/1975	750.0	-1.8	751.8		
11/25/1975	750.0	-0.5	750.5		
11/18/1975	750.0	22.1	727.9		
11/4/1975	750.0	20.2	729.8		
10/8/1975	750.0	23.3	726.7		

9/8/1975	750.0	16.6	733.4		
7/31/1975	750.0	19.1	730.9		
7/1/1975	750.0	6.0	744.0		
6/3/1975	750.0	-2.1	752.1		
5/12/1975	750.0	-2.4	752.4		
4/18/1975	750.0	-3.2	753.2		
3/31/1975	750.0	2.7	747.3		
3/4/1975	750.0	18.6	731.4		
2/6/1975	750.0	17.3	732.7		
1/6/1975	750.0	15.1	734.9		
12/10/1974	750.0	10.7	739.3		
10/31/1974	750.0	20.8	729.2		
10/1/1974	750.0	18.3	731.7		
9/3/1974	750.0	8.2	741.8		
7/8/1974	750.0	-2.0	752.0		
6/3/1974	750.0	-2.3	752.3		
4/29/1974	750.0	-0.4	750.4		
4/2/1974	750.0	-2.1	752.1		
3/4/1974	750.0	0.0	0.0	Pumphouse locked	
1/3/1974	750.0	13.4	736.6		
4/30/1973	750.0	0.0	0.0	Pumphouse locked	
4/2/1973	750.0	-3.8	753.8		
1/30/1973	750.0	11.2	738.8		
1/3/1973	750.0	12.4	737.6		
12/5/1972	750.0	-0.4	750.4		
11/10/1972	750.0	-2.0	752.0		
10/12/1972	750.0	25.2	724.8		
10/11/1972	750.0	0.0	0.0	Pumphouse locked	
8/6/1972	750.0	32.2	717.8		
7/7/1972	750.0	29.5	720.5		
6/9/1972	750.0	27.5	722.5		
5/8/1972	750.0	24.1	725.9		
5/4/1972	750.0	0.0	0.0	Pumphouse locked	
4/6/1972	750.0	18.5	731.5		
2/7/1972	750.0	5.7	744.3		
1/10/1972	750.0	-2.7	752.7		
12/1/1971	750.0	25.4	724.6		
10/4/1971	750.0	22.9	727.1		
8/30/1971	750.0	27.2	722.8		
7/20/1971	750.0	24.5	725.5		
6/2/1971	750.0	19.0	731.0		
5/5/1971	750.0	15.4	734.6		
4/15/1971	750.0	13.4	736.6		
3/24/1971	750.0	8.3	741.7		
3/2/1971	750.0	6.6	743.4		
2/17/1971	750.0	1.1	748.9		
2/8/1971	750.0	1.2	748.8		
1/26/1971	750.0	-2.6	752.6		
12/29/1970	750.0	-3.6	753.6		
12/8/1970	750.0	7.4	742.6		
11/16/1970	750.0	22.7	727.3		
10/5/1970	750.0	22.3	727.7		
9/15/1970	750.0	21.6	728.4		
8/19/1970	750.0	19.8	730.2		
7/7/1970	750.0	11.5	738.5		
6/3/1970	750.0	0.0	0.0	Pumphouse locked	
5/6/1970	750.0	0.0	0.0	Pumphouse locked	
4/13/1970	750.0	2.9	747.1		
1/6/1970	750.0	0.0	0.0	Temporarily inaccessible	

11/18/1969	755.3	7.2	748.1		
5/5/1969	755.3	0.0	0.0	Temporarily inaccessible	
4/29/1969	755.3	0.0	0.0	Temporarily inaccessible	
1/6/1969	755.3	35.0	720.3		
1/3/1969	755.3	34.8	720.5		
12/11/1968	755.3	35.9	719.4		
11/27/1968	755.3	35.2	720.1		
11/12/1968	755.3	34.8	720.5		
11/7/1968	755.3	34.3	721.0		
11/3/1968	755.3	34.1	721.2		
10/30/1968	755.3	33.8	721.5		
10/16/1968	755.3	32.2	723.1		
10/2/1968	755.3	32.4	722.9		
9/18/1968	755.3	31.5	723.8		
8/12/1968	755.3	24.6	730.7		
8/9/1968	755.3	23.6	731.7		
7/24/1968	755.3	14.9	740.4		
7/10/1968	755.3	27.9	727.4		
7/2/1968	755.3	26.7	728.6		
6/26/1968	755.3	26.4	728.9		
6/12/1968	755.3	24.5	730.8		
5/22/1968	755.3	19.6	735.7		
5/3/1968	755.3	16.0	739.3		
4/17/1968	755.3	19.1	736.2		
4/10/1968	755.3	17.2	738.1		
3/27/1968	755.3	15.0	740.3		
3/13/1968	755.3	15.6	739.7		
2/28/1968	755.3	21.5	733.8		
2/14/1968	755.3	20.0	735.3		
1/31/1968	755.3	15.5	739.8		
1/3/1968	755.3	12.9	742.4		
12/20/1967	755.3	10.4	744.9		
12/5/1967	755.3	11.4	743.9		
11/13/1967	755.3	19.8	735.5		
10/11/1967	755.3	16.2	739.1		
9/27/1967	755.3	24.8	730.5		
9/13/1967	755.3	22.4	732.9		
9/5/1967	755.3	20.6	734.7		
8/30/1967	755.3	18.9	736.4		
7/5/1967	755.3	10.6	744.7		
6/14/1967	755.3	10.0	745.3		
6/7/1967	755.3	9.5	745.8		
5/31/1967	755.3	9.4	745.9		
5/24/1967	755.3	9.3	746.0		
5/3/1967	755.3	9.2	746.1		
4/26/1967	755.3	8.9	746.4		
4/20/1967	755.3	9.4	745.9		
4/12/1967	755.3	9.5	745.8		
4/5/1967	755.3	9.5	745.8		
3/29/1967	755.3	9.5	745.8		
3/15/1967	755.3	8.9	746.4		
3/8/1967	755.3	10.5	744.8		
2/23/1967	755.3	10.0	745.3		
2/8/1967	755.3	9.3	746.0		
2/1/1967	755.3	7.8	747.5		
1/26/1967	755.3	6.9	748.4		
1/12/1967	755.3	10.4	744.9		
1/4/1967	755.3	11.3	744.0		
12/29/1966	755.3	11.3	744.0		

12/22/1966	755.3	10.9	744.4		
12/13/1966	755.3	8.7	746.6		
11/2/1966	755.3	29.9	725.4		
10/3/1966	755.3	29.9	725.4		
9/8/1966	755.3	27.5	727.8		
8/4/1966	755.3	27.1	728.2		
6/16/1966	755.3	16.6	738.7		
6/2/1966	755.3	12.9	742.4		
5/19/1966	755.3	11.2	744.1		
5/12/1966	755.3	12.4	742.9		
5/5/1966	755.3	12.3	743.0		
4/4/1966	755.3	12.2	743.1		
3/29/1966	755.3	10.5	744.8		
3/16/1966	755.3	10.9	744.4		
3/8/1966	755.3	10.7	744.6		
3/2/1966	755.3	9.9	745.4		
2/24/1966	755.3	9.6	745.7		
2/15/1966	755.3	9.5	745.8		
2/8/1966	755.3	9.6	745.7		
2/1/1966	755.3	9.5	745.8		
1/25/1966	755.3	8.5	746.8		
1/18/1966	755.3	7.6	747.7		
1/11/1966	755.3	7.5	747.8		
1/4/1966	755.3	7.1	748.2		
12/28/1965	755.3	11.0	744.3		
12/21/1965	755.3	10.9	744.4		
12/16/1965	755.3	8.9	746.4		
12/6/1965	755.3	7.4	747.9		
11/1/1965	755.3	27.8	727.5		
10/4/1965	755.3	24.8	730.5		
9/21/1965	755.3	27.0	728.3		
9/1/1965	755.3	31.8	723.5		
7/20/1965	755.3	22.0	733.3		
7/13/1965	750.0	13.5	736.5		
7/6/1965	750.0	10.3	739.7		
6/29/1965	755.3	12.8	742.5		
6/16/1965	755.3	10.4	744.9		
6/8/1965	755.3	15.7	739.6		
6/1/1965	755.3	20.6	734.7		
5/4/1965	755.3	16.8	738.5		
4/5/1965	755.3	33.3	722.0		
3/3/1965	755.3	34.2	721.1		
2/2/1965	755.3	30.5	724.8		
1/18/1965	755.3	28.4	726.9		
1/5/1965	755.3	29.0	726.3		
12/30/1964	755.3	29.6	725.7		
12/14/1964	755.3	28.1	727.2		
12/7/1964	755.3	26.1	729.2		
11/23/1964	755.3	20.7	734.6		
11/16/1964	755.3	18.4	736.9		
11/9/1964	755.3	18.8	736.5		
11/2/1964	755.3	21.0	734.3		
10/27/1964	755.3	23.2	732.1		
10/5/1964	755.3	37.5	717.8		
9/2/1964	755.3	42.6	712.7		
8/5/1964	755.3	41.2	714.1		
7/6/1964	755.3	40.1	715.2		
6/8/1964	755.3	37.7	717.6		
5/5/1964	755.3	33.8	721.5		

4/7/1964	755.3	33.4	721.9		
3/2/1964	755.3	36.9	718.4		
12/3/1963	755.3	36.7	718.6		
9/19/1963	755.3	44.8	710.5		
8/6/1963	750.0	31.2	718.8		
6/4/1963	755.3	31.4	723.9		
5/6/1963	755.3	25.3	730.0		
4/2/1963	755.3	21.6	733.7		
3/11/1963	755.3	22.7	732.6		
3/8/1963	750.0	12.9	737.1		
3/4/1963	750.0	15.2	734.8		
2/4/1963	755.3	42.3	713.0		
12/4/1962	755.3	38.9	716.4		
11/5/1962	750.0	25.0	725.0		
10/1/1962	755.3	29.5	725.8		
8/16/1962	755.3	9.8	745.5		
7/24/1962	755.3	10.8	744.5		
7/3/1962	755.3	24.6	730.7		
5/16/1962	750.0	7.2	742.8		
5/2/1962	750.0	4.8	745.2		
4/18/1962	755.3	13.7	741.6		
4/3/1962	755.3	12.7	742.6		
3/14/1962	750.0	-0.8	750.8		
2/28/1962	755.3	6.5	748.8		
2/16/1962	755.3	6.4	748.9		
2/5/1962	755.3	23.7	731.6		
1/19/1962	755.3	30.0	725.3		
12/29/1961	750.0	12.7	737.3		
12/15/1961	750.0	8.2	741.8		
12/1/1961	755.3	18.1	737.2		
8/24/1961	755.3	15.9	739.4		
7/31/1961	750.0	4.6	745.4		
7/17/1961	755.3	14.6	740.7		
6/26/1961	755.3	15.7	739.6		
6/13/1961	755.3	17.4	737.9		
5/15/1961	755.3	33.0	722.3		
5/1/1961	750.0	31.2	718.8		
4/17/1961	750.0	31.6	718.4		
11/18/1960	755.3	34.7	720.6		
4/12/1960	755.3	30.0	725.3		
11/27/1959	755.3	34.6	720.7		Pumped recently
11/12/1959	755.3	33.5	721.8		
10/7/1959	750.0	17.3	732.7		
4/21/1959	755.3	24.2	731.1		
3/24/1959	755.3	15.6	739.7		
3/12/1959	755.3	12.4	742.9		
3/5/1959	755.3	11.0	744.3		
2/27/1959	755.3	16.2	739.1		
8/18/1958	755.3	10.6	744.7		
8/4/1958	755.3	10.2	745.1		
6/23/1958	755.3	9.8	745.5		
6/6/1958	750.0	-2.8	752.8		
4/30/1958	755.3	7.7	747.6		
4/9/1958	755.3	6.2	749.1		
3/31/1958	755.3	10.3	745.0		
3/5/1958	755.3	9.0	746.3		
2/27/1958	755.3	8.8	746.5		
2/11/1958	755.3	8.8	746.5		
2/7/1958	755.3	13.0	742.3		

10/29/1957	755.3	34.8	720.5		
4/22/1957	750.0	1.3	748.7		
4/17/1957	755.3	10.5	744.8		
4/15/1957	755.3	9.5	745.8		
11/28/1956	755.3	18.7	736.6		
11/21/1956	755.3	15.2	740.1		
11/7/1956	755.3	14.7	740.6		
11/1/1956	755.3	15.6	739.7		
10/25/1956	755.3	17.2	738.1		
10/18/1956	755.3	20.0	735.3		
10/5/1956	750.0	22.6	727.4		
10/2/1956	0.0	-718.5	718.5		
5/2/1956	0.0	-733.8	733.8		
11/30/1955	0.0	-717.0	717.0		
5/2/1955	0.0	-733.9	733.9		
11/30/1954	0.0	-717.9	717.9		
4/26/1954	0.0	-745.3	745.3		
4/8/1954	0.0	-739.1	739.1		
12/1/1953	750.0	4.8	745.2		
11/2/1953	0.0	-739.5	739.5		
10/1/1953	0.0	-717.2	717.2		
9/3/1953	0.0	-711.3	711.3		
8/6/1953	0.0	-709.0	709.0		
7/2/1953	750.0	31.6	718.4		
6/4/1953	750.0	29.1	720.9		
5/7/1953	0.0	-718.7	718.7		
4/2/1953	0.0	-722.3	722.3		
3/5/1953	750.0	21.1	728.9		
2/11/1953	0.0	-735.5	735.5		
1/8/1953	0.0	-741.5	741.5		
12/11/1952	0.0	-741.7	741.7		
11/6/1952	0.0	-747.3	747.3		
10/15/1952	750.0	0.0	750.0		
9/11/1952	750.0	23.9	726.1		
8/14/1952	0.0	-723.2	723.2		
7/10/1952	0.0	-727.5	727.5		
6/19/1952	750.0	13.2	736.8		
5/15/1952	0.0	-738.7	738.7		
4/17/1952	0.0	-743.5	743.5		
3/24/1952	0.0	-747.7	747.7		
2/7/1952	0.0	-745.9	745.9		
1/3/1952	750.0	9.3	740.7		
12/27/1951	750.0	15.3	734.7		
10/3/1951	0.0	-739.9	739.9		
9/6/1951	0.0	-740.5	740.5		
8/2/1951	750.0	3.5	746.5		
7/5/1951	0.0	-741.7	741.7		
6/4/1951	0.0	-738.7	738.7		
5/3/1951	0.0	-720.7	720.7		
4/5/1951	0.0	-715.2	715.2		
3/1/1951	750.0	28.0	722.0		
2/1/1951	750.0	29.4	720.6		
1/4/1951	0.0	-713.7	713.7		
11/30/1950	0.0	-714.1	714.1		
11/2/1950	0.0	-711.4	711.4		
10/5/1950	0.0	-711.5	711.5		
8/31/1950	750.0	33.8	716.2		
8/10/1950	0.0	-710.3	710.3		
8/3/1950	0.0	-710.5	710.5		

6/29/1950	0.0	-713.7	713.7		
6/1/1950	0.0	-717.5	717.5		
5/4/1950	0.0	-721.6	721.6		
4/6/1950	0.0	-724.9	724.9		
2/24/1950	0.0	-730.5	730.5		
1/26/1950	0.0	-724.1	724.1		
1/5/1950	750.0	25.7	724.3		
12/22/1949	0.0	-717.4	717.4		
12/1/1949	0.0	-712.9	712.9		
10/27/1949	0.0	-709.7	709.7		
9/29/1949	0.0	-711.3	711.3		
9/1/1949	0.0	-712.4	712.4		
8/4/1949	0.0	-715.8	715.8		
6/30/1949	0.0	-723.6	723.6		
6/2/1949	0.0	-733.7	733.7		
5/19/1949	750.0	4.3	745.7		
5/12/1949	0.0	-741.7	741.7		
5/2/1949	0.0	-741.2	741.2		
3/31/1949	0.0	-726.1	726.1		
3/29/1949	0.0	-725.8	725.8		
3/24/1949	0.0	-727.4	727.4		
2/24/1949	0.0	-724.7	724.7		
2/3/1949	0.0	-727.5	727.5		
1/6/1949	0.0	-727.7	727.7		
12/2/1948	750.0	7.2	742.8		
11/24/1948	0.0	-738.0	738.0		
10/28/1948	0.0	-712.6	712.6		
10/21/1948	0.0	-711.0	711.0		
9/30/1948	0.0	-713.6	713.6		
9/2/1948	0.0	-716.2	716.2		
7/29/1948	0.0	-723.4	723.4		
7/1/1948	0.0	-733.5	733.5		
6/10/1948	0.0	-744.3	744.3		
4/29/1948	750.0	6.2	743.8		
4/6/1948	0.0	-719.5	719.5		
4/1/1948	0.0	-718.2	718.2		
3/4/1948	0.0	-716.0	716.0		
2/19/1948	0.0	-717.2	717.2		
2/11/1948	0.0	-716.9	716.9		
2/5/1948	0.0	-715.0	715.0		
1/2/1948	0.0	-717.1	717.1		
12/18/1947	0.0	-715.3	715.3		
11/20/1947	750.0	31.3	718.7		
10/30/1947	0.0	-713.9	713.9		
9/25/1947	0.0	-715.3	715.3		
8/27/1947	0.0	-718.1	718.1		
11/5/1942	0.0	-738.1	738.1		
4/6/1942	0.0	-736.1	736.1		
10/29/1941	0.0	-740.1	740.1		
5/15/1941	0.0	-748.8	748.8		
10/29/1940	0.0	-718.3	718.3		
4/2/1940	750.0	1.8	748.2		
10/3/1939	0.0	-736.3	736.3		
4/8/1939	0.0	-743.2	743.2		
10/17/1938	0.0	-741.6	741.6		
4/26/1938	0.0	-748.2	748.2		
11/8/1937	0.0	-723.3	723.3		
5/4/1937	0.0	-748.0	748.0		
10/21/1936	0.0	-707.1	707.1		

4/23/1936	0.0	-744.9	744.9		
10/28/1935	750.0	22.9	727.1		
10/14/1935	0.0	-712.4	712.4		
9/20/1935	0.0	-715.6	715.6		
7/29/1935	0.0	-731.1	731.1		
7/9/1935	750.0	5.2	744.8		
6/24/1935	0.0	-740.6	740.6		
6/10/1935	0.0	-742.7	742.7		
6/3/1935	0.0	-745.5	745.5		
5/27/1935	750.0	-1.2	751.2		
5/14/1935	0.0	-747.2	747.2		
4/3/1935	0.0	-746.6	746.6		
3/27/1935	0.0	-746.9	746.9		
2/7/1935	0.0	-745.7	745.7		
1/24/1935	750.0	-0.8	750.8		
1/16/1935	750.0	-0.2	750.2		
1/10/1935	0.0	-744.3	744.3		
1/3/1935	0.0	-745.3	745.3		
12/28/1934	750.0	0.7	749.3		
12/21/1934	0.0	-735.7	735.7		
12/17/1934	0.0	-726.9	726.9		
12/3/1934	0.0	-721.6	721.6		
11/26/1934	0.0	-721.4	721.4		
11/21/1934	750.0	24.2	725.8		
11/19/1934	750.0	24.6	725.4		
11/12/1934	0.0	-720.3	720.3		
11/5/1934	0.0	-720.5	720.5		
10/30/1934	0.0	-721.5	721.5		
10/25/1934	0.0	-722.5	722.5		
10/19/1934	750.0	36.9	713.1		
4/24/1934	0.0	-745.7	745.7		
4/17/1934	0.0	-745.6	745.6		
3/30/1934	0.0	-746.3	746.3		
3/21/1934	0.0	-744.7	744.7		
3/14/1934	0.0	-742.2	742.2		
3/9/1934	0.0	-742.6	742.6		
3/1/1934	0.0	-743.3	743.3		
2/15/1934	0.0	-744.6	744.6		
2/8/1934	750.0	-0.6	750.6		
1/31/1934	0.0	-745.9	745.9		
1/26/1934	0.0	-745.3	745.3		
1/10/1934	0.0	-744.9	744.9		
12/29/1933	0.0	-720.4	720.4		
12/22/1933	0.0	-720.2	720.2		
12/19/1933	0.0	-716.1	716.1		
12/15/1933	0.0	-711.7	711.7		
12/8/1933	750.0	39.6	710.4		
11/6/1933	0.0	-706.7	706.7		
10/10/1933	0.0	-708.9	708.9		
6/26/1933	0.0	-723.4	723.4		
4/4/1933	0.0	-742.2	742.2		
2/3/1933	750.0	3.4	746.6		
12/12/1932	750.0	39.4	710.6		
11/29/1932	0.0	-706.9	706.9		
9/30/1932	0.0	-709.0	709.0		
7/25/1932	750.0	19.0	731.0		
6/1/1932	0.0	-741.5	741.5		
5/17/1932	0.0	-745.8	745.8		
4/19/1932	0.0	-744.1	744.1		

4/11/1932	0.0	-747.2	747.2		
1/26/1932	750.0	4.7	745.3		
11/25/1931	750.0	41.2	708.8		
11/18/1931	0.0	-704.1	704.1		
10/30/1931	0.0	-702.2	702.2		
10/5/1931	0.0	-704.8	704.8		
8/6/1931	750.0	31.4	718.6		
5/12/1931	0.0	-741.9	741.9		
5/1/1931	0.0	-736.5	736.5		
4/13/1931	750.0	30.6	719.4		
3/24/1931	750.0	11.2	738.8		
3/12/1931	0.0	-740.4	740.4		
12/3/1930	0.0	-706.6	706.6		
11/15/1930	0.0	-705.9	705.9		
6/25/1930	0.0	-728.9	728.9		
6/19/1930	750.0	5.1	744.9		
4/25/1930	0.0	-743.3	743.3		
4/17/1930	0.0	-746.8	746.8		
3/27/1930	0.0	-744.3	744.3		
3/18/1930	0.0	-735.6	735.6		
2/18/1930	0.0	-720.0	720.0		
1/10/1930	0.0	-700.5	700.5		
12/17/1929	0.0	-702.5	702.5		
11/15/1929	0.0	-702.5	702.5		
10/15/1929	0.0	-705.8	705.8		
9/26/1929	0.0	-706.3	706.3		
7/19/1929	0.0	-716.6	716.6		
6/27/1929	750.0	20.9	729.1		
5/7/1929	0.0	-743.5	743.5		
3/25/1929	0.0	-744.0	744.0		
12/31/1928	750.0	31.2	718.8		
11/30/1928	0.0	-702.8	702.8		

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May 24, 2011

Mr. Martin Kammerer
Blue Green
570 West Avenue 26, Suite 700
Los Angeles, California 90065

VIA EMAIL AND MAIL
kammerer@bluegreen.biz

Subject: Update to the 2008 Biological Reconnaissance Survey and Constraints Analysis for the El Encanto River Wilderness Park Project, City of Glendora, California

Dear Mr. Kammerer:

This Letter Report presents the findings of a biological constraints survey for the El Encanto River Wilderness Park Project site (hereafter referred to as "the project site", Exhibit 1) and includes (1) an updated literature review to determine which special status species have been reported in the general vicinity of the project site; (2) a field survey to determine if any changes to the biological conditions have occurred that would require updated vegetation mapping; and (3) the findings of the field survey. BonTerra Consulting Senior Biologist Robert Allen conducted a general plant and wildlife survey on May 18, 2011. The purpose of the survey was to observe and document changes to the project site since BonTerra Consulting's last visit in 2006.

SURVEY CONDITIONS

Cool temperatures, dark cloudy skies, and light rain were encountered on the project site from morning to noon. Temperatures recorded in nearby Azusa reached a high of 66 degrees Fahrenheit (°F) (18.9 degrees Celsius [°C]) with a low of 53°F (11.7°C). Precipitation was measured at 0.14 inch (0.36 centimeter [cm]). Cold winds of light to moderate strength occasionally blew through the canyon. Water was actively flowing through the San Gabriel River channel as a result of seasonal rains and water release from Morris Dam, which is located upstream from the project site.

SURVEY METHODS

Prior to the field survey, BonTerra Consulting reviewed the November 7, 2008, *Biological Reconnaissance Survey and Constraints Analysis and performed a California Natural Diversity Database (CNDDB) records search.*

The November 9, 2006, vegetation map of the project site (previously prepared by BonTerra Consulting, as part of the November 7, 2008, *Biological Reconnaissance Survey and Constraints Analysis*) was compared with current conditions. A color aerial map was overlain with the November 9, 2006, vegetation communities, and was printed at a scale of 1 inch equals 200 feet (1:200). Any changes to the previously mapped areas were confirmed and documented in the field.

The changes were incorporated onto a revised vegetation map for the project site and are included in this report (Exhibit 2).

EXISTING CONDITIONS

Biological succession or directional, non-seasonal cumulative change in the types of plant species that occupy a given area through time is occurring naturally on the site; as a result, some vegetation coverage is broader than when last mapped. The most obvious changes are the vegetation covers of southern willow scrub and mule fat scrub. Both communities have expanded their coverage throughout the river channel. In many cases, mule fat (*Baccharis salicifolia*) has become established and abundant, in addition to willows (*Salix* ssp.), which often overtake mule fat over a period of a few to several years. Both are often locally eliminated by seasonal flooding, followed by a period of re-establishment.

Two communities not previously noted—sycamore woodland and white alder riparian forest—were identified, mapped, and are described below.

Sycamore Woodland

This riparian community is dominated by California sycamore (*Platanus racemosa*). It typically grows in loose sandy to gravelly soils near ephemeral and permanently flowing water sources. Associated species typically include blue elderberry (*Sambucus nigra* ssp. *caerulea*), toyon (*Heteromeles arbutifolia*), mule fat, and mugwort (*Artemisia douglasii*) (Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California [1986 and 1992 update]).. It was noted in the northwestern portion of the site along the San Gabriel River channel and in small pockets upstream of the bridge.

White Alder Riparian Forest

This riparian community is dominated by white alder (*Alnus rhombifolia*). It was discussed in the 2008 report but not indicated on the vegetation map. It occurs in small pockets along the San Gabriel River and was added to the map during the recent visit (Exhibit 2).

Numerous northern rough-winged swallows (*Stelgidopteryx serripennis*) were flying about, capturing and eating mayflies. One red-shouldered hawk (*Buteo lineatus*) was observed as it flew out of the heavily wooded slope above the headquarters building, called out, and returned to the trees. A single male phainopepla (*Phainopepla nitens*) flew nearby; additional males were identified by their calls. Oak titmouse (*Baeolophus inornatus*) and snowy egret (*Egretta thula*) were also observed on site.

Coyote (*Canis latrans*) tracks and scat were encountered in most areas of the site. The horse stables were occupied by both domestic horses (*Equus ferus caballus*) and domestic dogs (*Canis familiaris*).

SPECIAL STATUS RESOURCES

A literature review was performed using the California Department of Fish and Game (CDFG) *California Natural Diversity Database*, May 5, 2011 version. No additional special status species have been reported in the general project site vicinity. However, the following species database changes have occurred: scalloped moonwort (*Botrychium crenulatum*) CNPS listing changed from 1B to 2; Parry's spineflower (*Chorizanthe parryi var. parryi*) CNPS listing changed from 3 to 1B; and the coastal western whiptail scientific name changed from *Cnemidophorus tigris stejnegeri* to *Aspidoscelis tigris stejnegeri*.

SPECIAL STATUS PLANT SPECIES OBSERVED

Only one special status plant was found during the survey: San Gabriel Mountains Live-forever (*Dudleya densiflora*). It is listed by the California Native Plant Society (CNPS) as a List 1B.1 Species. The plant is locally common on north-facing cliff walls just beyond the El Encanto headquarters buildings. It was found with white fairy lantern (*Calochortus albus*) and chaparral yucca (*Hesperoyucca whipplei*).

SUMMARY OF BIOLOGICAL CONSTRAINTS

The vegetation mapped previously by BonTerra Consulting correctly represents nearly all current conditions. The vegetation map was updated to document changes to the site. Only one special status plant, San Gabriel Mountains Live-forever, was observed on the project site. Its precise extent should be carefully mapped and its population status monitored, especially before, during, and after restoration/development of the site.

If you have any questions, please contact Gary Medeiros at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

Gary A. Medeiros
Associate Principal, Regulatory Services

Robert Allen
Senior Biologist

Attachments: Exhibits 1 and 2

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REFERENCES

BonTerra Consulting. 2008. *Results of Biological Reconnaissance Survey and Constraints Analysis the El Encanto River Wilderness Park Project Site, City of Glendora, California.*

California Department of Fish and Game (CDFG). 2011. *California Natural Diversity Database.* Natural Heritage Division, Sacramento, CA.

Hickman, J.C. Editor. 1993. *The Jepson Manual: Higher Plants of California.* University of California Press, Berkeley, CA.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* CDFG, Nongame-Heritage Program, Sacramento, CA.

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Regional Location and Local Vicinity

Exhibit 1

Update to the 2008 Biological Reconnaissance Survey and Constraints Analysis
El Encanto River Wilderness Park Project (Canyon Inn)

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Feet

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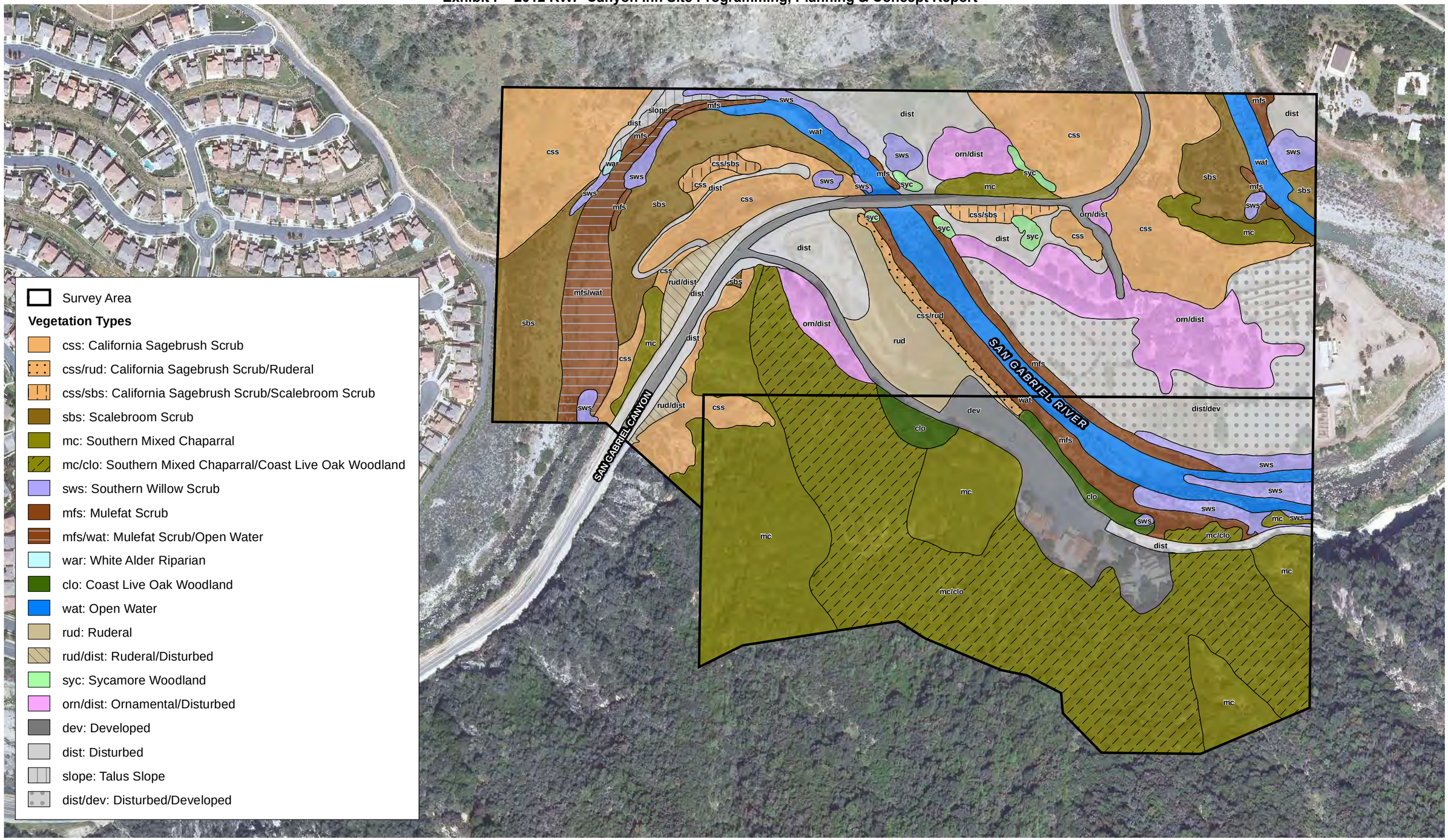

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Vegetation Types

Exhibit 2

Update to the 2008 Biological Reconnaissance Survey and Constraints Analysis
El Encanto River Wilderness Park Project (Canyon Inn)

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Feet

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BonTerra CONSULTING

MEMORANDUM

June 22, 2011

To:
Lynne Dwyer and
Martin Kammerer
BlueGreen Consulting

From:
Gary Medieros and
Josephine Alido
BonTerra Consulting

Subject: CEQA and NEPA Recommendations

Based on our discussions on June 10, 2011, we are providing you with recommendations on the compliance requirements under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) for the proposed Canyon Inn Property Master Plan.

ALTERNATIVES

The three alternatives that have been developed for the proposed Canyon Inn Property Master Plan include those listed below.

1) The *Trails and Habitat Restoration Alternative* calls for the development of nature trails; overlook areas; picnic areas; a bike trail extension and undercrossing; traffic calming measures on State Route (SR) 39 (which is a California Department of Transportation [Caltrans] facility); a nature play area; a tent camping area; and habitat restoration programs.

2) The *Special Use Pavilion Alternative* proposes the development of most of the same improvements as the Trails and Habitat Restoration Alternative, plus a traffic circle on Caltrans' SR-39, a snack shop with restrooms, and a pavilion.

3) The *Mountain Concession Alternative* proposes the development of a concession building with restrooms, an adventure play area, a pavilion, nature trails, overlook areas, picnic areas, a bike trail extension, a traffic circle and crosswalk on Caltrans' SR-39, tent camping, and habitat restoration programs.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA requires the evaluation and disclosure of the potential environmental changes that would accompany the implementation of a project prior to its approval by a public agency.

Review of the proposed improvements under each alternative to the Canyon Inn Property Master Plan indicate that these improvements do not fall under any of the Statutory Exemptions (Sections 15260 to 15285) or the Categorical Exemptions (Sections 15300 to 15332) listed in the CEQA Guidelines (*California Code of Regulations* [CCR], Title 14). As such, implementation of any of these alternatives would likely require the preparation of a (Mitigated) Negative Declaration (MND) or an Environmental Impact Report (EIR).

Lynne Dwyer and Martin Kammerer
June 22, 2011

Previous Environmental Review

An Initial Study/Mitigated Negative Declaration (IS/MND) has been adopted for the El Encanto Azusa River Wilderness Park, which includes the development of nature trails and bike trails within the Canyon Inn Property. However, a slightly different alignment of the trails is proposed under the current alternatives. In addition, a number of other improvements that are proposed at the Canyon Inn Property have not been subject to environmental review. Thus, this previous environmental document cannot be used for the environmental clearance of any of the proposed alternatives.

Preliminary Analysis

A preliminary analysis of the impacts of each alternative is provided below, based on the various components that would be developed under each alternative. The required studies and permits and potential mitigation are also noted. A comparison of the degree of impact between alternatives is also provided, with the alternative with the least impact in an unshaded box; the alternative with the next greater impact in a gray box; and the alternative with the most adverse impact with bold text in a gray box. (Please note that this analysis is based on a broad understanding of the proposed improvements under each alternative and may change as refinements or more details on the proposals are developed.)

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June 22, 2011

COMPARISON OF IMPACTS OF THE ALTERNATIVES

ENVIRONMENTAL ISSUE/ EXISTING SETTING	ALTERNATIVES		
	TRAILS AND HABITAT RESTORATION	**SPECIAL USE PAVILION**	**MOUNTAIN CONCESSION**
Aesthetics • San Gabriel River and hillsides of the San Gabriel Mountains, with level pad east of Old San Gabriel Canyon Road. • SR-39 is an eligible scenic highway.	• Development of nature trials, bike trail and SR-39 undercrossing, river overlooks, nature play area, picnic areas, and tent camping area. • No new light sources. • Minor changes to views on SR-39.	• Development of a snack shop, a pavilion, picnic areas, a traffic circle, nature trials, a bike trail and SR-39 undercrossing, river overlooks, and a tent camping area. • Some new sources of light and glare. • Limited changes to views on SR-39 with setback of structures.	• **A concession building, a pavilion, an adventure play area, picnic areas, a traffic circle and crosswalk on SR-39, nature trials, a bike trail extension, river overlooks, and a tent camping area.** • **New sources of light and glare.** • **Changes to views on SR-39 may require a proposed structure to reflect local/nature setting.**
Agriculture and Forest Resources • No Farmland or agricultural uses on site. • Angeles National Forest (ANF) to the north.	• Proposed nature trail on land within ANF would require a permit.	• Proposed nature trail on land within ANF would require a permit.	• Proposed nature trail on land within ANF would require a permit.
Air Quality • No generation of air pollutants from the site. • Los Angeles County is nonattainment area for ozone, particulate matter, nitrogen dioxide, and lead.	• Short-term construction emissions. • Long-term vehicle emissions from use of picnic areas and the tent camping area.	• Short-term construction emissions. • Long-term vehicle and stationary emissions from operation of the snack shop and use of the pavilion, the picnic areas, and the tent camping area.	• **Short-term construction emissions.** • **Long-term vehicle and stationary emissions from operation of the concession building and use of the pavilion, the adventure play area, the picnic areas and the tent camping area.** • **Emissions from the concession building may be significant and unavoidable, depending on future use.**
Biological Resources • Special status plant species on site. • Site includes resources that are under the jurisdiction of the USACE, the CDFG, and the Los Angeles RWQCB. • A conservation easement for the CDFG runs along the San Gabriel River.	• Site disturbances would require focused surveys for special status plant species. • Regulatory permit authorizations would be required from the USACE, the CDFG, and the Los Angeles RWQCB for trails on or near river and drainages. • The bike trail adjacent to SR-39 may require encroachment into a CDFG conservation easement.	• Greater site disturbances would require focused surveys for special status plant species. • Regulatory permit authorizations would be required from the USACE, the CDFG, and the Los Angeles RWQCB for trails on or near river and drainages. • The bike trail adjacent to SR-39 may require encroachment into a CDFG conservation easement.	• More extensive site disturbances would require focused surveys for special status plant species. • Regulatory permit authorizations would be required from the USACE, the CDFG, and the Los Angeles RWQCB for trails on or near the river and drainages.

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ENVIRONMENTAL ISSUE/ EXISTING SETTING	ALTERNATIVES		
	TRAILS AND HABITAT RESTORATION	SPECIAL USE PAVILION	MOUNTAIN CONCESSION
Cultural Resources • No historic structures are present. • Identification of archaeological and paleontological resources would require completion of a Phase 1 Cultural Resources Assessment	• Limited ground disturbance may mean less disturbance of on-site cultural resources. • If the site is determined to have high sensitivity for cultural resources, monitoring may be needed during ground-disturbing activities. • Limited excavation needed.	• If the site is determined to have high sensitivity for cultural resources, monitoring may be needed during ground disturbing activities. • If the site is sensitive of paleontological resources, monitoring of excavation into native soils may be necessary.	• **If the site is determined to have high sensitivity for cultural resources, monitoring may be needed during ground disturbing activities.** • **If the site is sensitive of paleontological resources, monitoring of deeper excavations into native soils may be necessary.**
Geology and Soils • No earthquake faults cross the site. • Liquefaction and landslide hazards on site.	• Minor soil disturbance. • No major geologic or seismic constraints to improvements.	• Geotechnical study needed to identify constraints to proposed improvements.	• **Geotechnical study needed to identify constraints to proposed improvements, which would have more users.**
Greenhouse Gases and Climate Change • No GHG emissions from the site.	• GHG emissions from construction activities. • GHG emissions from vehicle trips.	• GHG emissions from construction activities. • GHG emissions from vehicle trips and utility consumption.	• **GHG emissions from construction activities.** • **Greater GHG emissions from vehicle trips and utility consumption due to more intensive uses.**
Hazards and Hazardous Materials • No hazardous material use on the site. • No schools within 1.5 miles of the site • No nearby pipelines or hazardous material users • Site is located within Very High Fire Hazard Zone.	• Limited hazardous material use for construction and maintenance of picnic areas and tent camping area. • Fewer users and improvements exposed to fire hazards.	• Hazardous material use for construction and maintenance of the snack shop, the pavilion, the picnic areas, and the tent camping area. • Greater exposure of users and improvements to fire hazards.	• **Hazardous material use for construction and maintenance of concession building, pavilion, adventure play area, picnic areas, and tent camping area.** • **May require mitigation for exposure to fire hazards to users and proposed improvements.**
Hydrology and Water Quality • San Gabriel River within 100-year floodplain.	• Minor changes in the existing drainage pattern. • Storm water pollutants from construction.	• Storm water pollutants from construction and parking areas. • Proposed structures within floodplain.	• **Storm water pollutants from construction and parking areas.** • **Proposed structures may need to be raised above the floodplain.**
Land Use and Planning • River, hillsides, and vacant land. • Site is designated as Open Space and Hotel/Conference Center in Azusa Land Use Plan. • Site is zoned Open Space in Azusa Zoning Map.	• Development of passive and low intensity recreation areas. • City approval needed for proposed site improvements. • No GPA or Zone Change.	• Development of small commercial use and low intensity recreation areas. • City approval needed for proposed site improvements. • No GPA or Zone Change.	• Development of commercial use and recreation areas. • City approval needed for proposed site improvements. • No GPA or Zone Change.

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ENVIRONMENTAL ISSUE/ EXISTING SETTING	ALTERNATIVES		
	TRAILS AND HABITAT RESTORATION	**SPECIAL USE PAVILION**	**MOUNTAIN CONCESSION**
Mineral Resources • Mineral Resource Zone on San Gabriel River. • No mining activities on site	• Precludes future mining activities. • No impact.	• Precludes future mining activities. • No Impact.	• Precludes future mining activities. • No impact.
Noise • Noise environment defined by vehicle traffic on SR-39.	• Short-term construction noise. • Minor vehicle and user noise impacts.	• Short-term construction noise. • Vehicle and user noise impacts.	• **Short-term construction noise.** • **Vehicle, stationary equipment, and user noise impacts.**
Population and Housing • No on-site residents, housing units, or businesses	• Short-term population by picnic users, trail users, and campers. • Intermittent maintenance visits.	• Short-term population by snack shop patrons and users of the pavilion, the picnic areas, the trails, and tent camping area. • Employees at snack shop and intermittent maintenance visits.	• **Short-term population by concession patrons and users of the pavilion, the picnic areas, the trails, and the tent camping area.** • **Employees at concession building and intermittent maintenance visits.**
Public Services • Azusa Police Department provides police protection. • County Fire Station 97 is the nearest fire station.	• Minor increase in use would translate to minor increase in demand for fire and police protection services.	• New structures and users would increase demand for police and fire protection.	• **More structures and users would increase demand for police and fire protection.**
Recreation • Existing bike trail ends southwest of the site. • Informal hiking trails throughout.	• More defined passive recreational uses.	• Increased recreational uses.	• Increased recreational uses. •
Transportation and Circulation • Vehicle trips from occasional hikers. • Traffic study would be needed to determine existing roadway and intersection operations. • SR-39 is on CMP network. • SR-39 has 2,350 vpd in 2009.	• Limited trip generation from intermittent use of the picnic areas, the tent camping area and trails. • Simplified traffic analysis may suffice due to short-term and non-peak hour use. • Analysis of traffic-calming measures may be needed. • Caltrans approval for traffic-calming measure and bicycle undercrossing is needed.	• Trip generation from intermittent use of the pavilions, the snack shop, the picnic areas, the tent camping area, and trails. • A short traffic study would be needed to determine existing and future roadway and intersection operations. • Analysis of traffic circle at SR-39 is needed. • Caltrans approval for traffic circle and bicycle undercrossing is needed.	• **Trip generation would be dependent on use of concession building and may require a Traffic Impact Analysis if more than 50 peak hour trips are generated.** • **Analysis of traffic circle and at grade crossing at SR-39 is needed.** • **Caltrans approval for traffic circle and at grade crossing is needed.**

ENVIRONMENTAL ISSUE/ EXISTING SETTING	ALTERNATIVES		
	TRAILS AND HABITAT RESTORATION	**SPECIAL USE PAVILION**	**MOUNTAIN CONCESSION**
Utilities • Water from water tanks of El Encanto property. • Overhead power lines east of SR-39 and on Old San Gabriel Canyon Road.	• Water may be provided by El Encanto water tanks. • No sewer service needed. • No power service needed.	• Snack shop and pavilion would require water, which may be provided by El Encanto water tanks. • Sewer service needed. • Permit from the Los Angeles RWQCB is needed for a new septic tank. • Power service needed.	• **Concession building would require water service, which may be provided by El Encanto water tanks depending on demand.** • **Sewer service needed.** • **Permit from the Los Angeles RWQCB needed for new septic tank.** • **Power service needed.**

SR: State Route; ANF: Angeles National Forest; USACE: U.S. Army Corps of Engineers; CDFG: California Department of Fish and Game; RWQCB: Regional Water Quality Control Board; GHG: greenhouse gas; CMP: Congestion Management Program; vpd: vehicles per day.

The analysis shows that limited disturbance of the site translates to fewer environmental impacts (as proposed under the Trails and Habitat Restoration Alternative) and more intensive uses mean greater environmental impacts (as proposed under the Mountain Concession Alternative). A number of future studies would be needed to identify specific constraints to the proposed alternatives and to provide a more definitive analysis of impacts and the necessary mitigation.

The preliminary evaluation indicates that potential impacts of the proposed alternatives are expected to be less than significant on most issue areas, except for:

- Aesthetic impacts for the Mountain Concession Alternative;
- Air quality impacts for the Special Use Pavilion and Mountain Concession Alternatives;
- Biological resources impacts for all alternatives;
- Cultural resources impacts for all alternatives;
- Geology impacts for the Special Use Pavilion and Mountain Concession Alternatives;
- Hazard impacts for the Special Use Pavilion and Mountain Concession Alternatives;
- Hydrology impacts for the Special Use Pavilion and Mountain Concession Alternatives;
- Public service impacts for the Mountain Concession Alternative;
- Transportation impacts for the Special Use Pavilion and Mountain Concession Alternatives; and
- Utility impacts for the Special Use Pavilion and Mountain Concession Alternatives.

These impacts would have to be mitigated to less than significant levels for the project to qualify for an MND.

Impact Reduction Strategies

The reduction of the degree of impacts within an alternative or between alternatives can be made through adjustments of several factors in the site plan for the alternatives. These factors are directly related to the potential environmental impacts of proposed improvements and may be used to prevent or reduce changes to the environment. (However, it should be noted that under CEQA, the reduction of impacts may not be necessary if the potential impact is considered less than significant.)

For more informed decision-making, strategies that could be used to reduce the impacts of each alternative include those listed below.

- ***Number and Size of Improvements.*** A reduction in the number of proposed improvements and their sizes (footprints) would reduce impacts on biological and cultural resources and the environment.

- ***User Population.*** Changes that would reduce the number of users on the site would also reduce impacts related to traffic and associated air quality, noise, and greenhouse gas (GHG) impacts, as well as public service and utility demands.

- ***Protection of Native Vegetation.*** Leaving native vegetation undisturbed and locating improvements within previously disturbed areas or those with ruderal or ornamental species would reduce impacts on sensitive biological resources.

- ***Avoidance of Riparian Areas.*** Eliminating the trails that cross drainages or minimizing impacts to the river bed, natural drainage channels, and other wetland areas would reduce impacts to biological and water resources and the need for resource agency permits (from U.S. Army Corps of Engineers [USACE], the California Department of Fish and Game [CDFG], and the Los Angeles Regional Water Quality Control Board [RWQCB]).

- ***Preservation of Cultural Resources.*** Avoiding improvements in areas with sensitive cultural resources (archaeological and paleontological resources) will eliminate the need for cultural resources monitoring. Where sensitive archaeological resources are present, capping of resources prior to improvement would avoid the need for resource collection and mitigation.

- ***Design to Avoid Hazards.*** Designing the project to blend with the natural environment and to avoid geologic, fire, and flood hazards would reduce user exposure to these hazards.

Future Environmental Review

We recommend that upon selection or development of a preferred alternative, a CEQA Initial Study be completed to provide a more definitive determination of the appropriate environmental document. To allow the preferred alternative to fall under an MND and avoid the need for an EIR, it will be necessary to prevent or reduce all impacts to less than significant levels. While habitat restoration projects, nature trails, and overlooks are not likely to lead to significant adverse impacts, active recreational areas and more intensive land uses or developments may lead to impacts that may be significant and adverse. Mitigation of impacts to reduce them to less than significant levels would be the main purpose of the Initial Study. However, depending on their size, active recreational areas and commercial land uses may generate long-term pollutant emissions that might be considered significant and unavoidable due to existing air pollution levels in the South Coast Air Basin and, thus, require preparation of an EIR.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

The National Environmental Policy Act (NEPA) requires the environmental review of projects that would be undertaken by federal agencies; that would occur on federal lands; or that would be funded by federal funds.

All three alternatives include the development of a nature trail on the northern bank of the San Gabriel River, within the Angeles National Forest (ANF). This trail would be located in an area zoned as Developed Area Interface in the Final Land Management Plan for the Forest. It is proposed along an existing dirt road and would involve clearing the road path and installing trail signs along the path. Approval from the ANF would be necessary prior to these improvements, and thus, the ANF would have to comply with NEPA prior to this approval.

The ANF and U.S. Forest Service (USFS) NEPA procedures and guidance are contained in the *Code of Federal Regulations* (specifically, 36 CFR 220) and in Chapter 1950 of the Forest Service Manual (FSM). Section 220.6 (d) in 36 CFR 220 identifies projects that may fall under a Categorical Exclusion, and thus, need not go through an environmental review process prior to approval. The proposed nature trail within the ANF may fall under one of these Categorical Exclusions provided that it will not affect federally listed Threatened or Endangered species or designated critical habitat; floodplains, wetlands, or municipal watersheds; wilderness or national recreation areas; designated roadless areas; archaeological sites and historic properties.

Lynne Dwyer and Martin Kammerer
June 22, 2011

Consultation with the ANF will be necessary to determine if the alignment of the proposed tail is designated as a road or trail in Forest Plans and if the clearing and signage that would be made for the proposed nature trail can fall under a Categorical Exclusion or Categorical Exclusion with decision memo. (Avoidance of sensitive biological species, including drainage channels, and archaeological sites would facilitate the issuance of a Categorical Exclusion.) The designated responsible official at the ANF would make the final determination on the necessary environmental review process for any improvements on federal land. If impacts may occur, the ANF may require an Environmental Assessment (EA) to support a Finding of No Significant Impact (FONSI). To avoid this process, the proposed trail signs may have to be eliminated and/or footbridges proposed over drainage streams leading to the San Gabriel River.

PHASING OF IMPROVEMENTS

Upon selection of the preferred alternative, the phasing of the improvements would be influenced largely by the procurement of permits that would be required from various agencies. The permits and approvals from responsible agencies may include:

- City of Azusa issuance of planning and building permits for the proposed improvements.
- USFS approval of the proposed trail within the ANF.
- USACE, Los Angeles RWQCB, and CDFG permits for any work in or near drainage channels and the San Gabriel River.
- CDFG permit for the bike trail that may encroach into their conservation easement.
- Caltrans approval for the bike trail undercrossing, traffic circle/traffic calming measures and any work within the SR-39 right-of-way.
- Los Angeles RWQCB discharge permit for septic tanks or annexation into the Los Angeles County Sanitation District 22 with extension of the sewer line onto the site.
- Southern California Edison (SCE) approval of electrical power connection.

The time it takes for these agencies to review/process the permit applications and issue approvals/permits would serve as the main constraints to phasing the improvements. Thus, improvements that require fewer permits from other agencies or that can be readily approved can proceed earlier than others.

BlueGreen CONSULTING

RIVER WILDERNESS PARK SIGNAGE GUIDELINES

SIGNAGE GUIDELINES

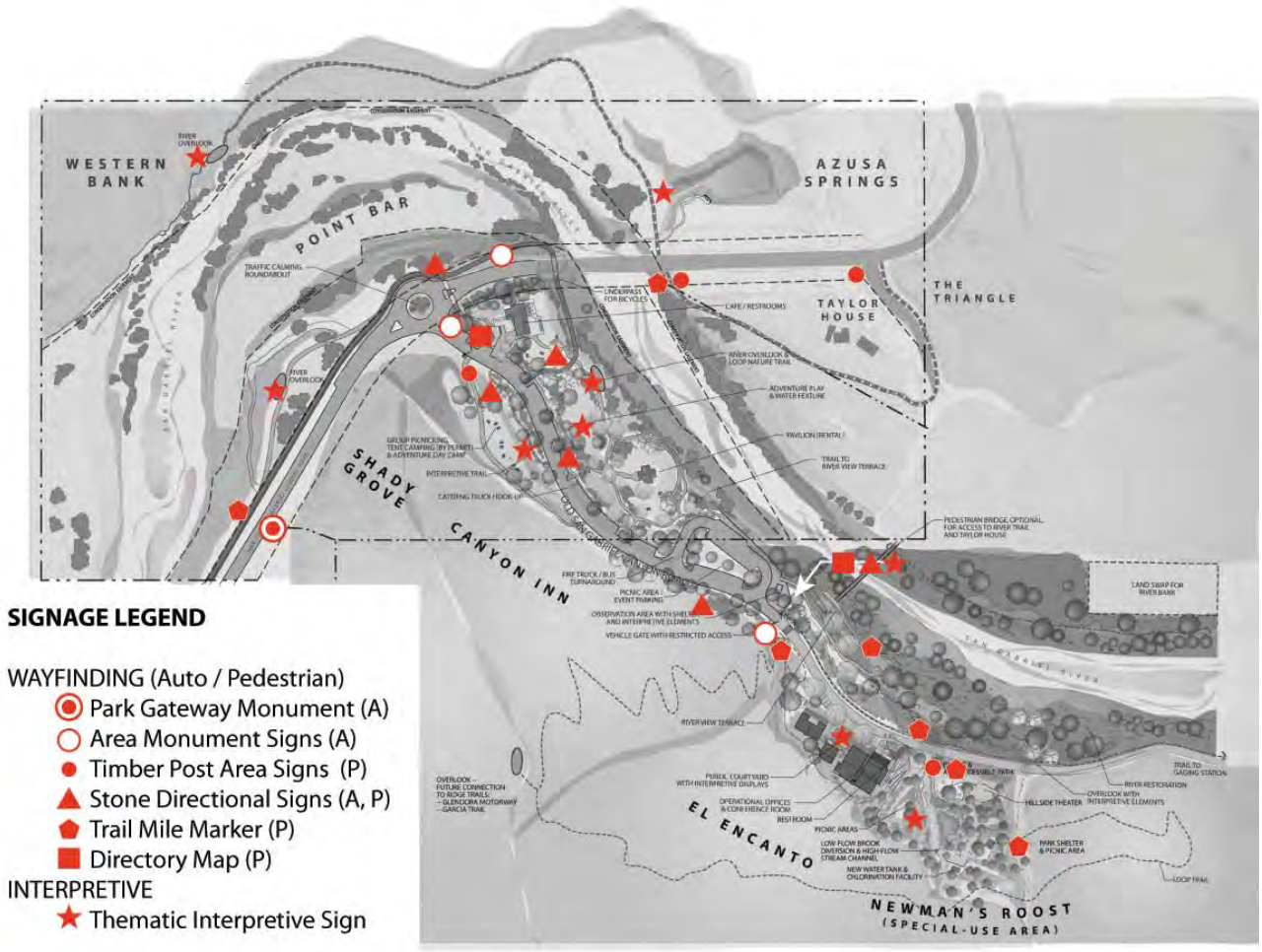
- Description
  - Fit with site, consistent Park style
- Materials
  - Rustic aesthetic
- Wayfinding
  - Hierarchy of Signage Types
- Other Informational Signage
- Interpretive
  - Thematic Interpretive Signage
  - Small Interpretive Elements

DESCRIPTION & GOALS

Park signage will serve important roles in establishing the park's identity, guiding visitors with wayfinding and offering site interpretation.

Ultimately, a parkwide sign plan will unify all signage with a consistent and attractive format. This will provide standards for the design and content of roadway and pedestrian signs of all types, including directional, regulatory, safety, accessibility, resource protection, information, interpretation, and building and facility identification.

The plan will organize signage into a system of components, create guidelines for locations of signs, establish materials, provide colors and typography guidelines, unify place names and wording, and describe standard installation details.



RIVER WILDERNESS PARK SIGNAGE LOCATION MAP

MATERIALS

The Park's rustic aesthetic will be conveyed through its signage materials, signaling to visitors the distinct style of the River Wilderness Park. Entry statements of stone and wood, wooden signs, Corten steel frames, and cut-out lettering will contribute to a unified Park style which appears aged and natural. Corten is a steel alloy which develops a rich, rusted patina and natural texture over time, and requires little to no maintenance.

WAYFINDING

For the first-time visitor, the River Wilderness Park presents a large menu of unfamiliar names and places to navigate. The list includes numerous sub-areas, place names (historical and new), destinations, and trail systems (pedestrian, bike and auto), set within a large park with varied geographic features.

Clear wayfinding signage will help visitors understand and explore the full range of the Park's options while reducing the need for staff assistance. Across the site, wayfinding signage will break down information into manageable bits, and provide the options to visitors at proper points where they are needed to make a decision.

The wayfinding hierarchy will organize signage into an easy system, first welcoming visitors to the park, next guiding them to main areas, and then finally pointing out landmarks in each area.

The wayfinding system may employ a family of graphics and icons to help identify particular zones of the park, grouped by plant community, landmark, color, etc.

A large, clear map will be developed to show visitors where they are and how to get to points of interest.

Before ordering and installing final wayfinding signage, a site trial may be recommended to test mock-ups of the wayfinding system. Inviting newcomers to visit the site, use the wayfinding system and provide feedback will ensure proper placement, wording, legibility, map design and identify gaps in visitor understanding of the site.

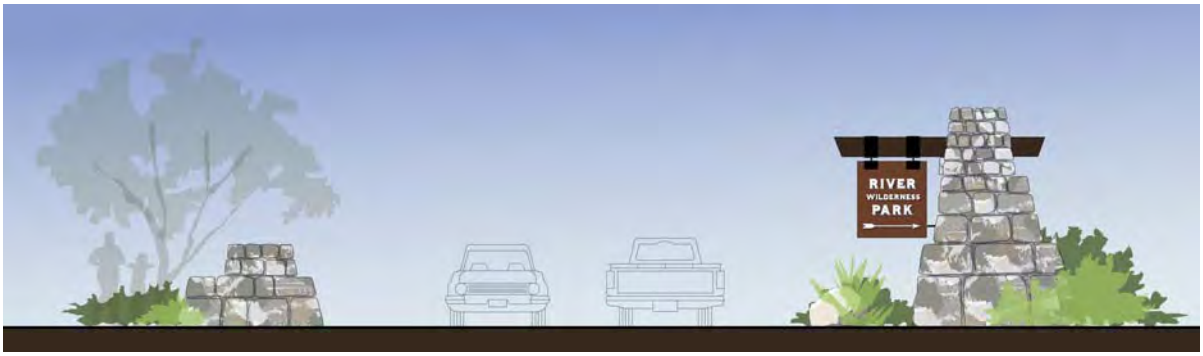
Wayfinding Hierarchy of Signage Types

1. Park Gateway Monument (A)
2. Area Monument Signs (A)
3. Timber Post Area Signs (P)
4. Stone Directional Signs (A, P)
5. Trail Mile Markers (P)
6. Directory map (P)

Park Gateway Monument (Automobile) (Quantity: 1)

An iconic park gateway sign of stone and wood along Highway 39 will announce entry to the River Wilderness Park zone and set the tone for a rustic and natural Park experience.

All visitors traveling northbound on Highway 39 into San Gabriel Canyon will pass through the two elements which form the park gateway: (1) on the east side of the road, a large stone base and hanging wood sign, and (2) on the west side of the road, a complementary stone structure.



Materials:
The stone base will be constructed of angular blocks of natural granite which reflect the character of the local mountains, to be approved by the landscape architect. The wood beam and wood plank sign are to be treated wood, with routed and painted letters. Fixtures and hardware to be iron. Attempts will be made to achieve the scale per the drawing and the massing of the stones and ledges.

Location:
The gateway will be positioned approximately where the current large green Park sign is – at the start of the property just before the highway shoulder narrows. Only one main gateway is needed on Hwy 39 (to be viewed by northbound traffic), since the highway closure north of Crystal Lake limits the amount of southbound traffic. The entry sign for southbound traffic will be the smaller scale major area sign.

Text: "RIVER WILDERNESS PARK," right arrow.

Area Monument Signs (Automobile) (Quantity: 3)

Three low stone and wood signs will be used to identify major areas of the Park to those arriving by vehicle. The first, on Highway 39, will alert southbound drivers of the left turn at the roundabout into the Park. Two additional signs will be used to identify the Canyon Inn and El Encanto areas of the Park.

Materials:
Metal letters on wood plank with stone base

Location/Text:
a) North of the Roundabout right shoulder of southbound lane,
Text: "RIVER WILDERNESS PARK," RMC logo, left arrow, "SLOW 10 MPH"

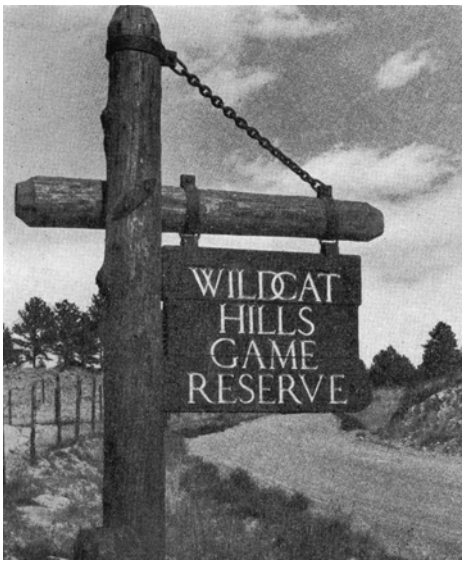
b) In front of Canyon Inn building, left shoulder of Old San Gabriel Canyon Rd.,
Text: "Canyon Inn"

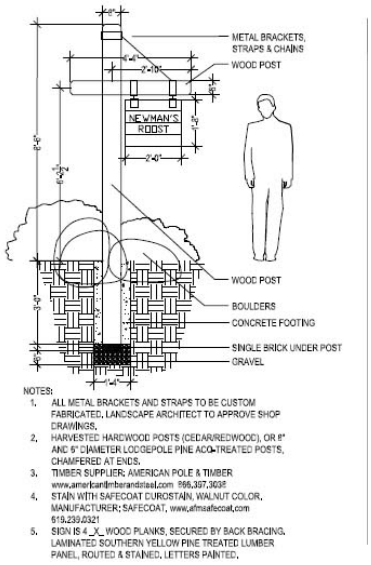
c) In front of El Encanto gate closure, right shoulder of Old San Gabriel Canyon Rd.,
Text: "El Encanto"

Timber Post Area Signs (Pedestrian) (Quantity: 4)

These cross-posts and hanging signs will be used to identify to pedestrians the smaller areas within the Park.

Materials:
Wood plank sign with carved and painted letters on a wood post.





Location/Text:
a) Shady Grove trail entry, right shoulder of Old San Gabriel Canyon Rd.,

Text: "Shady Grove"

b) Newman's Roost trail entry east of the operational office at El Encanto,

Text: "Newman's Roost"

c) Azusa Springs trail entry southeast of the bridge on trail shoulder before trail crosses under bridge,

Text: "Azusa Springs"

d) Taylor House trail entry east of the bridge on northbound shoulder of Highway 39 San Gabriel Canyon Rd.,

Text: "Taylor House"

Stone Directional Signs (Automobile + Pedestrian) (Quantity: 6)

Stone directional signs will point out the major areas and features within the Park. This initial level of Park wayfinding will enable visitors to locate key features and areas within the Park. Signs will list features and provide directional arrows. As an option maps of Park can be mounted on top of post.

Concept Sketch of Directional Sign

Sample of Stone Directional Sign

Optional Trail Map mounted to top

Materials:
High Pressure Laminate (HPL) sign material mounted on stone column

Location/Text:
a) At Highway 39 on the shoulder of the southbound lane between the crosswalk and the bike path. Text to indicate Canyon Inn features to the right, bridge underpass ahead.

b) Within Canyon Inn vicinity at the point the bike path emerges from the bridge underpass and intersects with the trail to the Café and Restrooms. Text to indicate Café & Restrooms to right and El Encanto and Newman's Roost features to the left, Shady Grove ahead.

c) Within Canyon Inn vicinity, where bike path joins Old San Gabriel Canyon Rd. at right shoulder of Old San Gabriel Canyon Rd. Text to indicate the Canyon Inn features to the left, and the El Encanto and Newman's Roost features further down the road.

d) Near the El Encanto turnaround on the right shoulder ahead of the gate closure. Text: "Turn around and park for: El Encanto & Newman's Roost" and indicates the El Encanto and Newman's Roost features further down the road.

e) At the observation area with shelter near interpretive signage. Text to indicate pedestrian bridge to Taylor House and river trail to left and down slope, El Encanto and Newman Roost features ahead.

f) At the trail entrance from the parking area in Canyon Inn near to the rental Pavilion. Text to indicate Canyon Inn Café and Restrooms are to left, Pavilion ahead, and El Encanto and Newman Roost to right.

Trail Mile Marker (Pedestrian) (Quantity: 7)

Pedestrian directional signs will be employed across the Park to direct visitors to features and areas.

Locations:
at the intersections of trails and roadways within and near the Park, see River Wilderness Park Signage Location Map.

Material:
Corten steel sheets with cutout lettering/graphics, sanded and bolted onto steel posts.

Directory Map (Pedestrian) (Quantity: 2)

A directory map will be developed to orient visitors to the Park site. The map will be dispersed across the Park in combination with the pedestrian-level navigation signs so visitors can find trails to their destinations.

Materials:
High Pressure Laminate (HPL) sign material mounted on post.

Locations/Graphics/Text:
Signs to be installed at two points of origin/destination locations: near the Park entry at the Café and Restrooms and at the Observation Area with Shelter near El Encanto. Graphics: digital map of the River Wilderness Park, with magnified Canyon Inn area or El Encanto inset where appropriate. Text: "You are here."

Other Informational Signage

To reduce visual clutter and impart more authority to the rules, all agency rules and regulations should be consolidated onto one sign. Consistent color palette should be used. Sign to be mounted on 4" x 4" low wood posts mounted 4' to 6' from the ground. Sign displayed in two locations: Upon entry into the park and upon exiting a vehicle.

Materials:
Aluminum backing

Type of Graphics:
Brown background with white lettering

INTERPRETIVE SIGNAGE

- Description & Goals
- Thematic Interpretive Signage Topics and locations
    - Materials and Examples
- Small Interpretive Elements
    - Materials and Examples

INTERPRETIVE SIGNAGE DESCRIPTION & GOALS:

Interpretive signage will complete the visitor's experience within the Park by bringing to life the historic and natural heritage of the site. Signage will help visitors discover the richness of the San Gabriel Mountains. Signage will be designed to grab visitors' curiosity with provocative questions, something to see or do, or a call to action. Signs located at key points within the park will convey the uniqueness of the area – celebrating the region's natural heritage – and also reveal how the mountains and river relate to visitors' lives in the city below. Through the interpretive components, visitors discover that, although they are separated by distance, they are interconnected through natural processes –their actions affect the ecosystem's health, and the ecosystem's health affects them. Interpretive signage connects visitors to their local natural wonderland and promotes stewardship by instilling a sense of ownership.

Interpretive signage in the River Wilderness Park is distinguished into two categories: Thematic Interpretive Signage and Small Interpretive Elements. Thematic Interpretive Signage are larger scale signs which delve into specific topics. Topics have been coordinated within the Park and work to interpret an overarching story that unfolds as visitors move through the Park. Small Interpretive Elements draw visitors' attention to unique features within the Park.

THEMATIC INTERPRETIVE SIGNAGE TOPICS AND LOCATIONS:

San Gabriel River Bike Path / Highway 39 –River Overlook
Title: "Where Can I Go From Here?"
Topic: The San Gabriel River Trail is a 39-mile bicycle path from the San Gabriel Mountains to the Pacific Ocean. The route links many parks and destinations.

Canyon Inn – River Overlook
Title: "The Wild and Scenic San Gabriel Still Roars"
Topic: These are active, steep mountains, still rising today and eroding. The San Gabriel River is a powerful, wild river and has caused lots of damage in the past. We have controlled it through engineering to prevent floods, and also to capture the water. The dams, however, disrupt key natural processes. "Taming the Wild"

Canyon Inn – River Shelter
Title: "What to Expect on the Trail"
Topic: Photos explain the difference between rattlesnakes and king and garter snakes. Animals of San Gabriel Canyon include fish, skunk, deer, mountain lion. Also features notable plants on the trail.

El Encanto – Courtyard
Title: "The Enchanted "El Encanto"
Topic: The El Encanto building has a lively local history and was a much-loved restaurant for many years. It has come full circle, originally housing the first ranger for San Gabriel Canyon, and now housing the Rivers and Mountains Conservancy.

El Encanto/ Newman's Roost – Trailhead
Title: "Old San Gabriel Canyon Road"
Topic: This area has a fascinating history, tied to the old road – now a short walking trail. Our history in the San Gabriel Mountains has shifted from depleting natural resources for profit, to finding a balance between human use and protecting and experiencing nature.

Newman's Roost – Picnic Area
Title: "Coast Live Oak Woodland Family Photo Album"
Topic: The topographically and geologically diverse San Gabriel Mountains contain high levels of biodiversity. The plant communities provide habitat for 67 plant species and 105 wildlife species

considered sensitive, rare, threatened or endangered. (National Park Service, 2011, San Gabriel Watershed and Mountains Special Resource Study) Our native plants and animals are each unique and have special characteristics adapted to survive in these conditions. Some are rare species only known here. Ferns are a highlight. The San Gabriel Canyon area is very important to the region's natural heritage.

Azusa Springs
Title: "What is the Azusa Spring?"
Topic: San Gabriel River Water Works, habitat and conservation, geology and morphology.

Western Bank
Title: "Birds of the San Gabriel River"
Topic: Notable birds visitors may see, and important plants which provide food, nesting, cover and perches.

Canyon Inn – Building
Title: "The Canyon Inn"
Topic: Historic Monument-style plaque at the building location describing the Canyon Inn's history as a lively, local roadside biker bar, with a historical photograph showing the building.

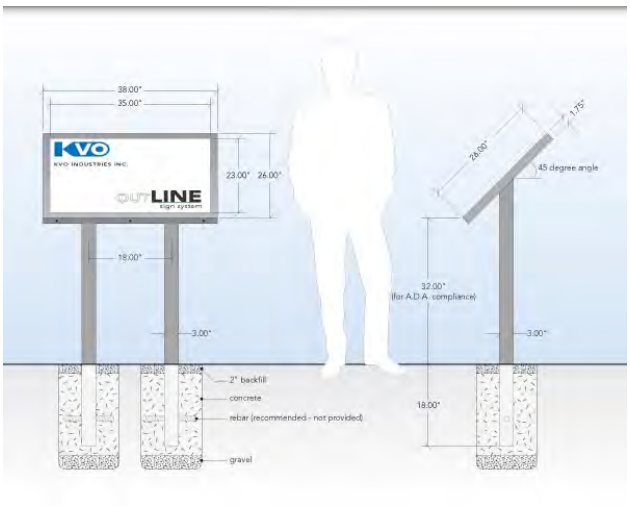
Canyon Inn
Title: "Wild Ones' Play Trail"
Topic: The adventure play trail is a place of discovery for children. The area features paw prints and leaf prints in pavement. Plants and materials along this trail will be selected for their ability to engage the senses.

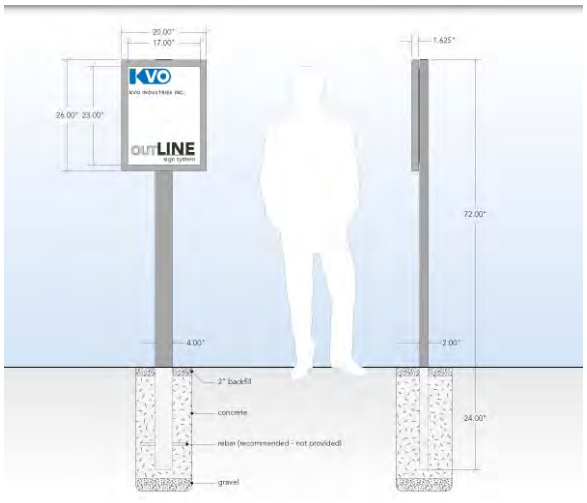
Shady Grove
Title: "Ethnobotanical Walk": Culture – History – Botany
Topic: An interpretive plant walk features restored habitat and a rich variety of native plants. Interpretive plaques highlight plant names and their traditional uses by the Tongva/Gabrielino peoples. Tongva/Gabrielino history in the region goes 5000-8000 years back. Evidence of use in these mountains, petroglyphs, trade route across to desert. Spanish/Mission history – Use of forest, timber for Mission structures.

Materials and Examples:

Interpretive sign panels will be 23” x 35” color panels produced in high pressure laminate (HPL). HPL is a combination of specially developed, digitally imaged paper which is impregnated with melamine resins, a special UV resistant over laminate, and layers of phenolic resin-impregnated kraft stock, all pressed under intense pressure and heat. This process fuses the layers together into a very durable, solid core product that cannot peel or delaminate. HPL has good graphic quality, has a very hard, scratch-resistant surface, stands up well to extreme weather conditions, resists most forms of graffiti and is extremely impact-resistant.

Sign panels will be mounted in Corten steel frames manufactured by KVO Industries. (KVO OutLine 38” x 26” Double Leg Pedestal exhibit bases (3826 OL DLP) constructed with Corten weathering steel with a rusted and waxed finish)





SMALL INTERPRETIVE ELEMENTS

Minor interpretive elements will be included across the site to highlight plants, animals and other relevant interpretive topics.

April 29, 2011

Canyon Inn Property

INVITEES TO CANYON INN STAKEHOLDERS WORKSHOP May 5 2011		
Gabi	McLean	California Native Plant Society
Cliff	McLean	California Native Plant Society
Dan	Simpson	San Gabriel Mountain Trail Builders
Jennifer	Robinson	Sierra Club
Jeff	Yann	Sierra Club
Suzanne	Avila	California Resource Connections
Rick	Thomas	California Resource Connections
Xilonin	Cruz-Gonzales	President School Board & Master Gardener
Maricela	Cueva	Azusa Beautiful/ Mountain Cove resident
Joseph R.	Rocha	Mayor of Azusa
Keith	Hanks	Mayor Pro Tem of Azusa
Robert	Gonzales	Azusa City Council Member
Angel A.	Carrillo	Azusa City Council Member
Uriel E.	Macias	Azusa City Council Member
Carole	Scurlock	Foothill Cycle Club of San Gabriel Valley
Don	Berry	San Gabriel River Water Committee
Ann	Croissant	San Gabriel Mountains Regional Conservancy
Claire	Robinson	Amigos de los Rios

Canyon Inn - River Wilderness Park

Program Opportunities and Constraints

LOCATION	PROGRAM OPPORTUNITIES	POTENTIAL CONSTRAINTS
Bike Path and State Highway 39		
	Bike Path extends Below Hwy 39	• Cost of constructing path under bridge • Design requires avoidance of Fish & Game conservation easement • Perceived safety issue under bridge • Requires CalTrans approval
	Bike Path Crossing "At Grade with Traffic Light"	• Access to park requires bicyclists to cross Hwy • Curve radius and visibility issues • Probably requires traffic calming • Distracts from nature experience for bicyclists • Potential light pollution due to blinking • Less safe than bike path under bridge • Slows automobile traffic down • Requires CalTrans approval
	Traffic Calming Along Entire Property (regardless of bike path alignment)	• Additional cost • Opposition due to slowing automobiles • Requires CalTrans approval and maintenance
	River Overlook on West side of Hwy 39 (bike trail access without parking)	• Duplicates existing stop at current bike path terminus
	River Overlook on West side of Hwy 39 (with short-term parking or pull-out)	• Will need parking pullout for cars • Potential conflict between bikes and cars • Encourages illegal long-term parking and illicit activities/dumping
	Parking pull-outs both sides of Hwy	• Curve radius and visibility issues • Requires traffic calming and speed reduction on Hwy
	Interpretive Signage	• Increased potential for vandalism at remote location

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

LOCATION	PROGRAM OPPORTUNITIES	POTENTIAL CONSTRAINTS
Canyon Inn Property		
	Habitat restoration	• Ongoing need for planting, follow-up, removal of invasives • Reduces visitor options
	River overlook	• Could provide physical access to river • Water quality issues • Motivates visitors to go down to river • Safety issues
	Trailhead	• May duplicate trail head near El Encanto building
	Interpretive Displays	
	Loop nature trail	• May require bridge • Cost of trail construction • Trail construction may impact existing habitat
	Free Parking	• Unattractive use of natural area • Takes up potential habitat restoration area • Will increase traffic and stormwater pollution • Encourages illegal long-term parking and illicit activities
	Fee Parking	• Parking fee for a public natural site not popular with public • Negative response by previous visitors used to visiting for free • Parking fee makes shorter visits unattractive • Parking fee turns people away, especially people with lower incomes • Confusion over parking fee vs. Adventure Pass or need for both • Requires entry gate attendant to collect fee
	Bicycle Rest-Stop with Picnic Area	• Requires tables/benches, trash cans • Requires trash pick-up and maintenance cost • Human food may attract wildlife, possible negative impact to wildlife health
	Nature Play Area	• Possible increased need for staffperson • Maintenance • Liability issues need to be considered

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

LOCATION	PROGRAM OPPORTUNITIES	POTENTIAL CONSTRAINTS
Canyon Inn Property	Rental Group Picnic Area	• Need additional parking to accommodate large parties • Additional maintenance and staff supervision • Target for vandalism when not in use
	Kiosk-Type Concessionaire/Catering Truck	• Not a high traffic location (except weekends and summers) • Increased visitor stops unrelated to nature experience • Increased trash and maintenance cost may outweigh revenue
	Rental Pavilion	• Site development and construction cost • Need for rental facility coordinator/staffperson, maintenance • Rental pavilion may need related facilities including kitchen facilities, utilities, trash, bar, etc. • May require additional larger restrooms and sewer connection • Liquor license permitting • Need additional parking to accommodate large parties • Development and maintenance cost may far outweigh long-term revenue
	Commercial Art Gallery	• Lower traffic during weekdays and cooler season • Not a high traffic location • Not supporting nature experience • May not reflect mission of funding agencies
	Bike Rental/Repair trailer or permanent structure	• Lower traffic during weekdays and cooler season • Not a high traffic location • Increased trash and maintenance cost may outweigh revenue • Concessionaire may not be economically viable
	Mini-Mart Country Store (multiple services, food, and supplies)	• Not a high traffic location (except weekends and summers) • Increased visitor stops unrelated to nature experience • Increased trash and maintenance cost • WCA may have to act as developer and fund site development and construction • Need for lease and facility coordinator/staffperson, maintenance • May require additional larger restrooms, utilities, permits, and sewer connection • Liquor and tobacco sales may be required for profitability • Needs additional parking and traffic arrangement to allow frequent car stops • Development and maintenance cost may far outweigh long-term revenue

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

LOCATION	PROGRAM OPPORTUNITIES	POTENTIAL CONSTRAINTS
Canyon Inn Property	Outdoor Tours and Entertainment Shuttle tours - San Gabriel Canyon Tours - covered wagon/hayride/mining Equestrian trail ride/horse rental Zip Lines Rock Climbing Art + Photography	• Lower traffic during weekdays and cooler season • Not a high traffic location • Need for stables/tour kiosk/window • Need additional parking • Development and maintenance cost may far outweigh long-term revenue • Permitting • Liability
	Restaurant Café and Bakery Beer Garden	• Will require sewer connection • May be in conflict with WCA mission • Not a high traffic location (except weekends and summers) • Increased visitor stops unrelated to nature experience • Increased trash and maintenance cost • WCA may have to act as developer and fund site development and construction • Need for lease and facility coordinator/staffperson, maintenance • May require additional larger restrooms, utilities, and permits • Liquor and tobacco sales may be required for profitability • Needs additional parking and traffic arrangement to allow frequent car stops • Development and maintenance cost may far outweigh long-term revenue
	Large-Footprint Retailer Outdoor Gear, Maps, Books, Coffee Shop	• Will require sewer connection • May be in conflict with WCA mission • Not a high traffic location (except weekends and summers) • Increased visitor stops unrelated to nature experience • Increased trash and maintenance cost • WCA may have to act as developer and fund site development and construction • Need for lease and facility coordinator/staffperson, maintenance • May require additional larger restrooms, utilities, permits, and sewer connection • Liquor and tobacco sales may be required for profitability • Needs additional parking and traffic arrangement to allow frequent car stops • Development and maintenance cost may far outweigh long-term revenue

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

LOCATION	PROGRAM OPPORTUNITIES	POTENTIAL CONSTRAINTS
Canyon Inn Property	Park Offices, Non Profit Offices	• Site development and construction cost • Buildings difficult to fund through public park funding sources • Significant cost without stable revenue source
	Lodging Tent Cabins Permanent Building RV hookups/KOA	• Site development and construction cost • Possible increased need for host, staffperson, housekeeping, maintenance • Possible need for additional restroom, shower building, utilities, lighting • WCA may have to act as developer and fund site development and construction • Will require sewer connection • Development and maintenance cost may far outweigh long-term revenue
	Interpretive Center/Museum Building	• Site development and construction cost • Competing Locations in Area • Why indoor facility when you are in nature already?
	Long Term Lease Fire Department Police Cal Trans Maitenance	• Volunteer Fire Department has station nearby • Not compatible/appropriate for natural area • Sirens noise/lights • Not enough need in area
	Dog Park	• There is no need as trail use on leash is more desireable for most • Water quality concerns
	Native Plant Nursery	• Site development and construction cost • Not a high traffic location • Concessionaire may not be economically viable

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

LOCATION	PROGRAM OPPORTUNITIES	POTENTIAL CONSTRAINTS
Shady Slope		
	Nature trail	• Cost of trail construction • Trail construction may impact existing habitat
	Ranger/Law enforcement Outpost	• Ranger has housing at El Encanto Building • High development cost without revenue • WCA does not have their own rangers
	Habitat restoration	• Ongoing need for planting follow-up, invasives removal
	Picnic Area	• Requires tables/benches, trash cans • Requires trash pick-up • Human food may attract wildlife, possible negative impact to wildlife health
	Rental Group Picnic Area	• Need additional parking to accommodate large parties • Additional maintenance and staff supervision • Target for vandalism when not in use
Dalton Springs		
	Nature trail	• Need bridge or other access for public • Cost of trail construction • Trail construction may impact existing habitat • Opposition by neighbors to public use • Potential conflict with water interest • Potential conflict with sensitive natural resources
	Habitat restoration	• Ongoing need for planting follow-up, invasives removal
	Group Camp	• Site development and construction cost • Need for reservation system administered by staffperson • Need for trash pick-up, maintenance • Possible need for restroom, water • Opposition by neighbors to public use • Potential conflict with water interest • Potential conflict with sensitive natural resources
	Interpretive Installations	• Increased potential for vandalism at remote location
	Nature activities; casting, bow & arrow, etc.	• Permitting • Access • Safety/Liability issues

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

LOCATION	PROGRAM OPPORTUNITIES	POTENTIAL CONSTRAINTS
Western Bank		
	Nature trail to River Overlook	• Need bridge • Cost of trail construction • Trail construction may impact existing habitat • Opposition by neighbors to public use • Potential conflict with water interest • Potential conflict with sensitive natural resources
	Habitat restoration	• Ongoing need for planting follow-up, invasives removal
	River Overlook	• Increased potential for vandalism at remote location
	Through trail to ANF & Roberts Canyon	• Resistance from Mountain Cove residents • Need Forest Service agreement • Easement needs to be valuated
Point Bar		
	Nature trail	• Cost of trail construction • Trail construction may impact existing habitat • Fish and Game Easement does not allow public access
	Habitat restoration	• Ongoing need for planting follow-up, invasives removal
	Riverview bench (outside F&G easement)	• Increased potential for vandalism at remote location

PLANT ASSOCIATION - AFFS: ALLUVIAL FAN SAGE SCRUB

Vegetation Type - sbs: Scalebroom Scrub

Scientific Name	Frequency
Achnatherum coronatum (Stipa coronata)	Oc.
Acourtia microcephala	Oc.
Adenostoma fasciculatum	Oc.
Arctostaphylos glauca	Oc.
Artemisia californica	Fr. to Oc.
Artemisia dracunculus	Oc.
Artemisia ludoviciana	Oc.
Brickellia californica	Oc.
Calystegia macrostegia ssp. arida	Oc.
Ceanothus crassifolius	Oc.
Ceanothus leucodermis	Oc.
Cercocarpus betuloides var. betuloides	Oc.
Clematis ligusticifolia	Oc.
Datura wrightii	Fr.
Dendromecon rigida	Oc.
Dudleya lanceolata	Oc.
Encelia californica	Oc.
Ericameria parishii var. parishii	Oc.
Ericameria pinifolia	Fr. to Oc.
Eriodictyon crassifolium	Oc.
Eriodictyon trichocalyx var. trichocalyx	Fr.
Eriogonum elongatum var. elongatum	Oc.
Eriogonum fasciculatum var. fasciculatum	Subdom.
Eriogonum fasciculatum var. foliolosum	Oc.
Eriogonum fasciculatum var. polifolium	Fr.
Eriophyllum confertiflorum	Fr. to Oc.
Euthamia occidentalis	Fr. to Oc.
Gutierrezia californica	Oc.
Hazardia squarrosa var. grindelioides	Oc.
Helianthus gracilentus	Oc.
Hesperoyucca whipplei (Yucca whipplei)	Fr.
Juniperus californica	Oc.
Lathyrus vestitus var. vestitus	Oc.
Lepidospartum squamatum	Dom.
Lessingia filaginifolia var. filaginifolia	Fr. to Oc.
Lotus scoparius	Fr. to Oc.
Lupinus excubitus var. hallii	Oc.
Lupinus longifolius	Oc.
Malacothamnus fasciculatus	Oc.
Malosma laurina	Oc.
Melica imperfecta	Oc.
Mirabilis californica (M. laevis var. crassifolia)	Fr. to Oc.

Scientific Name	Frequency
Opuntia littoralis	Fr. to Oc.
Opuntia parryi	Subdom.
Penstemon centranthifolius	Oc.
Penstemon spectabilis	Oc.
Platanus racemosa	Oc.
Potentilla glandulosa ssp. glandulosa	Oc.
Prunus ilicifolia ssp. ilicifolia	Oc.
Quercus agrifolia var. agrifolia	Oc.
Rhamnus crocea	Oc.
Rhus integrifolia	Oc.
Rhus ovata	Oc.
Ribes indecorum	Oc.
Salvia apiana	Fr.
Salvia mellifera	Oc.
Sambucus mexicana	Oc.
Senecio flaccidus var. douglasii	Oc.
Solanum xanti	Oc.
Solidago californica	Fr. to Oc.
Solidago confinis	Fr. to Oc.
Stachys ajugoides var. rigida	Oc
Stachys albens	Oc.
Tetradymia comosa	Oc.

* Plants included in the CNPS Inventory of Rare & Endangered Plants of California

** Plants of local concern or uniqueness

*** State or federally listed plants

from PLANT LISTS FOR THE SAN GABRIEL RIVER WATERSHED Bart O'Brien 12/20/07

PLANT ASSOCIATION - CH: CHAPARRAL

Vegetation Type - mc: Southern Mixed Chaparral

Scientific Name	Frequency
Achnatherum coronatum (Stipa coronata)	Oc.
Acourtia microcephala	Fr.
Adenostoma fasciculatum	Oc.
Amorpha californica var. californica	Oc.
Arctostaphylos glandulosa ssp. glaucomollis**	Oc.
Arctostaphylos glauca	Oc.
Artemisia californica	Fr.
Artemisia dracunculus	Oc.
Artemisia ludoviciana	Oc.
Asclepias fascicularis	Oc.
Berberis (Mahonia) nevinii***	Oc.
Bothriochloa barbinodis	Oc.
Brickellia californica	Oc.
Ceanothus crassifolius	Oc.
Ceanothus leucodermis	Oc.
Ceanothus oliganthus var. oliganthus	Oc.
Cercocarpus betuloides var. betuloides	Fr.
Clematis lasiantha	Oc.
Clematis ligusticifolia	Oc.
Clematis pauciflora	Oc.
Datura wrightii	Oc.
Dendromecon rigida	Oc.
Epilobium canum ssp. canum (Zauschneria californica)	Oc.
Epilobium canum ssp. latifolium (Zauschneria californica ssp. latifolia)	Oc.
Ericameria parishii var. parishii	Oc.
Ericameria pinifolia	Oc.
Eriogonum elongatum var. elongatum	Oc.
Eriophyllum confertiflorum	Fr.
Fraxinus dipetala	Oc.
Fremontodendron californicum	Oc.
Garrya veatchii	Oc.
Gutierrezia californica	Oc.
Hazardia squarrosa var. grindelioides	Oc.
Helianthus gracilentus	Oc.
Hesperoyucca whipplei (Yucca whipplei)	Fr.
Heteromeles arbutifolia var. arbutifolia	Subdom.
Juglans californica var. californica**	Oc.
Keckiella cordifolia	Oc.
Lathyrus vestitus var. vestitus	Oc.
Lessingia filaginifolia var. filaginifolia	Fr. to Oc.
Leymus condensatus	Oc.
Lonicera subspicata var. denudata	Oc.

Scientific Name	Frequency
Lotus scoparius	Fr.
Lupinus excubitus var. hallii	Oc.
Lupinus longifolius	Oc.
Malosma laurina	Oc.
Melica imperfecta	Fr.
Mimulus (Diplacus) aurantiacus** (M.(D.) longiflorus)	Oc.
Muhlenbergia rigens	Oc.
Nassella (Stipa) cernua	Oc.
Nassella (Stipa) lepida	Oc.
Nassella (Stipa) pulchra	Oc.
Penstemon centranthifolius	Oc.
Penstemon heterophyllus var. australis	Oc.
Penstemon spectabilis	Oc.
Pinus coulteri	Oc.
Potentilla glandulosa ssp. glandulosa	Oc.
Prunus ilicifolia ssp. ilicifolia	Subdom.
Pseudotsuga macrocarpa	Oc.
Quercus durata var. gabrielensis**	Oc.
Rhamnus californica ssp. californica	Fr.
Rhamnus crocea	Fr.
Rhamnus ilicifolia (R. crocea ssp. ilicifolia)	Fr.
Rhus integrifolia	Fr.
Rhus ovata	Fr.
Rhus trilobata	Oc.
Ribes californicum var. hesperium	Oc.
Ribes indecorum	Oc.
Ribes malvaceum var. malvaceum	Oc.
Ribes malvaceum var. viridifolium	Oc.
Ribes speciosum	Oc.
Salvia apiana	Oc.
Salvia mellifera	Fr.
Scrophularia californica ssp. floribunda	Oc.
Senecio flaccidus var. douglasii	Fr.
Solanum xanti	Fr.
Solidago californica	Fr. to Oc.
Solidago confinis	Fr. to Oc.
Symphoricarpos mollis	Oc.
Tauschia arguta	Oc.
Tetradymia comosa	Oc.
Thalictrum fendleri var. polycarpum	Oc.

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from PLANT LISTS FOR THE SAN GABRIEL RIVER WATERSHED Bart O'Brien 12/20/07

PLANT ASSOCIATION - CLOW : COAST LIVE OAK WOODLAND

Vegetation Type - clo: Coast Live Oak Woodland

Scientific Name	Freguency
Achillea millefolium	Oc.
Amorpha californica var. californica	Oc.
Apocynum cannabinum	Oc.
Artemisia californica	Oc.
Artemisia dracunculus	Oc.
Baccharis pilularis var. consanguinea	Oc.
Baccharis pilularis var. pilularis	Oc.
Brickellia californica	Oc.
Carex praegracilis	Oc.
Ceanothus leucodermis	Oc.
Ceanothus oliganthus var. oliganthus	Oc.
Clematis lasiantha	Oc.
Clematis ligusticifolia	Oc.
Datura wrightii	Oc.
Epilobium canum ssp. latifolium	Fr.
Ericameria pinifolia	Oc.
Eriogonum elongatum var. elongatum	Oc.
Eriogonum fasciculatum var. fasciculatum	Oc.
Eriogonum fasciculatum var. foliolosum	Oc.
Eriophyllum confertiflorum	Fr. to Oc.
Fraxinus dipetala	Oc.
Garrya veatchii	Oc.
Helianthus gracilentus	Oc.
Hesperoyucca whipplei (Yucca whipplei)	Oc.
Heteromeles arbutifolia var. arbutifolia	Oc.
Isomeris arborea (Cleome isomeris)	Oc.
Juglans californica var. californica**	Oc.
Keckiella cordifolia	Oc.
Lathyrus vestitus var. vestitus	Oc.
Lessingia filaginifolia var. filaginifolia	Fr. to Oc.
Leymus condensatus	Oc.
Lotus scoparius	Oc.
Malosma laurina	Fr. to Oc.
Melica imperfecta	Fr.
Mimulus (Diplacus) aurantiacus** (M.(D.) longiflorus)	Oc.
Muhlenbergia rigens	Oc.
Nassella (Stipa) cernua	Fr. to Oc.
Nassella (Stipa) lepida	Fr. to Oc.
Nassella (Stipa) pulchra	Fr. to Oc.
Penstemon centranthifolius	Oc.
Penstemon heterophyllus var. australis	Oc.
Penstemon spectabilis	Oc.

Scientific Name	Freguency
Prunus ilicifolia ssp. ilicifolia	Fr.
Quercus agrifolia var. agrifolia	Dom.
Quercus durata var. gabrielensis**	Oc.
Quercus engelmannii**	Oc.
Rhamnus californica ssp. californica	Fr. to Oc.
Rhamnus ilicifolia (R. crocea ssp. ilicifolia)	Fr. to Oc.
Rhus integrifolia	Oc.
Rhus ovata	Fr. to Oc.
Rhus trilobata	Fr. to Oc.
Ribes aureum var. gracillimum	Fr. to Oc.
Ribes californicum var. hesperium	Oc.
Ribes malvaceum var. malvaceum	Oc.
Ribes malvaceum var. viridifolium	Oc.
Ribes speciosum	Oc.
Rosa californica	Fr. to Oc.
Salvia apiana	Oc.
Salvia leucophylla	Oc.
Salvia mellifera	Oc.
Sambucus mexicana	Fr. to Oc.
Scrophularia californica ssp. floribunda	Oc.
Senecio flaccidus var. douglasii	Oc.
Sisyrinchium bellum	Fr.
Solidago californica	Fr. to Oc.
Solidago confinis	Fr. to Oc.
Stachys ajugoides var. rigida	Oc.
Stachys albens	Oc.
Symphoricarpos mollis	Fr. to Oc.
Tauschia arguta	Oc.
Thalictrum fendleri var. polycarpum	Oc.
Umbellularia californica	Fr. to Oc.
Urtica holosericea	Oc.
Venegasia carpesioides	Oc.
Vicia americana ssp. americana	Oc.

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from PLANT LISTS FOR THE SAN GABRIEL RIVER WATERSHED Bart O'Brien 12/20/07

PLANT ASSOCIATION - CSS : COASTAL SAGE SCRUB

Vegetation Type - css: California Sagebrush Scrub

Scientific Name	
Achnatherum coronatum (Stipa coronata)	Oc.
Acourtia microcephala	Oc.
Artemisia californica	Dom.
Artemisia dracunculus	Oc.
Artemisia ludoviciana	Oc.
Asclepias fascicularis	Oc.
Baccharis pilularis var. consanguinea	Subdom.
Baccharis pilularis var. pilularis	Subdom.
Berberis (Mahonia) nevinii***	Oc.
Brickellia californica	Oc.
Calystegia macrostegia ssp. intermedia	Fr. to Oc.
Carex alma	Oc.
Carex praegracilis	Oc.
Clematis ligusticifolia	Oc.
Datura wrightii	Oc.
Dendromecon rigida	Oc.
Dudleya lanceolata	Oc.
Encelia californica	Subdom.
Epilobium canum ssp. canum (Zauschneria californica)	Fr.
Epilobium canum ssp. latifolium (Zauschneria californica ssp. latifolia)	Oc.
Ericameria parishii var. parishii	Oc.
Ericameria pinifolia	Oc.
Eriodictyon crassifolium	Oc.
Eriogonum elongatum var. elongatum	Oc.
Eriogonum fasciculatum var. fasciculatum	Dom.
Eriogonum fasciculatum var. foliolosum	Oc.
Eriophyllum confertiflorum	Fr. to Oc.
Euthamia occidentalis	Fr. to Oc.
Gutierrezia californica	Oc.
Hazardia squarrosa var. grindelioides	Oc.
Helianthus gracilentus	Oc.
Hesperoyucca whipplei (Yucca whipplei)	Fr. to Oc.
Heteromeles arbutifolia var. arbutifolia	Oc.
Isomeris arborea (Cleome isomeris)	Fr. to Oc.
Juniperus californica	Oc.
Keckiella cordifolia	Oc.
Lathyrus vestitus var. vestitus	Oc.
Lepidospartum squamatum	Oc.
Lessingia filaginifolia var. filaginifolia	Fr. to Oc.
Leymus condensatus	Oc.

Scientific Name	
Lotus scoparius	Fr.
Lupinus excubitus var. hallii	Oc.
Lupinus longifolius	Oc.
Malacothamnus fasciculatus	Oc.
Malosma laurina	Fr.
Melica imperfecta	Fr.
Mimulus (Diplacus) aurantiacus** (M.(D.) longiflorus)	Fr.
Mirabilis californica (M. laevis var. crassifolia)	Fr. to Oc.
Nassella (Stipa) lepida	Fr. to Oc.
Penstemon centranthifolius	Oc.
Penstemon spectabilis	Oc.
Potentilla glandulosa ssp. glandulosa	Oc.
Prunus ilicifolia ssp. ilicifolia	Oc.
Quercus durata var. gabrielensis**	Oc.
Rhamnus crocea	Fr. to Oc.
Rhamnus ilicifolia (R. crocea ssp. ilicifolia)	Fr. to Oc.
Rhus integrifolia	Fr. to Oc.
Ribes indecorum	Oc.
Salvia apiana	Oc.
Salvia leucophylla	Fr. to Oc.
Salvia mellifera	Fr.
Sambucus mexicana	Fr. to Oc.
Scrophularia californica ssp. floribunda	Oc.
Senecio flaccidus var. douglasii	Fr.
Sisyrinchium bellum	Fr. to Oc.
Solanum xanti	Fr.
Solidago californica	Fr. to Oc.
Solidago confinis	Fr. to Oc.
Stachys ajugoides var. rigida	Oc.
Stachys albens	Oc.
Tetradymia comosa	Oc.
Verbena lasiostachys	Oc.

* Plants included in the CNPS Inventory of Rare & Endangered Plants of California
** Plants of local concern or uniqueness
*** State or federally listed plants

from PLANT LISTS FOR THE SAN GABRIEL RIVER WATERSHED Bart O'Brien 12/20/07

SOUTHERN SYCAMORE RIPARIAN WOODLAND - PLANT ASSOCIATION

Vegetation Type - syc: Sycamore Woodland

Scientific Name	Frequency
Alnus rhombifolia	Oc.
Amorpha californica var. californica	Fr. to Oc.
Anemopsis californica	Oc.
Apocynum cannabinum	Oc.
Artemisia californica	Fr. to Oc.
Artemisia douglasiana**	Fr.
Artemisia dracunculus	Oc.
Baccharis pilularis var. consanguinea	Fr.
Baccharis pilularis var. pilularis	Fr.
Baccharis salicifolia	Fr.
Calystegia sepium ssp. limnophila	Oc.
Carex alma	Oc.
Carex praegracilis	Oc.
Clematis ligusticifolia	Oc.
Datura wrightii	Oc.
Eleocharis macrostachya	Oc.
Eleocharis montevidensis	Oc.
Eriophyllum confertiflorum	Fr. to Oc.
Euthamia occidentalis	Fr. to Oc.
Fraxinus velutina	Oc.
Heteromeles arbutifolia var. arbutifolia	Oc.
Hoita (Psoralea) macrostachya	Oc.
Juglans californica var. californica**	Fr.
Juncus effusus	Oc.
Juncus patens	Oc.
Juncus rugulosus	Oc.
Juncus textilis	Oc.
Juncus xiphioides	Oc.
Keckiella cordifolia	Oc.
Leptochloa fusca ssp. uninervia (Leptochloa uninervia)	Oc.
Leymus condensatus	Oc.
Leymus triticoides	Oc.
Lotus scoparius	Oc.
Lupinus latifolius var. parishii	Oc.
Malosma laurina	Fr.
Mimulus (Diplacus) aurantiacus** (M.(D.) longiflorus)	Fr.
Muhlenbergia rigens	Oc.
Platanus racemosa	Dom.
Pluchea odorata	Oc.
Populus fremontii ssp. fremontii	Oc.
Prunus ilicifolia ssp. ilicifolia	Oc.
Quercus agrifolia var. agrifolia	Oc.

Scientific Name	Frequency
Rhamnus californica ssp. californica	Fr. to Oc.
Rhamnus ilicifolia (R. crocea ssp. ilicifolia)	Fr. to Oc.
Rhus integrifolia	Oc.
Rhus trilobata	Fr. to Oc.
Ribes aureum var. gracillimum	Fr. to Oc.
Ribes californicum var. hesperium	Oc.
Ribes speciosum	Oc.
Rosa californica	Fr. to Oc.
Rubus ursinus	Fr. to Oc.
Salix lasiolepis	Oc.
Salvia apiana	Fr. to Oc.
Sambucus mexicana	Subdom.
Scirpus acutus var. occidentalis	Oc.
Scirpus californicus	Oc.
Scrophularia californica ssp. floribunda	Oc.
Solidago californica	Fr. to Oc.
Solidago confinis	Fr. to Oc.
Stachys ajugoides var. ajugoides	Oc.
Stachys ajugoides var. rigida	Oc.
Stachys albens	Oc.
Stachys bullata	Fr. to Oc.
Symphoricarpos mollis	Fr. to Oc.
Thalictrum fendleri var. polycarpum	Oc.
Typha domingensis	Oc.
Typha latifolia	Oc.
Umbellularia californica	Fr. to Oc.
Urtica holosericea	Oc.
Verbena lasiostachys	Oc.
Vicia americana ssp. americana	Oc.
Vitis girdiana	Oc.
Woodwardia fimbriata	Oc.

* Plants included in the CNPS Inventory of Rare & Endangered Plants of California

** Plants of local concern or uniqueness

*** State or federally listed plants

from PLANT LISTS FOR THE SAN GABRIEL RIVER WATERSHED Bart O'Brien 12/20/07

SOUTHERN WILLOW SCRUB - PLANT ASSOCIATION

Vegetation Type - sws Souther Willow Scrub

Scientific Name	Frequency
Amborsia psylostachya	
Amsinckia menziesii	
Artemesia douglasiana	
Baccharis salicifolia	
Hazardia squarrosus var. grindelioides	
Lupine bicolor	
Muhlenbergia rigens	
Platanus racemosa	
Populus fremontii	
Rubus ursinus	
Salix gooddingii	
Salix laevigata	
Salix lasiolepis	

May 31-2012

Canyon Inn

Geomorphic and Hydraulic Site Conditions

The purpose of this study is to determine probable water surface elevations along a stretch of San Gabriel River surrounding the Canyon Inn Property and the Highway 39 bridge in the City of Azusa. The study is in support of a bikeway feasibility study and design development for riparian restoration at the Canyon Inn Site. While the output of this work may be used and be helpful for general planning purposes by engineers, this work does not constitute engineering work and shall not be relied upon during subsequent engineering design or construction.

Geomorphology

The geomorphology of the study area is that of an incised canyon meander, which is formed due to down-cutting of the San Gabriel River through channel erosion. As the rapid tectonic uplift happens simultaneously with the down-cutting of the river, the resulting topography is that of a River Canyon with steep side walls. While the channel base is near bedrock, there are substantive alluvial gravel deposits stored within the canyon bottom. These are commonly reworked and redistributed throughout the canyon floor by fluvial sediment transport during floods. This results in a channel morphology that is dominated by a string of alluvial gravel bars flanking the main river channel. In the wider and more curved portions of the canyon, a complex meander topography has evolved that includes a large gravel-based point bar that is the focal point for the Canyon Inn property west of the Highway 39 bridge.

Another large point bar is located east of the bridge on the north side of the river. This area includes the Rainbow Ranch and Taylor House properties and the access road to portions of the Canyon Inn located north of the river. This point bar is higher in elevation and includes thick sandy deposits. The flat area that used to be the location of the Canyon Inn on the south side of the river and east of the highway was likely a river terrace or high gravel bar covered with a sandy deposit. It appears that a large amount of fill was placed on top of that surface to prepare the land for agricultural use or development. This area borders the river and a steep engineered earthen slope now constitute the southern bank of the river as it approaches the highway bridge.

Stream flow at the site is regulated by three dams within the watershed: Cogswell, San Gabriel, and Morris Dams. Morris Dam, only two miles upstream of the project site is owned by the Metropolitan Water District (MWD). It was originally constructed by the City of Pasadena as Pine Canyon Dam in 1934 and purchased by the Metropolitan Water District in 1935. The dam is currently operated by LACDPW

but remains in ownership of the MWD. Substantial improvements to the outlet structures of Morris Dam are underway.

Stream flows are characterized by high flood peaks of relatively short duration, substantially moderated or delayed by upstream storage. Flood release patterns at Morris Dam are essentially unmanaged to around 2000 cfs. Larger floods are contained and, when needed, released at more than 5000 cfs. The result is that lower to medium flood frequencies are reduced and floods reach their peak rapidly once Morris Reservoir is full to capacity. More information on the general hydraulics of the channel are contained in the El Encanto Master Plan produced in 2007.

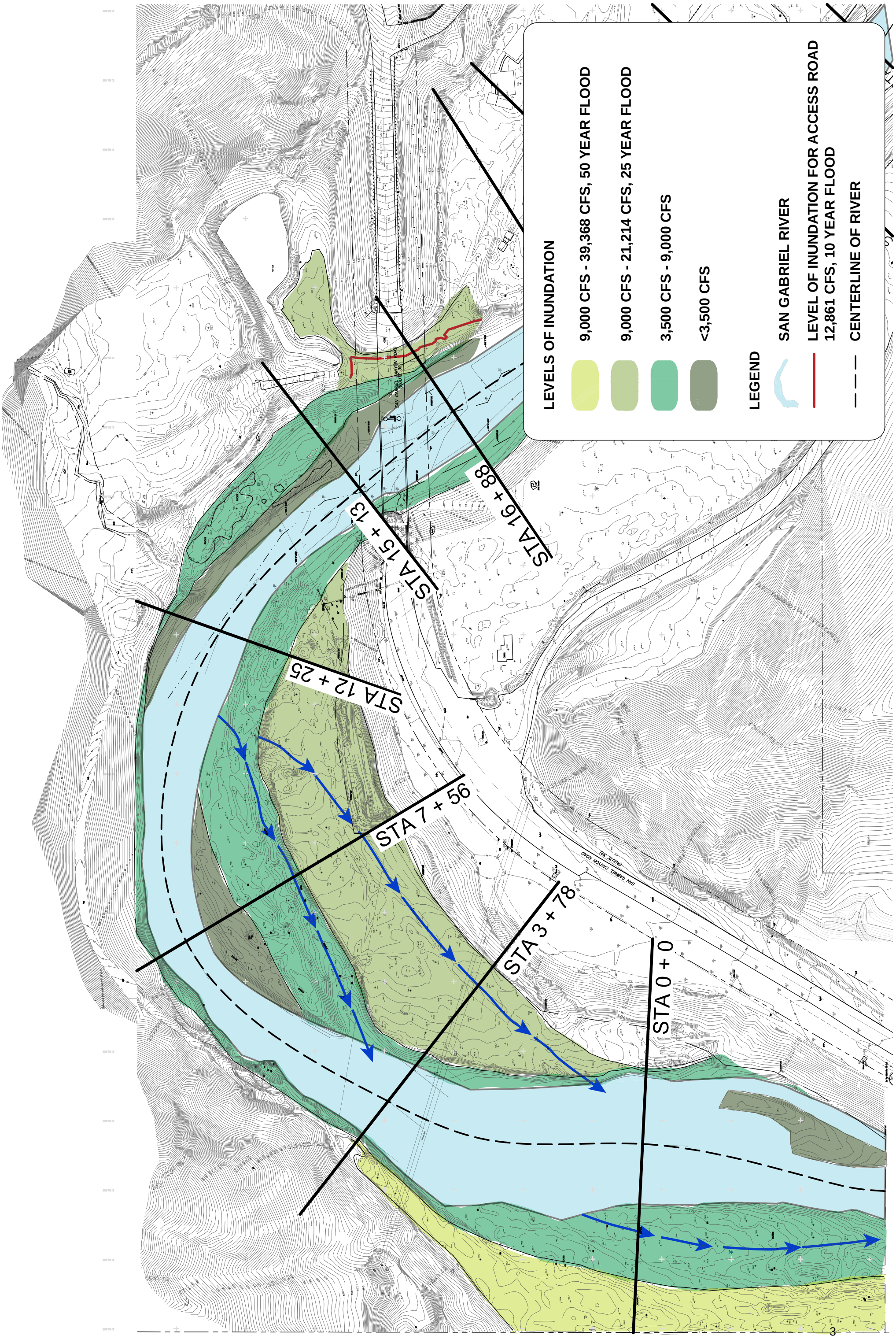
Hydraulics

A component of the planning effort of this work was to evaluate habitat restoration potential and strategies. To better understand the dynamics of the gravel bars within the project site a HEC-RAS hydraulic model was used to evaluate at which frequencies and discharges the gravel bars at the project site are likely to be inundated. This study utilized an existing study for the reach above the highway bridge along the El Encanto project.

The capital flood for this river reach is reported as 86,700 cfs based on a 1948-study performed at the Morris Dam (Jared Deck, LACDPW, 2007, pers. comm.). Assuming that this value is still valid proposed project elements should be designed to withstand a flood of this magnitude. The Capital Flood Protection would also govern over any physical alterations of the bank areas of the river channel and even minor alterations would have to be shown not to impact flood safety at the Capital Flood level of protection.

The HEC-RAS Model (4.1.0) was created by adding 7 additional cross-sections taken from a topographic survey. The model was run allowing for a mixed sub/supercritical flow regime using critical depth to approximate the initial boundary conditions. Standard Manning's roughness coefficient tables (based on Chow's tabulation) were used to determine initial channel bed roughness of 0.045 for the channel bed and over-bank areas and floodplain roughness was set to 0.060 to account for brush along the banks and larger boulders on the floodplains and point bar. The model does not account for stream channel curvature in the actual flow calculations.

Flows were modeled in 500 cfs increments between 500 and 4000 cfs, and in 1000 cfs increments between 4000 and 11000 cfs. Flows were also evaluated for the 2, 5, 10, 25, 50, and 100 year floods and the capital flood using a previously determined flood frequency relationship (Kammerer, 2007). Model results indicate that the stream reach is poorly behaved showing multiple hydraulic jumps and switches between super and subcritical flow regimes. This is to be expected in a large relatively steep stream reach of this size. Presence of several natural rock steps through the curved reach are an indication of rapids with multiple hydraulic jumps during higher flows. Model results are summarized in the attached model output tables and cross-sections.


LEVELS OF INUNDATION
9,000 CFS - 39,368 CFS, 50 YEAR FLOOD
9,000 CFS - 21,214 CFS, 25 YEAR FLOOD
3,500 CFS - 9,000 CFS
<3,500 CFS
LEGEND
SAN GABRIEL RIVER
LEVEL OF INUNDATION FOR ACCESS ROAD
12,861 CFS, 10 YEAR FLOOD
CENTERLINE OF RIVER
SAN GABRIEL CANYON ROAD (ROUTE 39)
STA 16 + 88
STA 15 + 13
STA 12 + 25
STA 7 + 56
STA 3 + 78
STA 0 + 0

Geomorphic Model Analysis

The purpose of incremental modeling is to determine a bankful discharge level and to approximate inundation frequencies for gravel bars, floodplains and stream-adjacent surfaces. Understanding these frequencies of inundation allows better restoration planning and helps determine whether older gravel bars are active within the current flow regime ore are relics from a previous regime. This analysis is also helpful for planning purposes as it allows placement of open space improvements outside of the current flood zones.

During an initial geomorphologic evaluation gravel bar surfaces were mapped and the hydraulic model was used to determine at which discharges and frequencies surfaces become flooded. This classification of gravel bars is summarized in figure 1 and can be explained as follows:

Lower Gravel Bars

These gravel bars consist of smaller mid-channel bars and frequently inundated bars along the banks. These bars are inundated in a flow range above 500-1000 cfs and are fully inundated at around 3,500 cfs which corresponds to the 3.4 year flood. When located along the channel fringes these surfaces are generally bounded by a steep outer bank that separates them from the next higher bar.

Intermediate Gravel Bars

Once a flow level of 9000 cfs is reached the river starts to widen and inundates a set of higher lying gravel bars. The onset of inundation for these bars is equivalent to a full flood stage with initial inundation of a floodplain. Hence, the 9000 cfs flow level is roughly equivalent to bankful discharge with a recurrence interval of 6.6 years. At an inundation level equivalent to 21,000 cfs and a recurrence interval of 25 years these intermediate bars are fully inundated and are fully contained by the surrounding bank slopes up to the Capital Flood with 86,700 cfs.

Upper Gravel Bars

Only along the downstream end of the river reach does the channel significantly widen to display a greater braided topography. Particularly on the west side of the river along the Mountain Cove Development does the gravel bar become significantly wider and accommodates much greater flow from 9000 cfs to roughly 40,000 cfs, which is equivalent to a 50 year recurrence interval. It represents the highest level of gravel bar inundation in the project site.

Other Notable Elements

The “Oasis” area at Azusa Springs is subject to inundation at the 25 year flow level and the access road under the bridge becomes inundated and impassable during the 10 year flood. The capital flood under the bridge shows a water surface elevation of 810.6 feet at near critical conditions.

Sources:

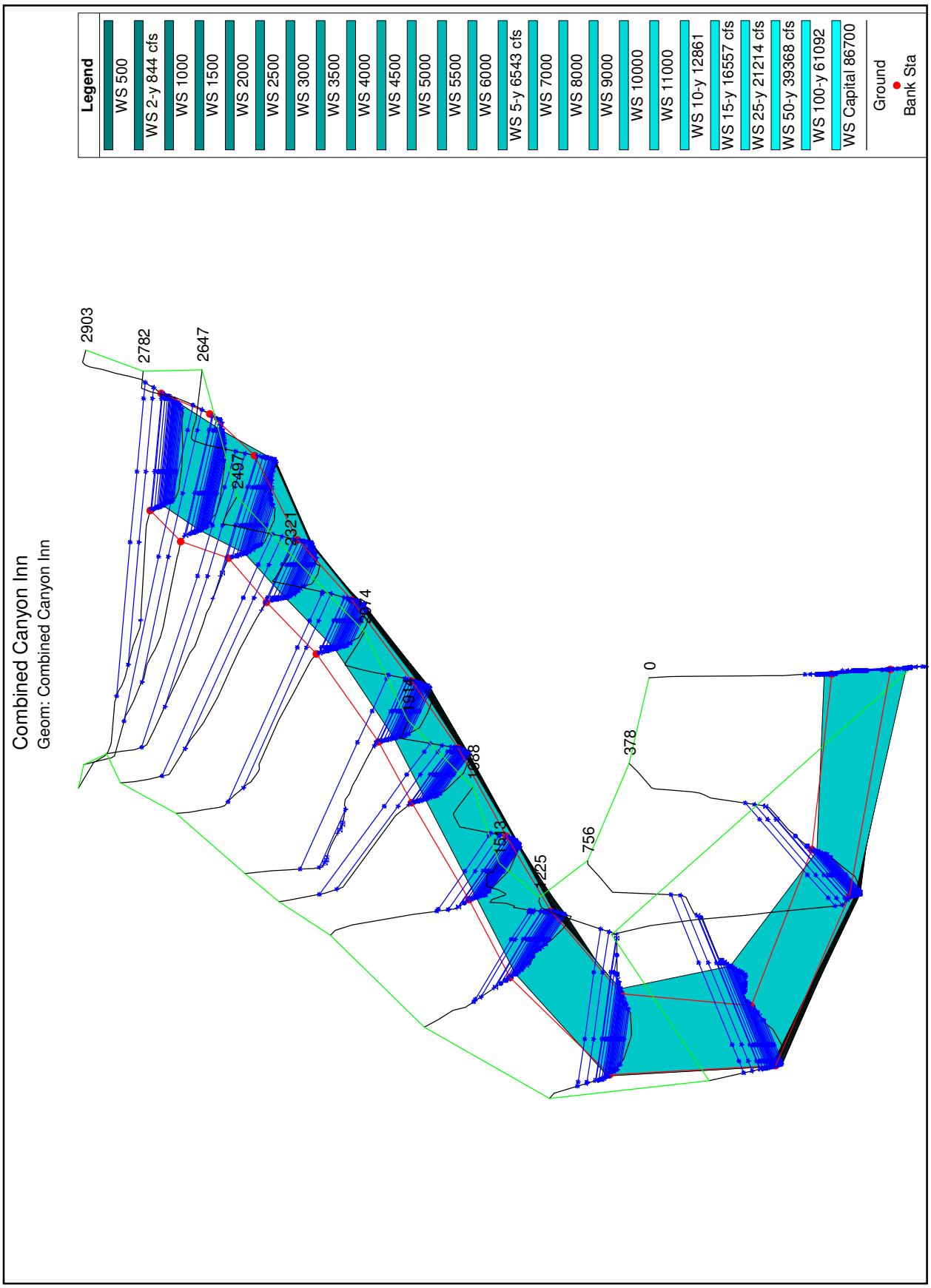
County of Los Angeles Department of Public Works (2007): Morris Dam Water Supply Enhancement Project, Final Initial Study and Mitigated Negative Declaration, Prepared By: EDAW Inc., March 2007.

Kammerer, M. T. (2007):Hydraulic Conditions and Preliminary Feasibility of Improvements at the El Encanto Property Site, Appendix to the "Azusa River Wilderness Master Plan" prepared for the Watershed Conservation Authority. http://watershedconservationauthority.org/plans/AzusaWilderness20Park/El%20Encanto%20WCA%20Master%20Plan.pdf

U.S. Army Corps of Engineers (1991): Water Control Manual, Santa Fe Dam and Reservoir, San Gabriel River, Los Angeles County, California, Prepared by Los Angeles District Reservoir Regulation Section

Appendix A:

MODEL OUTPUT

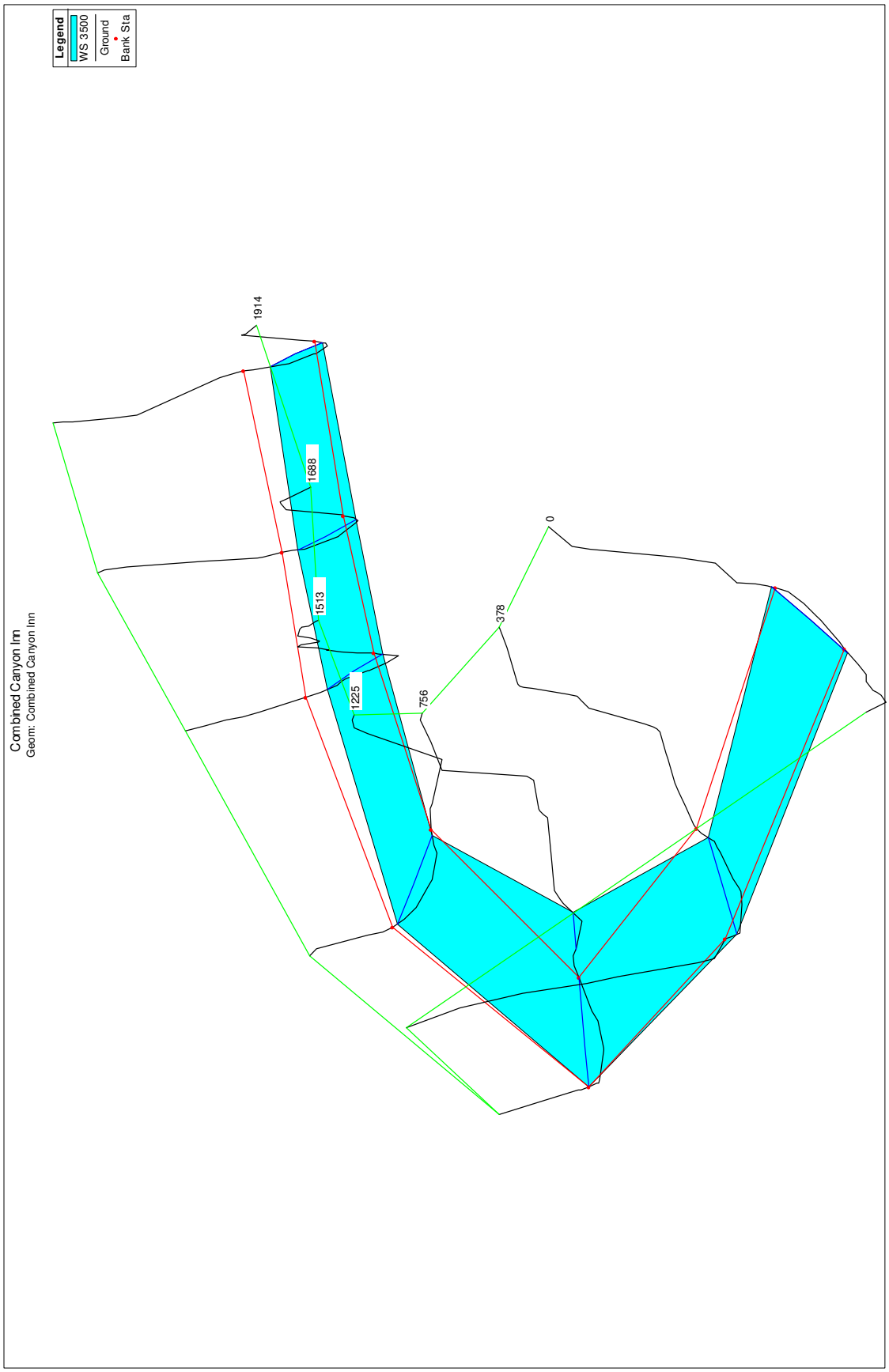

Legend
WS 500
WS 2-y 844 cfs
WS 1000
WS 1500
WS 2000
WS 2500
WS 3000
WS 3500
WS 4000
WS 4500
WS 5000
WS 5500
WS 6000
WS 5-y 6543 cfs
WS 7000
WS 8000
WS 9000
WS 10000
WS 11000
WS 10-y 12861
WS 15-y 16557 cfs
WS 25-y 21214 cfs
WS 50-y 39368 cfs
WS 100-y 61092
WS Capital 86700
Ground
Bank Sta
Combined Canyon Inn
Geom: Combined Canyon Inn
2903
2782
2647
2497
2321
2174
1917
1688
1513
1225
756
378
0

HEC-RAS Plan: Plan 01 River: San Gabriel Reach: El Encanto

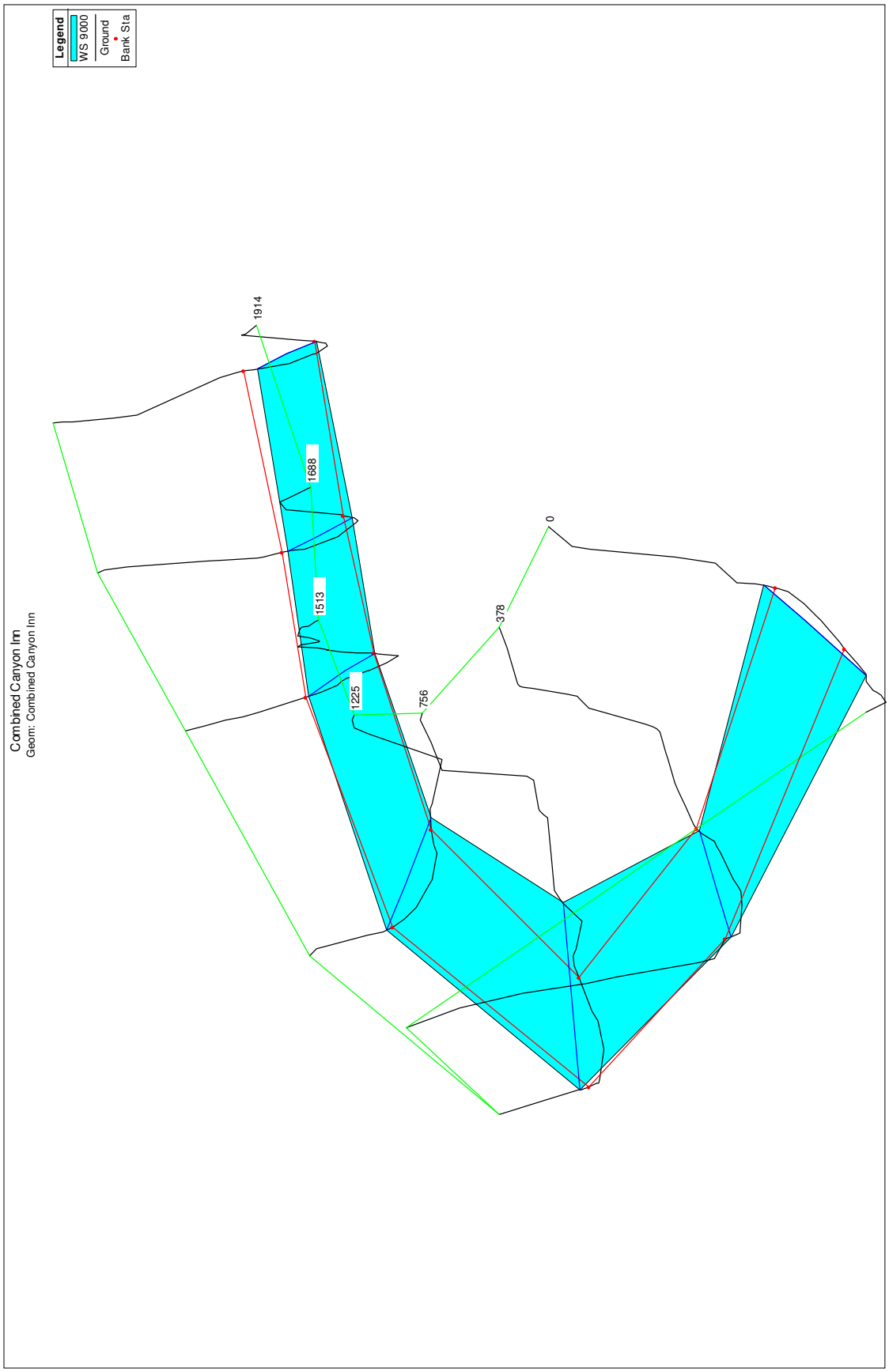
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Hydr Depth C
			(cfs)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)
El Encanto	1914	2-y 844 cfs	844.00	798.25	801.65	801.82	0.004023	3.35	251.65	123.95	0.41	2.03
El Encanto	1914	3500	3500.00	798.25	803.97	804.56	0.005655	6.17	567.51	144.14	0.55	3.94
El Encanto	1914	5-y 6543 cfs	6543.00	798.25	805.61	806.62	0.006599	8.06	811.34	154.27	0.62	5.26
El Encanto	1914	9000	9000.00	798.25	806.65	807.97	0.007170	9.23	974.65	160.70	0.66	6.06
El Encanto	1914	10-y 12861	12961.00	798.25	808.03	809.83	0.007804	10.78	1202.18	167.71	0.71	7.20
El Encanto	1914	15-y 16557 cfs	16557.00	798.25	809.06	811.31	0.008254	12.03	1377.91	171.07	0.74	8.14
El Encanto	1914	25-y 21214 cfs	21214.00	798.25	810.19	813.03	0.008927	13.53	1571.98	177.37	0.79	9.17
El Encanto	1914	50-y 39368 cfs	22500.00	798.25	810.45	813.47	0.009127	13.94	1619.73	182.06	0.80	9.43
El Encanto	1914	100-y 61092	39368.00	798.25	814.22	818.38	0.008359	16.70	2805.10	453.89	0.81	13.20
El Encanto	1914	Capital 86700	61092.00	798.25	819.36	822.69	0.004935	15.98	5201.33	476.25	0.66	18.34
El Encanto	1688	2-y 844 cfs	844.00	797.50	799.65	800.20	0.028479	5.90	142.93	130.96	1.00	1.09
El Encanto	1688	3500	3500.00	797.50	801.46	802.55	0.018344	8.41	416.03	160.81	0.92	2.59
El Encanto	1688	5-y 6543 cfs	6543.00	797.50	802.81	804.42	0.016567	10.19	641.91	172.05	0.93	3.73
El Encanto	1688	9000	9000.00	797.50	803.72	805.68	0.015724	11.24	800.84	178.04	0.93	4.50
El Encanto	1688	10-y 12861	12961.00	797.50	804.95	807.43	0.015227	12.64	1025.23	186.18	0.95	5.51
El Encanto	1688	15-y 16557 cfs	16557.00	797.50	805.89	808.83	0.014987	13.78	1205.15	199.08	0.96	6.35
El Encanto	1688	25-y 21214 cfs	21214.00	797.50	807.01	810.47	0.014500	14.94	1437.93	215.04	0.97	7.35
El Encanto	1688	50-y 39368 cfs	22500.00	797.50	807.30	810.89	0.014375	15.22	1501.48	219.20	0.97	7.61
El Encanto	1688	100-y 61092	39368.00	797.50	810.26	815.67	0.014244	18.83	2168.46	229.19	1.02	10.55
El Encanto	1688	Capital 86700	61092.00	797.50	814.14	820.74	0.011615	20.96	3076.97	239.27	0.97	14.43
El Encanto	1513	2-y 844 cfs	844.00	793.50	796.45	796.77	0.006628	4.51	187.02	85.10	0.54	2.20
El Encanto	1513	3500	3500.00	793.50	799.28	800.02	0.009192	6.92	506.10	154.94	0.67	3.27
El Encanto	1513	5-y 6543 cfs	6543.00	793.50	800.97	802.04	0.008721	8.32	786.67	175.23	0.69	4.49
El Encanto	1513	9000	9000.00	793.50	802.04	803.35	0.008544	9.18	980.40	185.23	0.70	5.29
El Encanto	1513	10-y 12861	12961.00	793.50	803.46	805.13	0.008162	10.38	1252.28	197.66	0.71	6.59
El Encanto	1513	15-y 16557 cfs	16557.00	793.50	804.49	806.52	0.008168	11.44	1460.87	206.43	0.73	7.62
El Encanto	1513	25-y 21214 cfs	21214.00	793.50	805.76	808.18	0.007964	12.52	1729.20	217.20	0.74	8.89
El Encanto	1513	50-y 39368 cfs	22500.00	793.50	806.08	808.60	0.007937	12.79	1799.45	219.93	0.74	9.21
El Encanto	1513	100-y 61092	39368.00	793.50	809.04	813.26	0.009279	16.66	2489.02	246.19	0.84	12.17
El Encanto	1513	Capital 86700	61092.00	793.50	810.64	818.33	0.014485	22.60	2894.34	260.90	1.07	13.77
El Encanto	1225	2-y 844 cfs	844.00	791.50	794.14	794.47	0.009878	4.62	182.76	109.29	0.63	1.67
El Encanto	1225	3500	3500.00	791.50	796.54	797.33	0.009425	7.15	489.46	146.38	0.69	3.34
El Encanto	1225	5-y 6543 cfs	6543.00	791.50	798.03	799.30	0.010199	9.05	725.21	170.14	0.75	4.49
El Encanto	1225	9000	9000.00	791.50	798.90	800.58	0.010620	10.40	880.19	185.14	0.79	5.36
El Encanto	1225	10-y 12861	12961.00	791.50	800.12	802.38	0.010944	12.10	1119.26	208.35	0.83	6.58
El Encanto	1225	15-y 16557 cfs	16557.00	791.50	801.28	803.85	0.010174	13.00	1383.92	248.66	0.82	7.74

HEC-RAS Plan: Plan 01 River: San Gabriel Reach: El Encanto (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Hydr Depth C
			(cfs)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)
El Encanto	1225	25-y 21214 cfs	21214.00	791.50	802.28	805.46	0.010835	14.54	1649.65	283.42	0.87	8.74
El Encanto	1225	50-y 39368 cfs	22500.00	791.50	802.53	805.87	0.011015	14.94	1720.76	291.10	0.88	8.99
El Encanto	1225	100-y 61092	39368.00	791.50	805.69	810.35	0.010872	18.15	2658.93	301.69	0.92	12.15
El Encanto	1225	Capital 86700	61092.00	791.50	808.99	815.04	0.010647	21.08	3672.75	312.74	0.94	15.45
El Encanto	756	2-y 844 cfs	844.00	787.00	790.03	790.33	0.007733	4.41	191.34	102.47	0.57	1.88
El Encanto	756	3500	3500.00	787.00	792.53	793.23	0.008129	6.82	558.42	191.41	0.64	3.50
El Encanto	756	5-y 6543 cfs	6543.00	787.00	794.14	795.17	0.007501	8.43	908.86	237.64	0.66	5.10
El Encanto	756	9000	9000.00	787.00	795.22	796.44	0.007021	9.27	1169.23	244.66	0.66	6.18
El Encanto	756	10-y 12861	12961.00	787.00	796.69	798.19	0.006696	10.44	1536.87	255.94	0.66	7.65
El Encanto	756	15-y 16557 cfs	16557.00	787.00	797.81	799.76	0.007173	11.83	1857.96	359.82	0.70	8.77
El Encanto	756	25-y 21214 cfs	21214.00	787.00	798.81	801.11	0.007589	13.08	2220.37	365.40	0.74	9.77
El Encanto	756	50-y 39368 cfs	22500.00	787.00	799.08	801.46	0.007620	13.35	2321.98	367.14	0.74	10.05
El Encanto	756	100-y 61092	39368.00	787.00	802.22	805.50	0.007888	16.28	3568.08	417.53	0.79	13.18
El Encanto	756	Capital 86700	61092.00	787.00	805.75	809.59	0.007184	18.20	5055.99	423.67	0.78	16.72
El Encanto	378	2-y 844 cfs	844.00	783.50	786.47	786.83	0.011638	4.75	177.51	114.95	0.67	1.54
El Encanto	378	3500	3500.00	783.50	788.40	789.39	0.013590	7.99	437.87	145.74	0.81	3.00
El Encanto	378	5-y 6543 cfs	6543.00	783.50	789.67	791.35	0.015377	10.41	628.30	153.87	0.91	4.08
El Encanto	378	9000	9000.00	783.50	790.48	792.68	0.016637	11.91	755.35	160.11	0.97	4.72
El Encanto	378	10-y 12861	12961.00	783.50	791.71	794.55	0.016477	13.55	959.89	177.28	0.99	5.77
El Encanto	378	15-y 16557 cfs	16557.00	783.50	792.82	796.05	0.014995	14.45	1175.53	215.82	0.97	6.84
El Encanto	378	25-y 21214 cfs	21214.00	783.50	794.46	797.69	0.011478	14.60	1643.67	329.60	0.88	8.48
El Encanto	378	50-y 39368 cfs	22500.00	783.50	794.77	798.07	0.011253	14.81	1748.08	332.75	0.88	8.79
El Encanto	378	100-y 61092	39368.00	783.50	798.00	802.26	0.010296	17.45	2863.23	355.38	0.89	12.02
El Encanto	378	Capital 86700	61092.00	783.50	801.03	806.51	0.010347	20.32	3951.56	363.65	0.92	15.05
El Encanto	0	2-y 844 cfs	844.00	780.00	782.04	782.32	0.012014	4.26	198.08	154.91	0.66	1.28
El Encanto	0	3500	3500.00	780.00	783.75	784.45	0.012015	6.71	523.78	222.01	0.74	2.53
El Encanto	0	5-y 6543 cfs	6543.00	780.00	784.87	785.99	0.012005	8.57	805.74	276.91	0.79	3.65
El Encanto	0	9000	9000.00	780.00	785.59	786.99	0.012003	9.66	1014.69	300.09	0.81	4.37
El Encanto	0	10-y 12861	12961.00	780.00	786.57	788.36	0.012013	11.06	1313.67	311.82	0.84	5.35
El Encanto	0	15-y 16557 cfs	16557.00	780.00	787.34	789.46	0.012005	12.10	1559.10	321.12	0.86	6.12
El Encanto	0	25-y 21214 cfs	21214.00	780.00	787.05	790.96	0.023559	16.40	1465.09	317.59	1.20	5.83
El Encanto	0	50-y 39368 cfs	22500.00	780.00	787.22	791.33	0.023859	16.83	1519.74	319.65	1.21	6.00
El Encanto	0	100-y 61092	39368.00	780.00	789.30	795.47	0.024940	20.99	2273.26	394.66	1.30	8.08
El Encanto	0	Capital 86700	61092.00	780.00	791.29	799.50	0.025821	24.72	3065.99	403.71	1.37	10.07



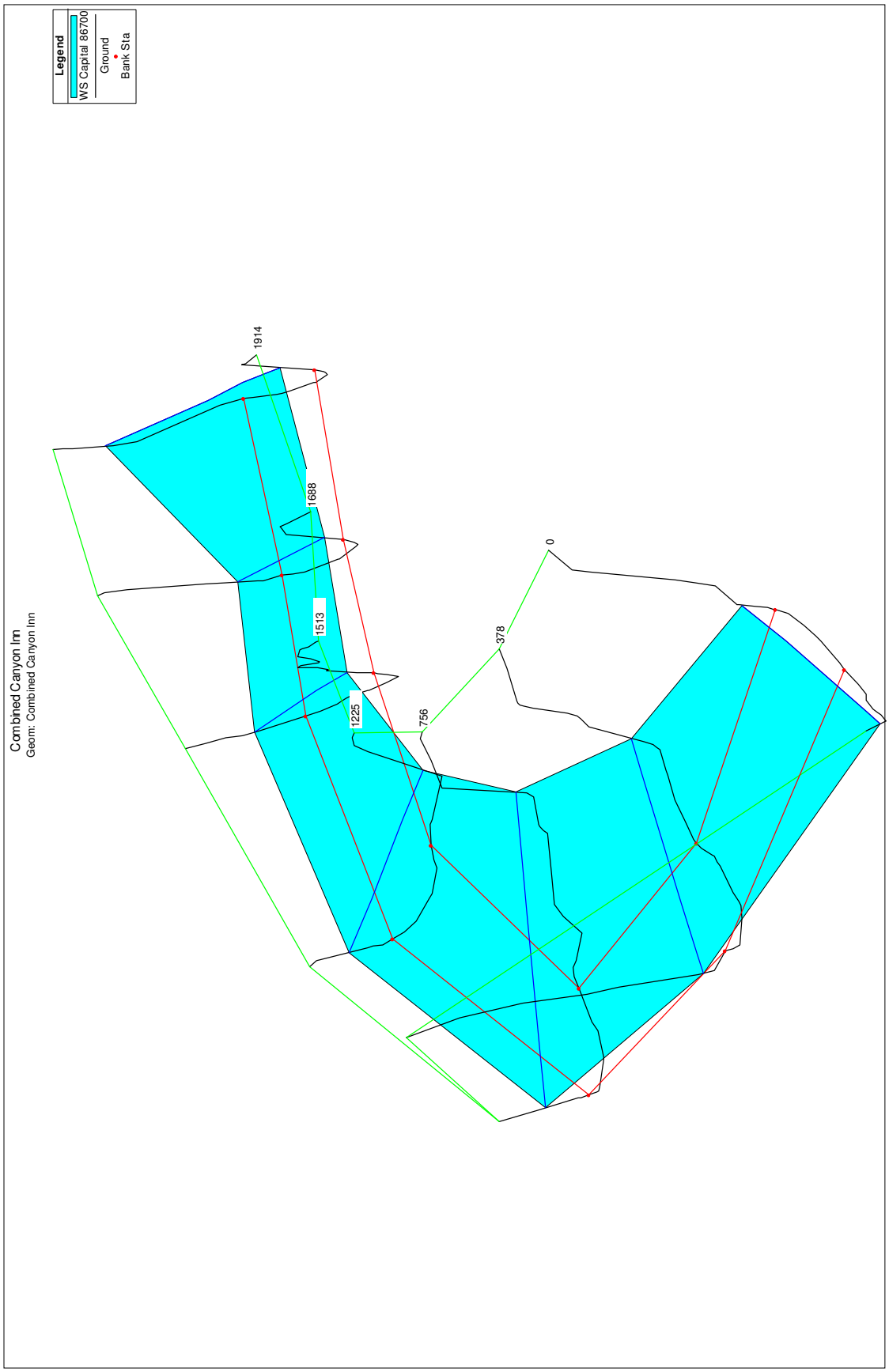
3,500 cfs Model Output: All smaller in-channel bars and current fringe vegetation are submerged.



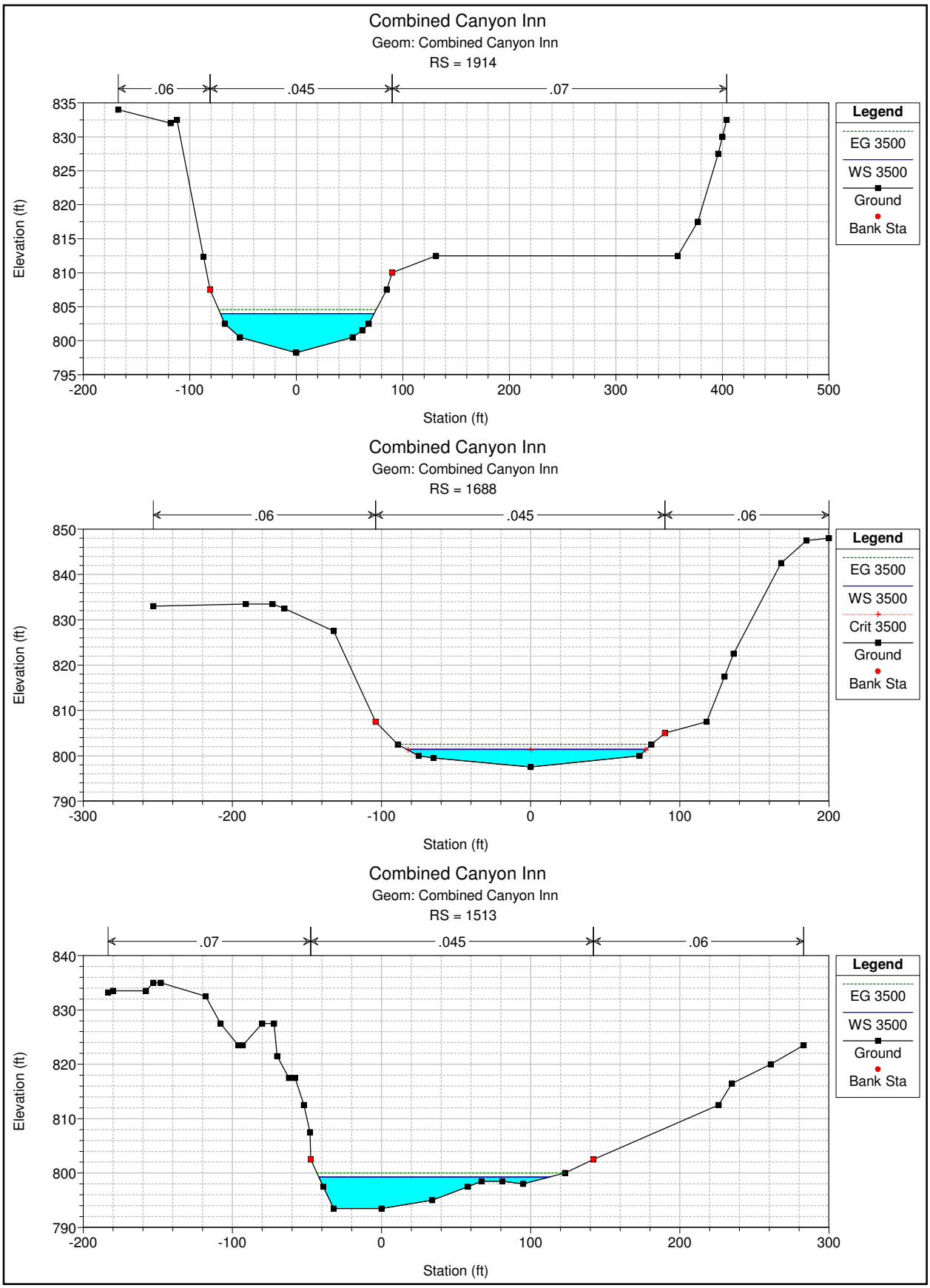
9,000 cfs Model Output: Larger gravel bar complexes and in-channel bars become fully submerged indicating bankful conditions.

25-year 21,214 cfs Model Output: Elevated bar on point par become fully inundated.

50-year 39,368 cfs Model Output: Elevated bar on western bank becomes fully inundated.



Capital Flood 86,700 cfs Model Output: Maximum flood levels fully contained within reach.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Elevation (ft)
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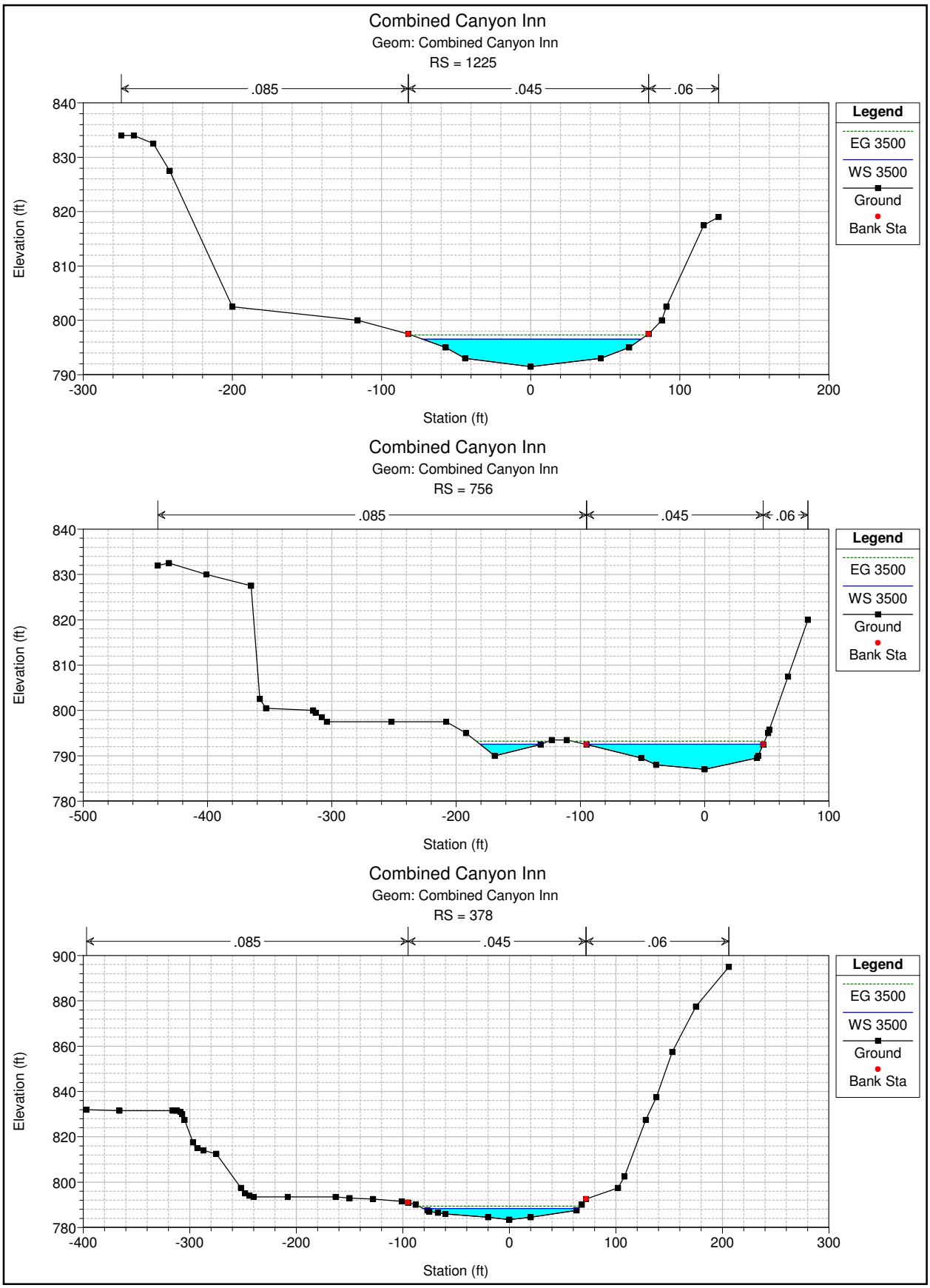
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Combined Canyon Inn
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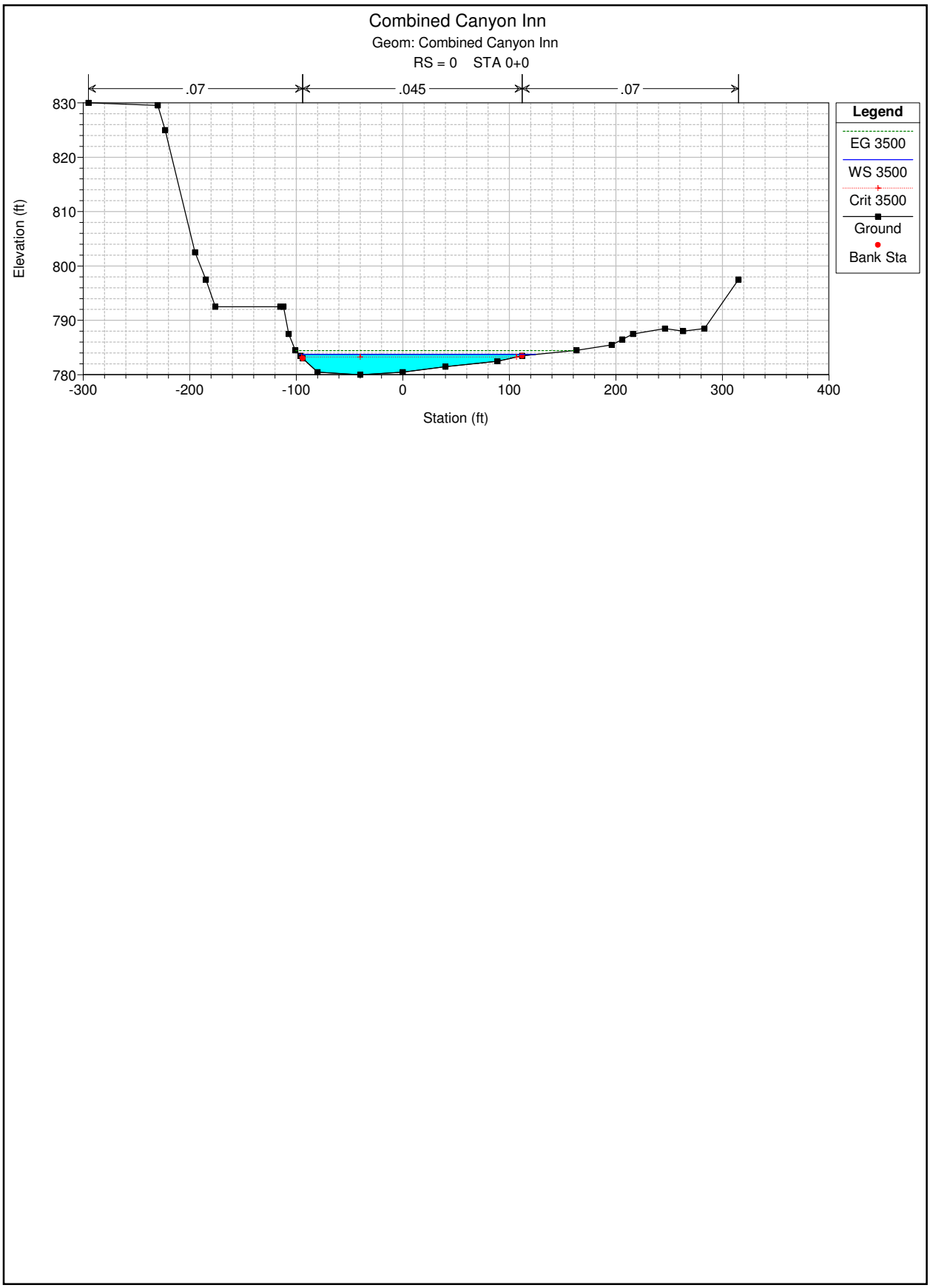
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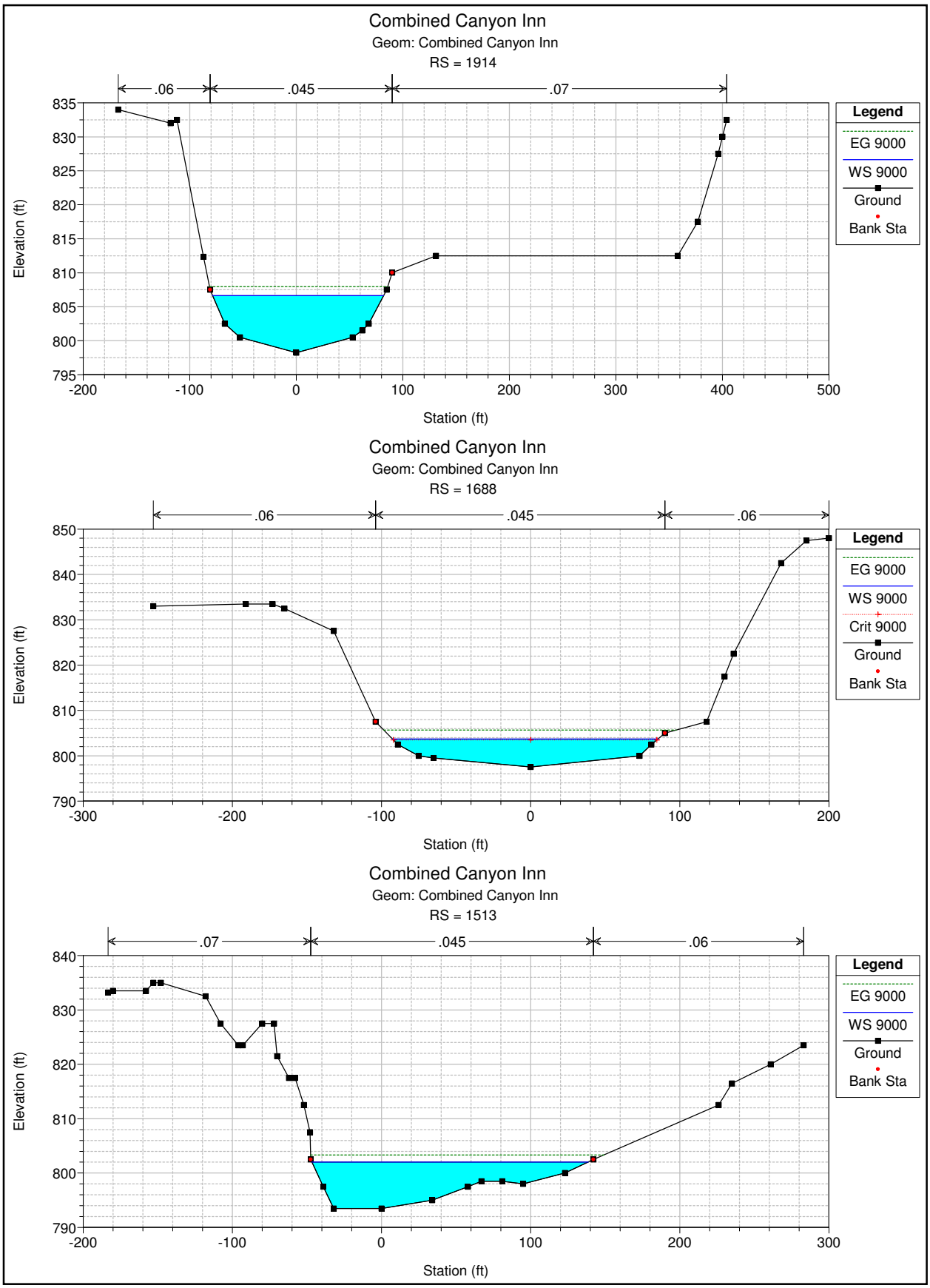
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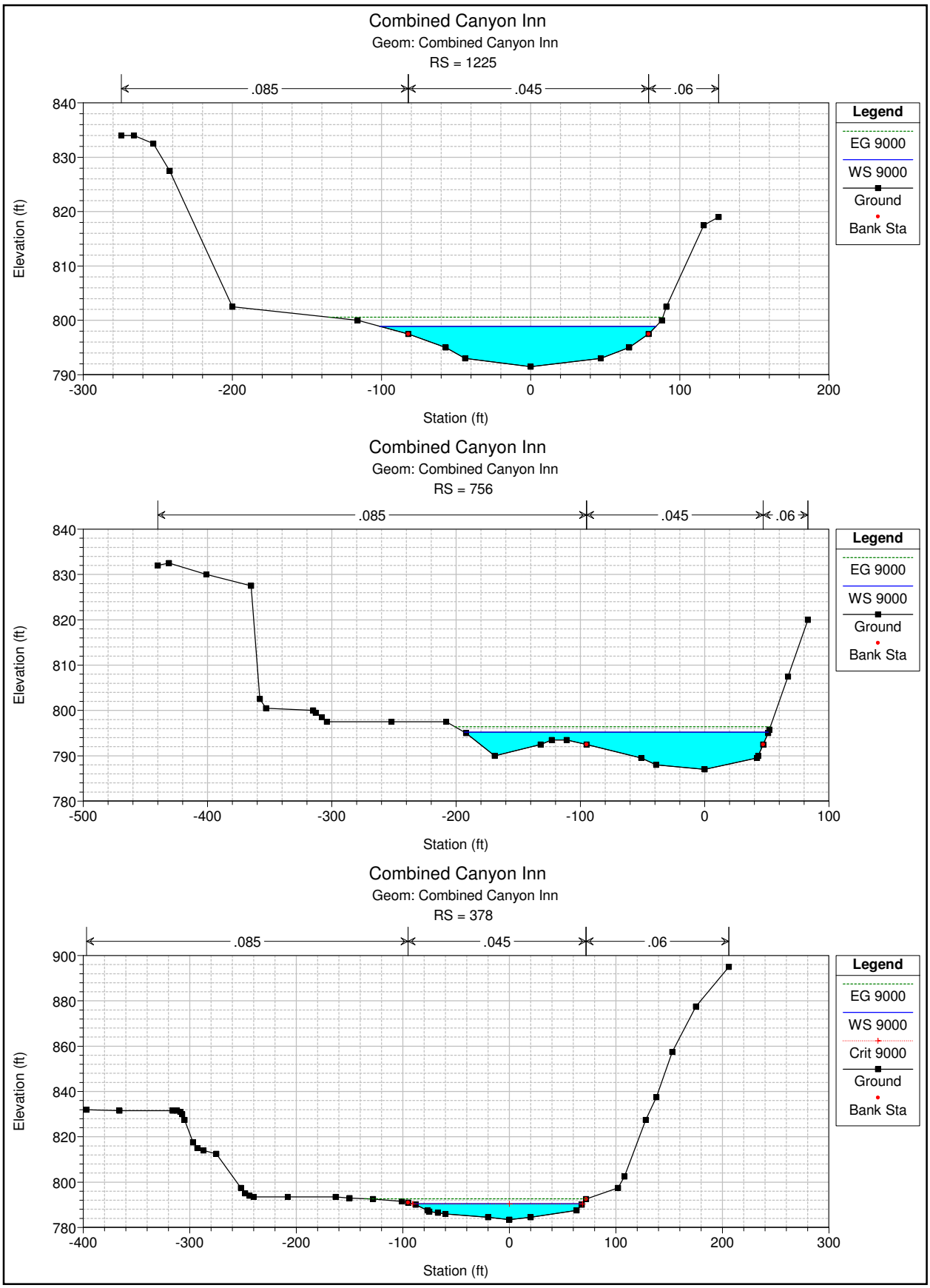
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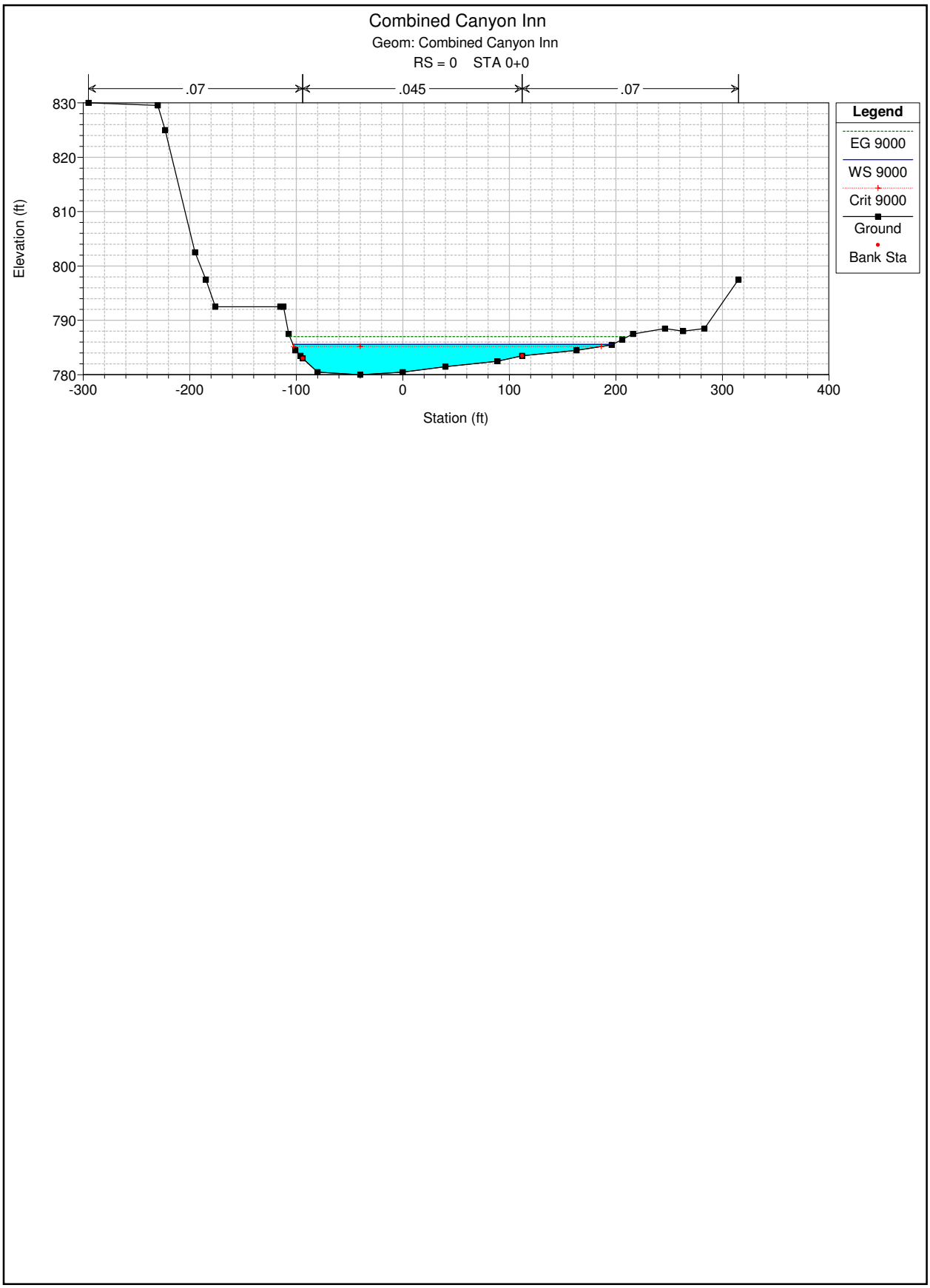
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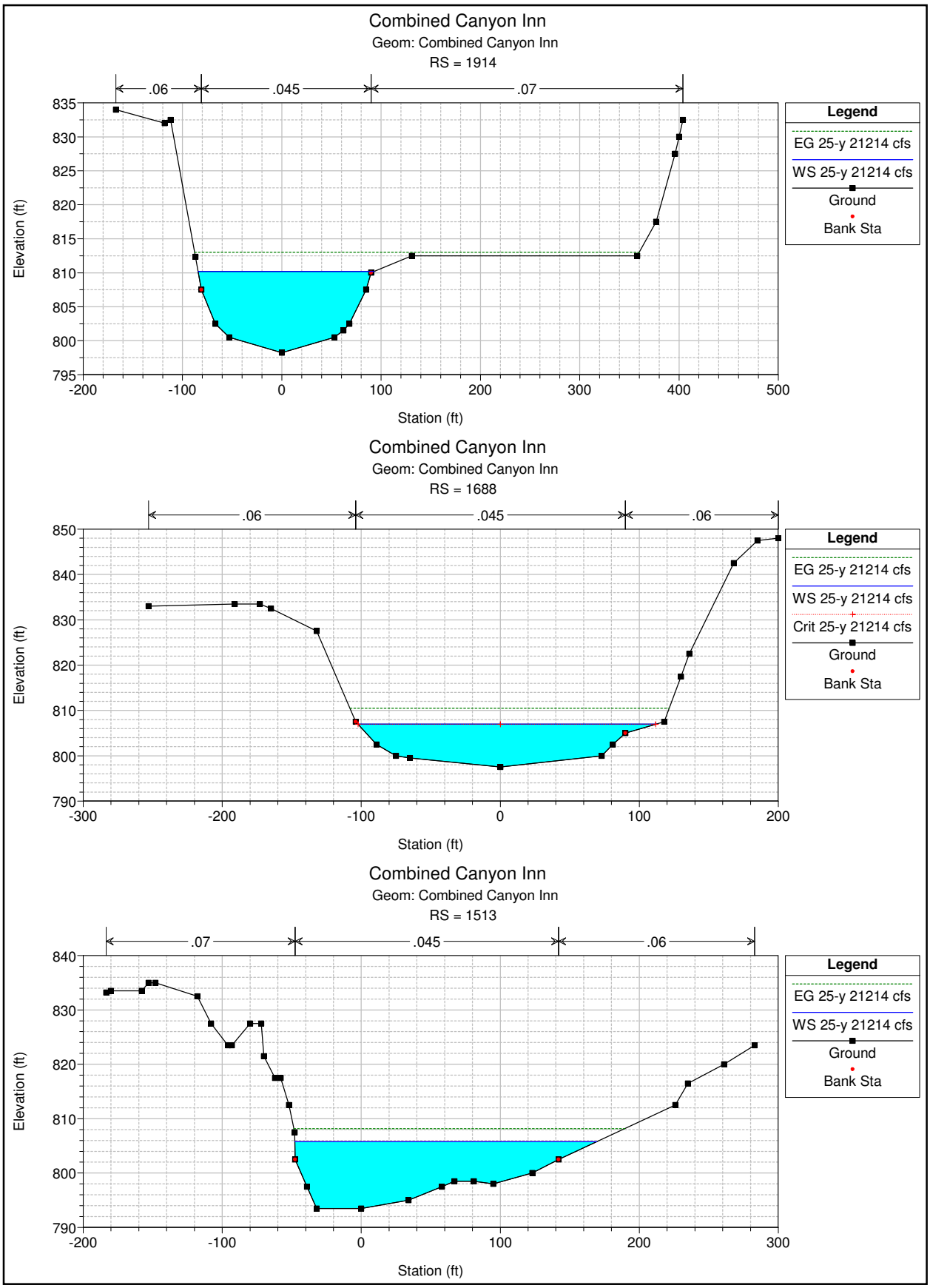
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Geom: Combined Canyon Inn
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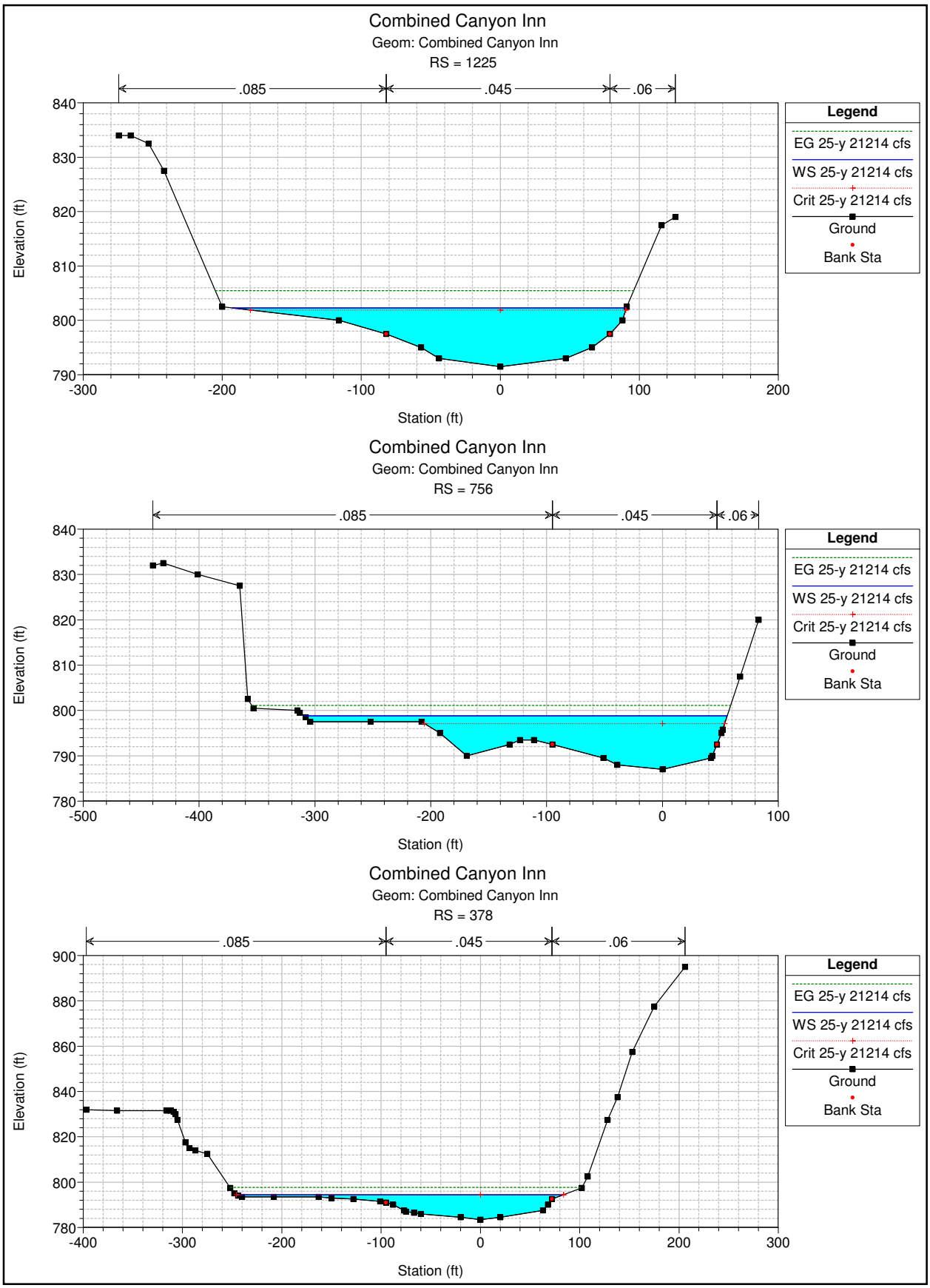
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Geom: Combined Canyon Inn
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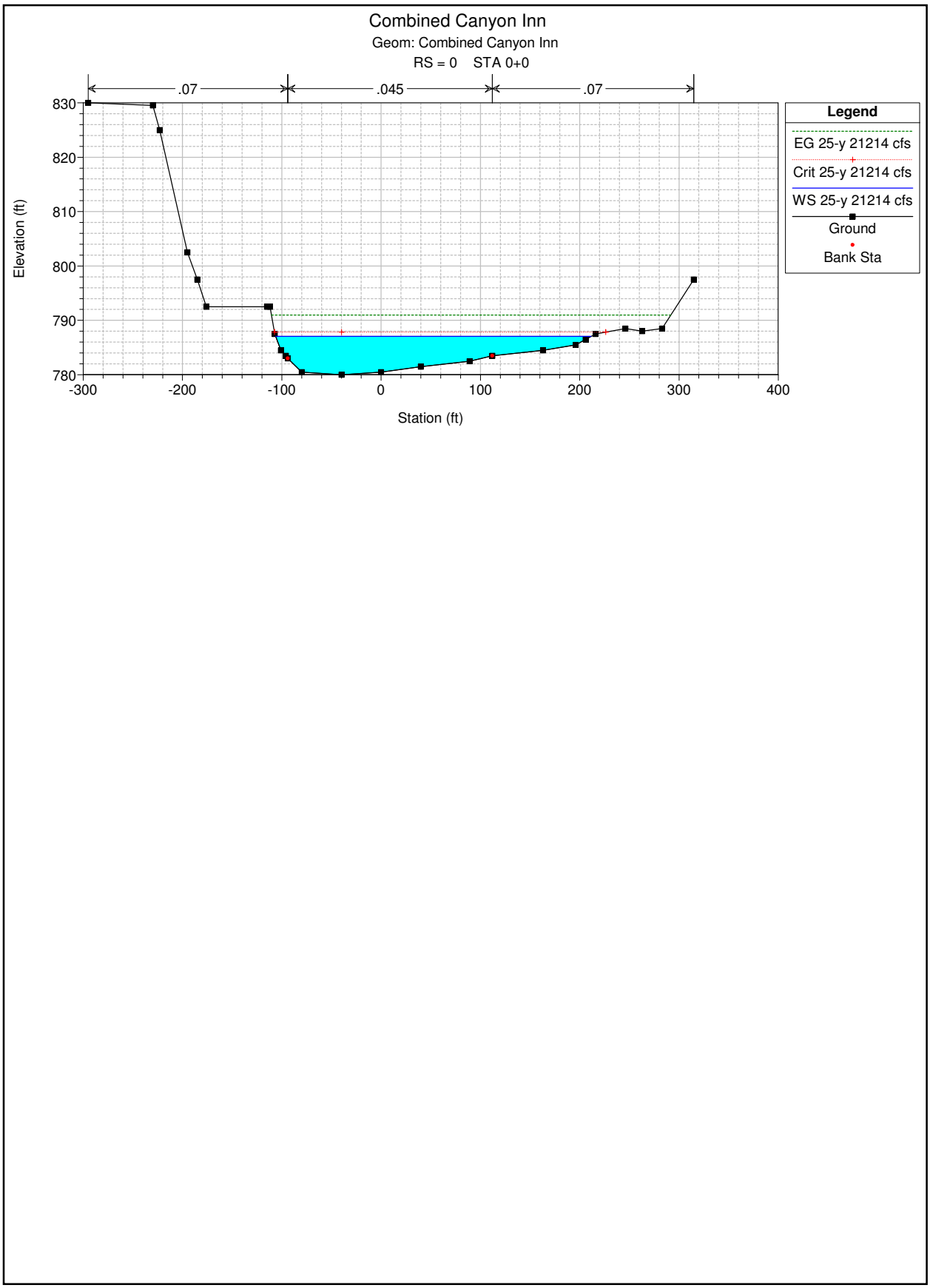
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Geom: Combined Canyon Inn
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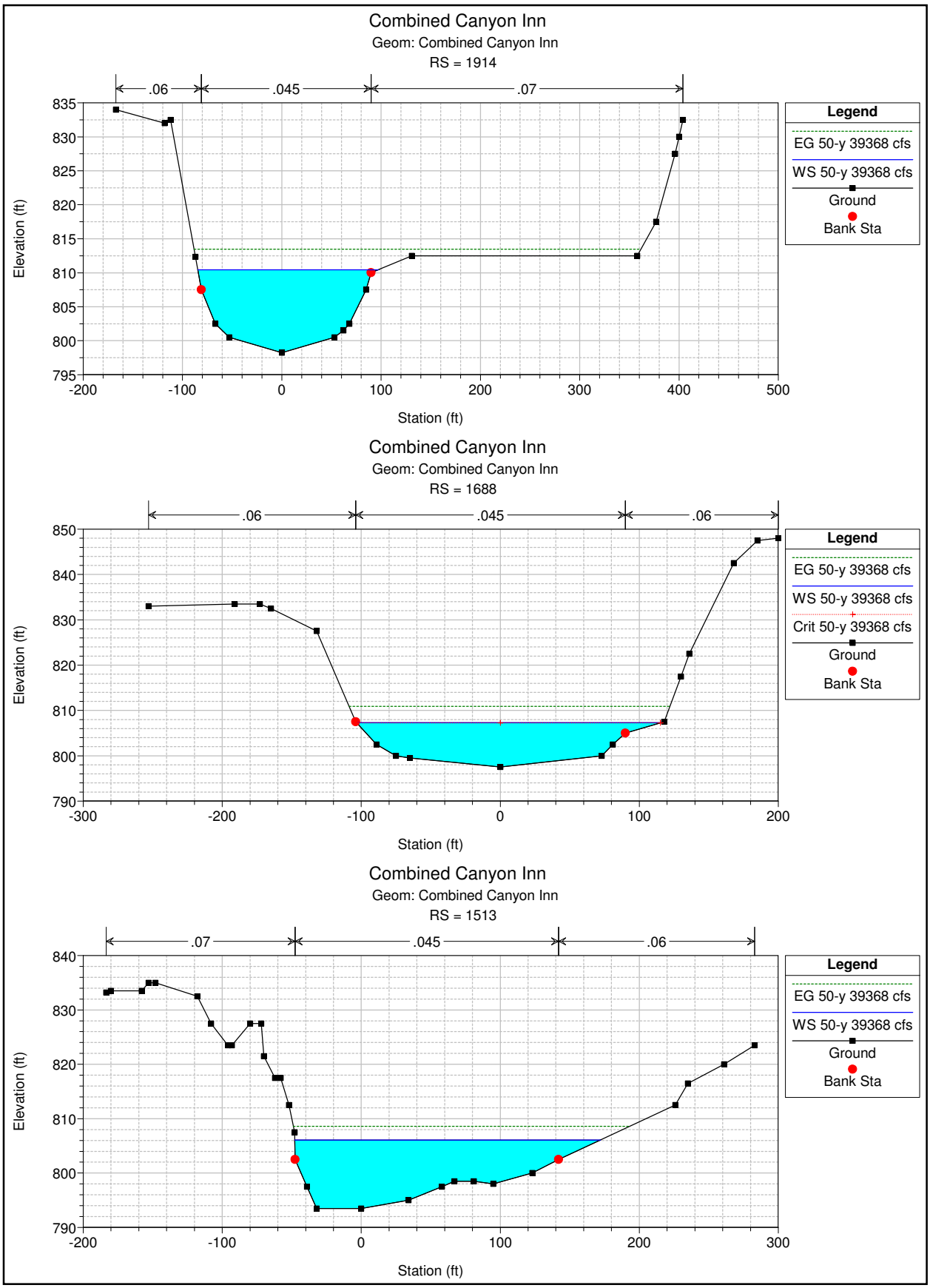
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Elevation (ft)
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Combined Canyon Inn
Geom: Combined Canyon Inn
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Geom: Combined Canyon Inn
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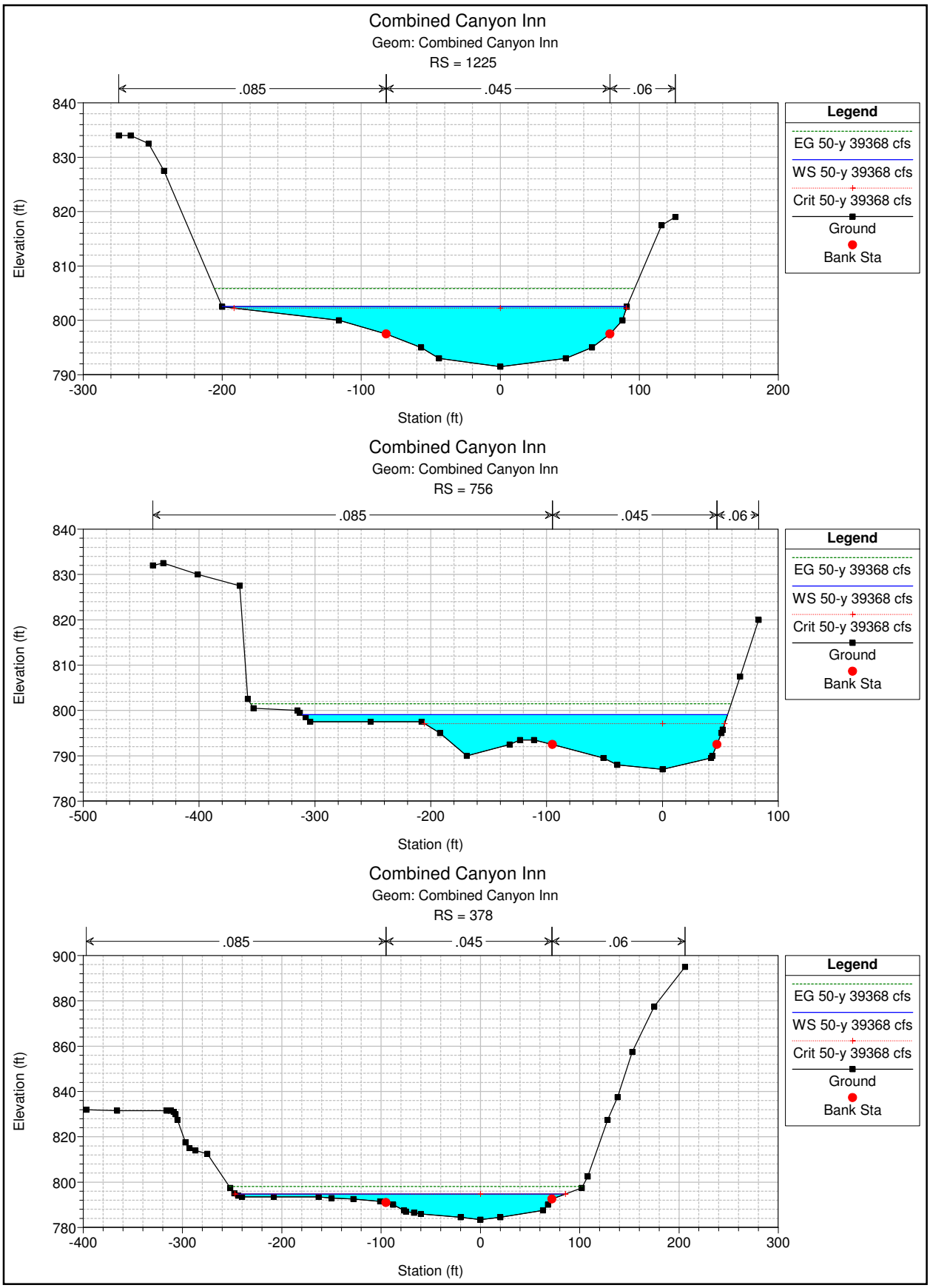
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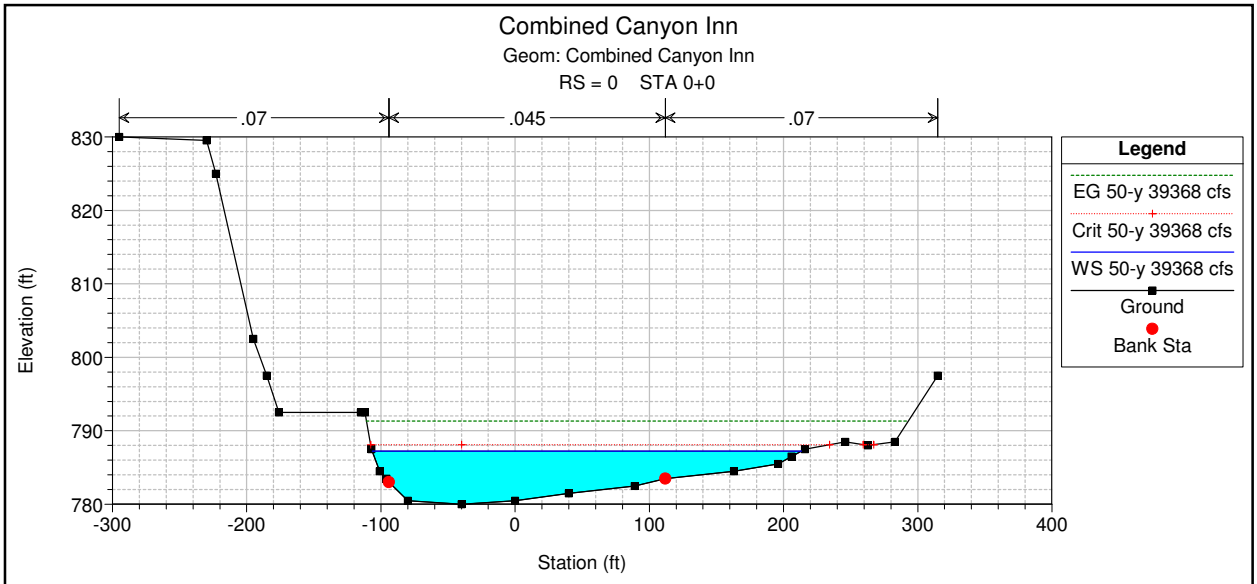
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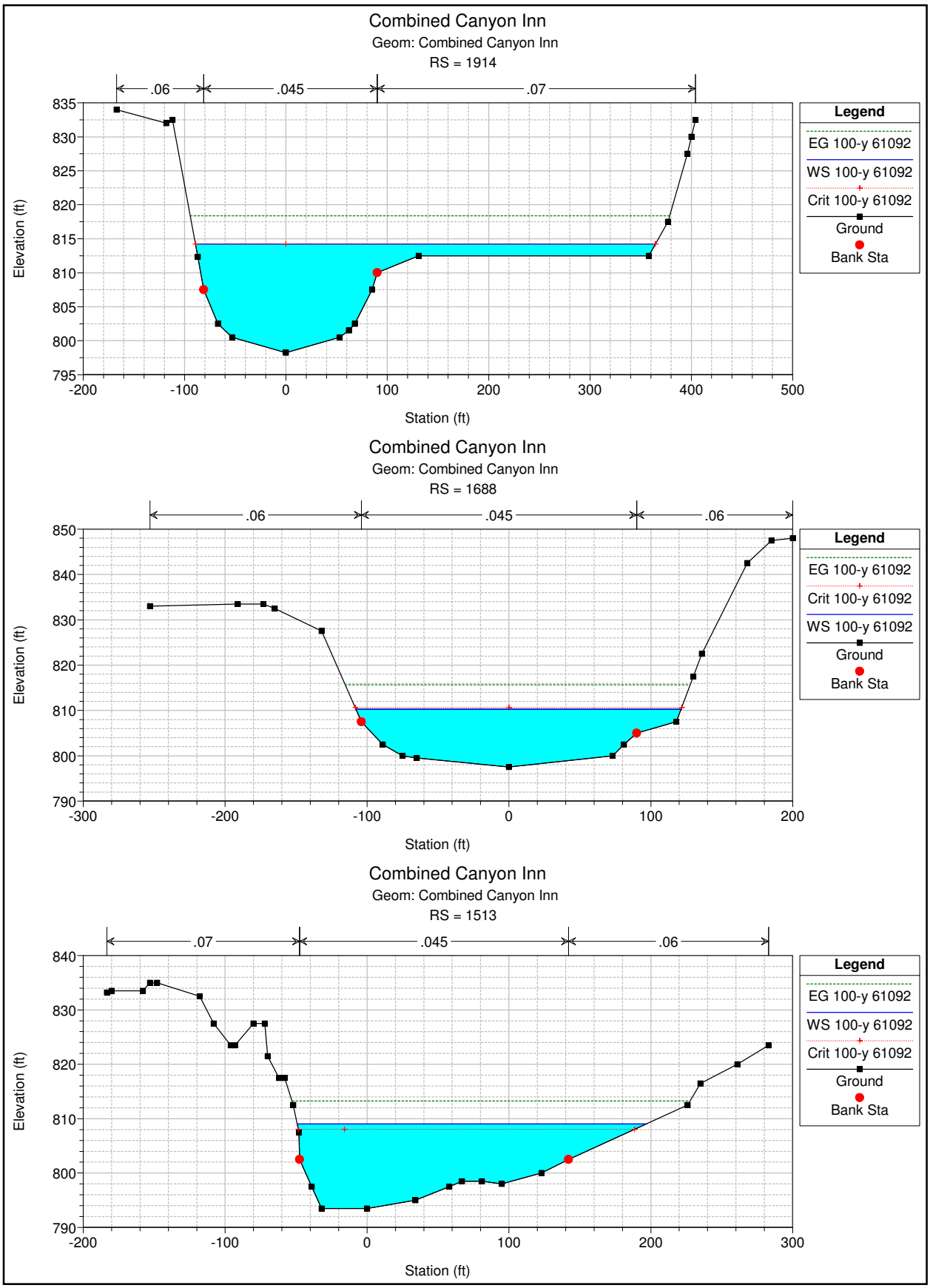
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Crit 100-y 61092
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Bank Sta
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Station (ft)
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Crit 100-y 61092
WS 100-y 61092
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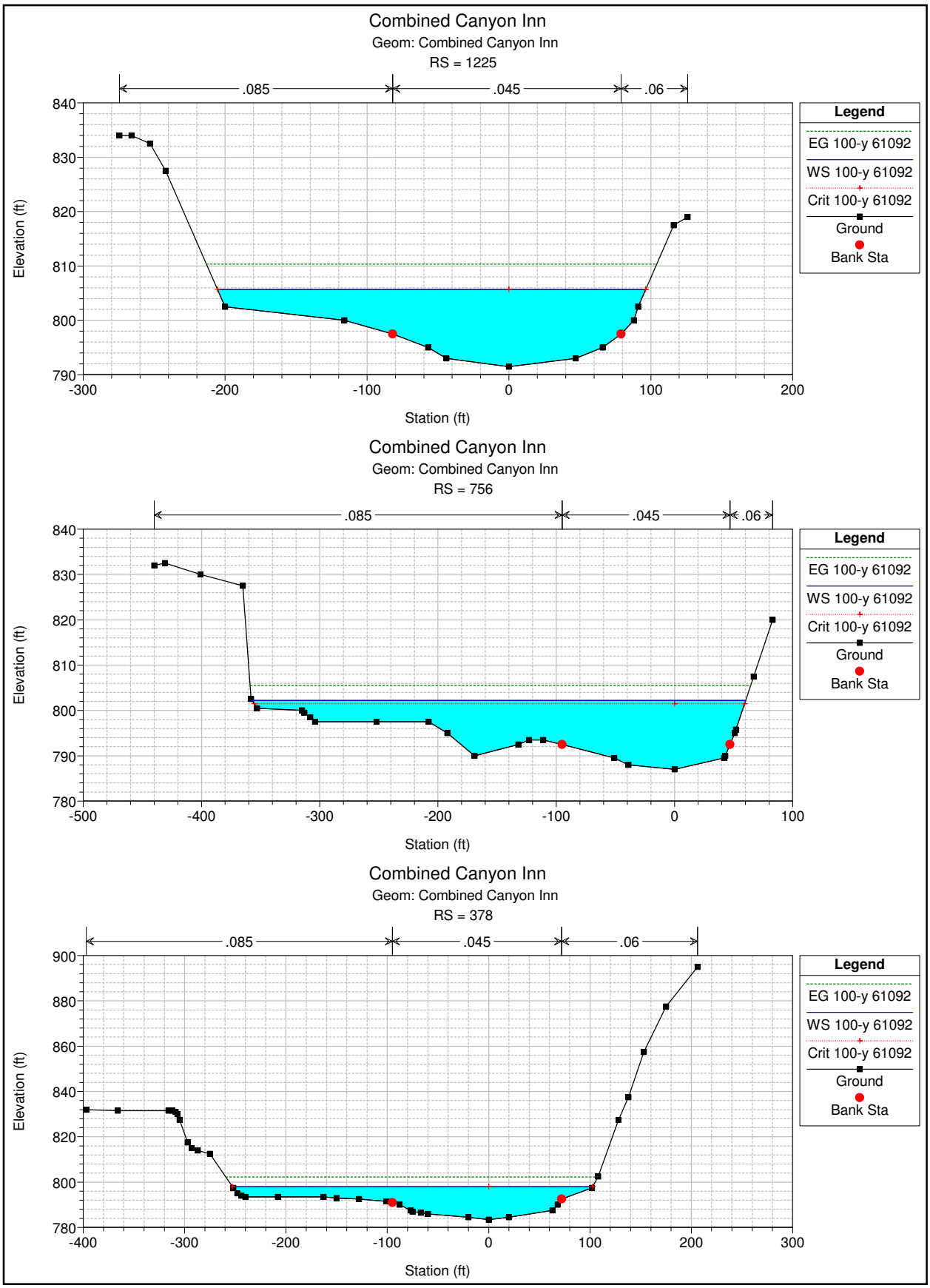
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Elevation (ft)
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Combined Canyon Inn
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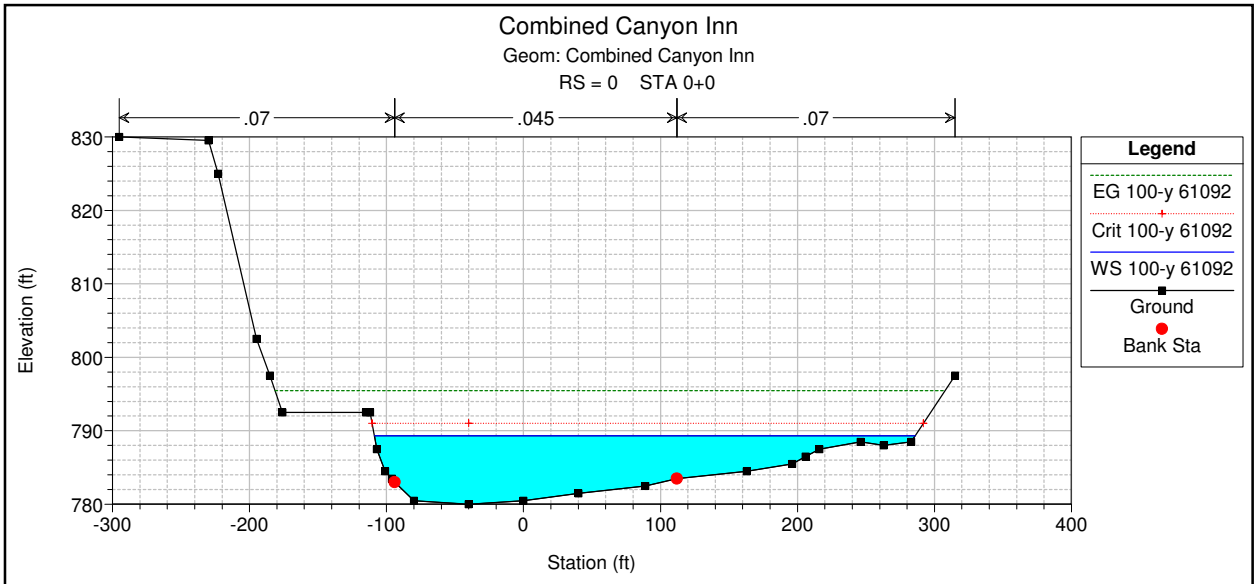
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Station (ft)
Legend
EG 100-y 61092
Crit 100-y 61092
WS 100-y 61092
Ground
Bank Sta

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

Withers & Sandgren, Ltd
P.O. Box 276
Montrose, CA 91021-0276
(818) 291-0200

Canyon Inn Improvements
Watershed Conservation Authority

PRELIMINARY ***Opinion of Probable Costs*** **5/31/2012**

COMPLETE SITE COSTS, NO PHASING

No.	Item Description	Quantity	Unit	Unit Cost	Subtotal		Total
1.	***Canyon Inn Property Proper***						
1.00	**Demolition**						
1.01	Remove existing driveway & asphalt parking lot	23,990	SF	2.50	59,975.35		
1.02	Remove & haul chainlink fence	512	LF	25.00	12,800.00		
1.03	Remove tree & grind stump	1	allow	3,000.00	3,000.00		
1.04	Relocate/remove power lines	1	allow	10,000.00	10,000.00		
1.05	Relocate underground utilities	1	allow	20,000.00	20,000.00		
1.06	Remove vegetation	128,425	SF	0.50	64,212.74		
1.07	Remove existing construction debris on slope	1	allow	6,000.00	6,000.00		
1.08	Remove various pieces of debris on site (telep. poles etc)	1	allow	4,000.00	4,000.00		
	Subtotal					**$**	**179,988.09**
2.00	**Rough Grading**						
2.01	Rough grade Canyon Inn site	128,425	SF	0.40	51,370.19		
2.02	Rough grade for relocated road	19,760	SF	0.40	7,903.96		
2.03	Erosion control	128,425	SF	0.05	6,421.27		
	Subtotal					**$**	**65,695.42**
3.00	**Construction**						
	Utilities						
3.01	Electrical panel and site distribution	1	allot	20,000.00	20,000.00		
3.02	Security lighting fixtures, footings, and wiring	1	allot	175,000.00	175,000.00		
3.03	Sewer and manholes	1	allot	500,000.00	500,000.00		
3.04	Fire water lines/backflow/connections to buildings	1	allow	50,000.00	50,000.00		
	Subtotal					**$**	**745,000.00**
	Circulation						
3.05	Vehicular Gates	2	allot	7,500.00	15,000.00		
3.06	Bike Path (asphalt, beyond underpass)	3,290	SF	6.00	19,738.63		
3.07	Decomposed granite paths	17,233	SF	1.50	25,849.74		
3.08	Realigned asphalt road and grading	19,760	SF	6.00	118,559.33		
3.09	Parking spaces asphalt	7,675	SF	6.00	46,052.23		
3.10	Parking spaces striping	1	allot	4,000.00	4,000.00		
3.11	Curbing or curb stops	1,225	LF	12.00	14,700.00		
	Subtotal					**$**	**243,899.94**
	Site Furnishings						
3.13	Picnic Tables	9	EA	1,500.00	13,500.00		
3.14	Benches	7	EA	1,000.00	7,000.00		
3.15	Trash receptacles	12	EA	900.00	10,800.00		
	Subtotal					**$**	**31,300.00**
	Signage						
3.16	Interpretive Signage	1	allot	12,000.00	12,000.00		
	Subtotal					**$**	**12,000.00**
	Miscellaneous Elements						
3.17	Stacked stone walls at overlook	365	LF	130.00	47,450.00		
3.18	Stone veneer wall with railing	135	LF	160.00	21,600.00		
3.19	Interpretive elements (not signs)	1	allot	18,000.00	18,000.00		
3.20	Adventure Play Elements/Water Feature	1	allot	60,000.00	60,000.00		
3.21	Pavillion	1	EA	200,000.00	200,000.00		
3.22	Pre-fab restroom building	1	EA	200,000.00	200,000.00		

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

Canyon Inn Improvements
Watershed Conservation Authority

PRELIMINARY ***Opinion of Probable Costs*** **5/31/2012**

COMPLETE SITE COSTS, NO PHASING

No.	Item Description	Quantity	Unit	Unit Cost	Subtotal		Total
3.23	Catering pad and hook ups, water and electrical	1	LS	9,000.00	9,000.00		
	Subtotal					**$**	**556,050.00**
4.00	**Irrigation and Landscaping**						
4.01	Irrigation, permanent	111,192	SF	2.50	277,980.80		
4.02	Irrigation, temporary	25,000	SF	0.65	16,250.00		
4.03	Irrigation Pump	1	EA	10,000.00	10,000.00		
4.04	Trees (15 gal)	100	EA	100.00	10,000.00		
4.05	Understory shrubs and groundcovers	36,693	SF	4.00	146,773.86		
4.06	Hydroseed	74,499	SF	0.20	14,899.77		
	Subtotal					**$**	**475,904.43**
5.00	**Concession Building**						
5.01	Concession building with restrooms	1	allot	1,000,000.00	1,000,000.00		
	Subtotal					**$**	**1,000,000.00**
	Subtotal Canyon Inn Property					***$***	***3,309,837.87***
	Indirect Markups (General Conditions, Bonds, Insurance, Overhead & Profit) 12%					***$***	***397,180.54***
	Design Contingency - 10%					***$***	***330,983.79***
	Total Area 1 Canyon Inn Property					**$**	**4,038,002.21**
2.	**San Gabriel River Bike Path Link & Underpass**						
1.00	Demolition	33,440	SF	2.50	83,598.78		
1.01	Rough grading	33,440	SF	0.60	20,063.71		
1.02	Bridge underpass	1	allot	3,000,000.00	3,000,000.00		
1.03	Bike Path - Slurry Seal AC	7,501	SF	6.00	45,004.08		
1.04	Bike Path - Concrete	3,212	SF	9.00	28,906.00		
	Subtotal					**$**	**3,177,572.57**
3.	**Asphalt Traffic Roundabout on Old San Gabriel Road**						
1.00	Asphalt traffic roundabout, inc. demo, grading, light, striping	1	allot	850,000.00	850,000.00		
1.01	Trees (36" box)	1	EA	750.00	750.00		
1.02	Understory shrubs and groundcover	3,570	SF	4.00	14,281.20		
1.03	Irrigation	1	allot	8,000.00	8,000.00		
	Subtotal					**$**	**873,031.20**
4.	**El Encanto Parking Lot Connection to Canyon Inn Property**						
1.00	Demoliton	40,720	SF	2.50	101,800.00		
1.01	Rough grading	40,720	SF	0.40	16,288.00		
1.02	Asphalt paving & parking lot	21,745	SF	8.00	173,961.20		
1.03	Striping	1	allot	3,000.00	3,000.00		
1.04	Curbing or curb stops	555	LF	12.00	6,660.00		
1.05	Trees (15 gallon)	5	EA	100.00	500.00		
1.06	Understory shrubs and groundcover	9,400	SF	4.00	37,600.00		
1.07	Irrigation	9,400	SF	2.50	23,500.00		
1.08	Electrical power and lighting	1	allot	50,000.00	50,000.00		
	Subtotal					**$**	**413,309.20**
5.	**Western Bank**						
1.00	Clear and remove boulders and vegetation from trail + 1' at each side of trail	4,925	SF	3.00	14,774.55		
1.01	Grade cleared trail (trail only)	2,395	SF	0.40	957.94		
1.02	Decomposed granite overlook	100	SF	1.50	150.00		
1.03	Stone wall	17	LF	450.00	7,650.00		
1.04	Interpretive signage	1	EA	3,500.00	3,500.00		
1.05	Habitat restoration (5' on each side of trail)	12,705	SF	0.35	4,446.60		

Canyon Inn Improvements
Watershed Conservation Authority

PRELIMINARY ***Opinion of Probable Costs*** **5/31/2012**

COMPLETE SITE COSTS, NO PHASING

No.	Item Description	Quantity	Unit	Unit Cost	Subtotal		Total
	Subtotal					**$**	**31,479.09**
6.	**Point Bar**						
1.00	Clear and remove boulders and vegetation from trail (trail only)	6,075	SF	3.00	18,225.00		
1.01	Decomposed granite trail	6,075	SF	1.50	9,112.50		
1.02	Interpretive signage	1	allot	3,000.00	3,000.00		
1.03	Benches	2	allot	3,000.00	6,000.00		
1.04	Asphalt bike path (see section 2 - SG bike path link)	4,590	SF	6.00	27,540.73		
1.05	Decomposed granite overlook	640	SF	1.50	959.34		
1.06	Stone wall	58	LF	130.00	7,540.00		
1.07	Bubbler irrigation on trees	23	allot	285.00	6,555.00		
1.08	Trees (15 gallon)	23	EA	350.00	8,050.00		
1.09	Habitat restoration	117,670	SF	4.00	470,678.98		
	Subtotal					**$**	**557,661.54**
7.	**The Triangle**						
1.00	Remove paving, fencing, debris and invasives	11,730	SF	2.50	29,325.95		
1.01	Fine grading	11,730	SF	0.40	4,692.15		
1.02	Habitat restoration	11,730	SF	4.00	46,921.52		
	Subtotal					**$**	**80,939.63**
8.	**Azusa Springs**						
1.00	Remove debris and invasives	115,990	SF	2.50	289,974.84		
1.01	Clear and remove boulders and vegetation from trail + 1' at each side of trail	3,815	SF	2.50	9,537.51		
1.02	Grade cleared trail (trail only)	2,710	SF	0.40	1,083.86		
1.03	Decomposed granite overlook	255	SF	1.50	382.03		
1.04	Stone wall	96	LF	130.00	12,544.22		
1.05	Interpretive signage	1	allot	3,000.00	3,000.00		
1.06	Habitat restoration	113,280	SF	4.00	453,121.15		
	Subtotal					**$**	**769,643.61**
9.	**Shady Grove**						
1.00	Remove debris and invasives	59,980	SF	2.50	149,949.32		
1.01	Clear and remove boulders and vegetation from trail + 1' on each side of trail	1,660	SF	2.50	4,150.03		
1.02	Re-grade lower area where new trail is	10,260	SF	0.60	6,155.94		
1.03	Create new d.g. interpretive trail (trail only)	1,115	SF	1.50	1,673.24		
1.04	Crushed rock driveway	4,500	SF	1.50	6,750.00		
1.05	Utilities	1	allot	15,000.00	15,000.00		
1.06	Interpretive signage	1	allot	3,000.00	3,000.00		
1.07	Picnic tables	8	EA	1,500.00	12,000.00		
1.08	Trash receptacles	3	EA	900.00	2,700.00		
1.09	Bubbler irrigation and temporary irrigation	54,365	SF	1.25	67,956.55		
1.10	Habitat restoration	54,365	SF	4.00	217,460.95		
	Subtotal					**$**	**486,796.03**
10.	**Monument and Directional Signage**						
1.00	Wooden highway sign with stone base	2	EA	14,000.00	28,000.00		
1.01	Rules & Regulations signs	1	allot	3,000.00	3,000.00		
1.02	Park construction sign	1	EA	750.00	750.00		
1.03	Wooden roundabout park sign with stone base	1	EA	14,000.00	14,000.00		
1.04	Parking lot directional signage, speed limit	1	allot	5,000.00	5,000.00		
	Subtotal					**$**	**50,750.00**
	Subtotal Areas 2 through 10					***$***	***6,441,182.86***
	Indirect Markups (General Conditions, Bonds, Insurance, Overhead & Profit) 12%					***$***	***772,941.94***

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

Canyon Inn Improvements
Watershed Conservation Authority

PRELIMINARY ***Opinion of Probable Costs*** **5/31/2012**

COMPLETE SITE COSTS, NO PHASING

No.	Item Description	Quantity	Unit	Unit Cost	Subtotal		Total
Design Contingency - 10%						***$***	***644,118.29***
Total Areas 2 through 10						***$***	***7,858,243.09***
Grand Total - All areas 1 through 10 (no phases)						***$***	***11,896,245.30***
PHASE I (Years 2012-2016)							
1. Canyon Inn Property Proper							
1.00	**Demolition**						
1.01	Remove existing asphalt parking lot	23990	SF	2.50	59,975.00		
1.02	Remove & haul chainlink fence	512	LF	25.00	12,800.00		
1.03	Remove tree & grind stump	1	allow	3,000.00	3,000.00		
1.04	Relocate/remove power lines	1	allow	10,000.00	10,000.00		
1.05	Relocate underground utilities	1	allow	20,000.00	20,000.00		
1.06	Remove vegetation	128425	SF	0.50	64,212.50		
1.07	Remove existing construction debris on slope	1	allow	6,000.00	6,000.00		
1.08	Remove various pieces of debris on site (telep. poles etc)	1	allow	4,000.00	4,000.00		
	Subtotal					**$**	**179,987.50**
2.00	**Rough Grading**						
2.01	Rough grade Canyon Inn site	128425	SF	0.40	51,370.00		
2.02	Rough grade for relocated road	19760	SF	0.40	7,904.00		
2.03	Erosion control	128425	SF	0.05	6,421.25		
	Subtotal					**$**	**65,695.25**
3.00	**Construction**						
	Circulation						
3.05	Vehicular Gates	2	allot	7,500.00	15,000.00		
3.06	Bike Path (asphalt, beyond underpass)	3,290	SF	6.00	19,740.00		
3.07	Decomposed granite paths	15517	SF	1.50	23,275.50		
3.09	Parking spaces asphalt	7,675	SF	6.00	46,050.00		
]3.10	Parking spaces striping	1	allot	4,000.00	4,000.00		
3.11	Curbing or curb stops	1,225	LF	12.00	14,700.00		
	Subtotal					**$**	**122,765.50**
	Site Furnishings						
3.13	Picnic Tables	9	EA	1,500.00	13,500.00		
3.14	Benches	7	EA	1,000.00	7,000.00		
3.15	Trash receptacles	12	EA	900.00	10,800.00		
	Subtotal					**$**	**31,300.00**
	Signage						
3.16	Interpretive Signage	1	allot	12,000.00	12,000.00		
	Subtotal					**$**	**12,000.00**
	Miscellaneous Elements						
3.17	Stacked stone walls at overlook	365	LF	130.00	47,450.00		
3.18	Stone veneer wall with railing	135	LF	160.00	21,600.00		
3.19	Interpretive elements (not signs)	1	allot	18,000.00	18,000.00		
3.20	Adventure Play Elements/Water Feature	1	allot	60,000.00	60,000.00		
3.22	Catering pad and hook ups, water and electrical	1	LS	9,000.00	9,000.00		
	Subtotal					**$**	**156,050.00**
4.00	**Irrigation and Landscaping**						
4.01	Irrigation, permanent	111,192	SF	2.50	277,980.00		
4.02	Irrigation, temporary	25,000	SF	0.65	16,250.00		

Canyon Inn Improvements
Watershed Conservation Authority

PRELIMINARY ***Opinion of Probable Costs*** **5/31/2012**

COMPLETE SITE COSTS, NO PHASING

No.	Item Description	Quantity	Unit	Unit Cost	Subtotal		Total
4.03	Irrigation Pump	1	EA	7,000.00	7,000.00		
4.04	Trees (15 gal)	100	EA	100.00	10,000.00		
4.05	Understory shrubs and groundcovers	36,693	SF	4.00	146,772.00		
4.06	Hydroseed	74,499	SF	0.20	14,899.80		
	Subtotal					**$**	**472,901.80**
	Subtotal Canyon Inn Property					***$***	***1,040,700.05***
	Indirect Markups (General Conditions, Bonds, Insurance, Overhead & Profit) 12%					***$***	***124,884.01***
	Design Contingency - 10%					***$***	***104,070.01***
	Total Canyon Inn Property (Phase 1)					**$**	**1,269,654.06**
2.	**San Gabriel River Bike Path Link & Underpass**						
1.00	Demolition	33,440	SF	2.50	83,600.00		
1.01	Rough grading	33,440	SF	0.60	20,064.00		
1.02	Bridge underpass	1	allot	3,000,000.00	3,000,000.00		
1.03	Bike Path - Slurry Seal AC	12395	SF	6.00	74,370.00		
1.04	Bike Path - Concrete	6427	SF	9.00	57,843.00		
	Subtotal					**$**	**3,235,877.00**
3.	**Asphalt Traffic Roundabout on Old San Gabriel Road (phase 3 item)**						
4.	**El Encanto Parking Lot Connection to Canyon Inn Property**						
1.00	Demoliton	40720	SF	2.50	101,800.00		
1.01	Rough grading	40720	SF	0.40	16,288.00		
1.02	Asphalt paving	21745	SF	8.00	173,960.00		
1.03	Striping	1	LS	3,000.00	3,000.00		
1.04	Curbing or curb stops	555	LF	12.00	6,660.00		
1.05	Trees (15 gallon)	5	EA	100.00	500.00		
1.06	Understory shrubs and groundcover	9400	SF	4.00	37,600.00		
1.07	Irrigation	9400	SF	2.50	23,500.00		
1.08	Electrical power and lighting	1	allot	50,000.00	50,000.00		
	Subtotal					**$**	**413,308.00**
5.	**Western Bank**						
1.00	Clear and remove boulders and vegetation from trail	4925	SF	3.00	14,775.00		
1.01	Grade cleared trail	2395	SF	0.40	958.00		
1.02	Decomposed granite overlook	100	SF	1.50	150.00		
1.03	Stacked stone wall	17	LF	130.00	2,210.00		
1.04	Interpretive signage	1	EA	3,000.00	3,000.00		
1.05	Habitat restoration	12705	SF	2.50	31,762.50		
	Subtotal					**$**	**52,855.50**
6.	**Point Bar**						
1.00	Clear and remove boulders and vegetation from trail	6075	SF	3.00	18,225.00		
1.01	Decomposed granite trail	6075	SF	1.50	9,112.50		
1.02	Interpretive signage	1	allot	3,000.00	3,000.00		
1.03	Benches	2	EA	3,000.00	6,000.00		
1.04	Asphalt bike path (see section 2 - SG bike path link)	4590	SF	6.00	27,540.00		
1.05	Decomposed granite overlook	640	SF	1.50	960.00		
1.06	Stacked stone wall	58	LF	130.00	7,540.00		
1.07	Bubbler irrigation on trees	23	EA	285.00	6,555.00		
1.08	Trees (15 gallon)	23	EA	350.00	8,050.00		
1.09	Habitat restoration	117670	SF	4.00	470,680.00		
	Subtotal					**$**	**557,662.50**
7.	**The Triangle**						

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

Canyon Inn Improvements
Watershed Conservation Authority

PRELIMINARY ***Opinion of Probable Costs*** **5/31/2012**

COMPLETE SITE COSTS, NO PHASING

No.	Item Description	Quantity	Unit	Unit Cost	Subtotal		Total
1.00	Remove paving, debris and invasives	11730	SF	2.50	29,325.00		
1.01	Fine grading	11730	SF	0.40	4,692.00		
1.02	Habitat restoration	11,730	SF	4.00	46,920.00		
	Subtotal					**$**	**80,937.00**
8.	**Azusa Springs**						
1.00	Remove debris and invasives	115990	SF	2.50	289,975.00		
1.01	Clear and remove boulders and vegetation from trail	3815	SF	2.50	9,537.50		
1.02	Grade cleared trail	2710	SF	0.40	1,084.00		
1.03	Decomposed granite overlook	255	SF	1.50	382.50		
1.04	Stacked stone wall	96	LF	130.00	12,480.00		
1.05	Interpretive signage	1	allot	3,000.00	3,000.00		
1.06	Habitat restoration	113280	SF	4.00	453,120.00		
	Subtotal					**$**	**769,579.00**
9.	**Shady Grove**						
1.00	Remove debris and invasives	59980	SF	2.50	149,950.00		
1.03	Create new d.g. interpretive trail	1,115	SF	1.50	1,672.50		
1.04	Crushed rock driveway	4654	SF	1.50	6,981.00		
1.06	Interpretive signage	1	allot	3,000.00	3,000.00		
1.07	Picnic tables	8	EA	1,500.00	12,000.00		
1.08	Trash receptacles	3	EA	900.00	2,700.00		
1.09	Bubbler irrigation and temporary irrigation	54365	SF	1.25	67,956.25		
1.10	Habitat restoration	54365	SF	4.00	217,460.00		
	Subtotal					**$**	**461,719.75**
10.	**Monument and Directional Signage**						
1.00	Wooden highway sign with stone base	2	EA	14,000.00	28,000.00		
1.01	Rules & Regulations signs	1	allot	3,000.00	3,000.00		
1.02	Park construction sign	1	EA	750.00	750.00		
1.03	Wooden roundabout park sign with stone base	1	EA	14,000.00	14,000.00		
1.04	Parking lot directional signage, speed limit	1	allot	5,000.00	5,000.00		
	Subtotal					**$**	**50,750.00**
	Subtotal Areas 2 through 10					***$***	***5,622,688.75***
	Indirect Markups (General Conditions, Bonds, Insurance, Overhead & Profit) 12%					***$***	***674,722.65***
	Design Contingency - 10%					***$***	***562,268.88***
	Total Areas 2 through 10					***$***	***6,859,680.28***
	Grand Total Phase 1 - Areas 1 through 10					***$***	***8,129,334.34***
	PHASE 2 (Years 2017-2021)						
	1. Canyon Inn Property Proper						
	Utilities						
3.01	Electrical panel and site distribution	1	allot	20,000.00	20,000.00		
3.02	Security lighting fixtures, footings, and wiring	1	allot	175,000.00	175,000.00		
3.03	Sewer and manholes	1	LF	500,000.00	500,000.00		
3.04	Fire water lines/backflow/connections to buildings	1	allow	50,000.00	50,000.00		
	Subtotal					**$**	**745,000.00**
	Construction						
3.08	Realigned asphalt road and grading	19760	SF	6.00	118,560.00		
3.21	Pavillion	1	EA	200,000.00	200,000.00		
3.22	Pre-fab restroom building	1	EA	200,000.00	200,000.00		
	Subtotal					**$**	**518,560.00**

Exhibit F - 2012 RWP-Canyon Inn Site Programming, Planning & Concept Report

Canyon Inn Improvements
Watershed Conservation Authority

PRELIMINARY ***Opinion of Probable Costs*** **5/31/2012**

COMPLETE SITE COSTS, NO PHASING

No.	Item Description	Quantity	Unit	Unit Cost	Subtotal		Total
9.	**Shady Grove**						
1.01	Clear and remove boulders and vegetation from trail	1660	SF	2.50	4,150.00		
1.02	Re-grade lower area where new trail is	10260	SF	0.60	6,156.00		
1.05	Utilities	1	allot	15,000.00	15,000.00		
	Subtotal					**$**	**25,306.00**
	Subtotal Areas 1 and 9					***$***	***1,263,560.00***
	Indirect Markups (General Conditions, Bonds, Insurance, Overhead & Profit) - 12%					***$***	***151,627.20***
	Design Contingency - 10%					***$***	***126,356.00***
	Grand Total Phase 2 - Areas 1 and 9					***$***	***1,541,543.20***
	PHASE 3 (Years 2023-2029)						
1.	***Canyon Inn Property Proper***						
5.00	**Concession Building**						
5.01	Concession building with restrooms	1	allot	1,000,000.00	1,000,000.00		
	Subtotal					**$**	**1,000,000.00**
3.	**Asphalt Traffic Roundabout on Old San Gabriel Road**						
1.00	Asphalt traffic roundabout, inc. demo, grading, light, striping	1	allot	850,000.00	850,000.00		
1.01	Trees (36" box)	1	EA	750.00	750.00		
1.02	Understory shrubs and groundcover	500	SF	4.00	2,000.00		
1.03	Irrigation	1	allot	8,000.00	8,000.00		
	Subtotal					**$**	**860,750.00**
	Subtotal Areas 1 and 2					***$***	***1,860,750.00***
	Indirect Markups (General Conditions, Bonds, Insurance, Overhead & Profit) - 12%					***$***	***223,290.00***
	Design Contingency - 10%					***$***	***186,075.00***
	Grand Total Phase 3 - Areas 1 and 2					***$***	***2,270,115.00***