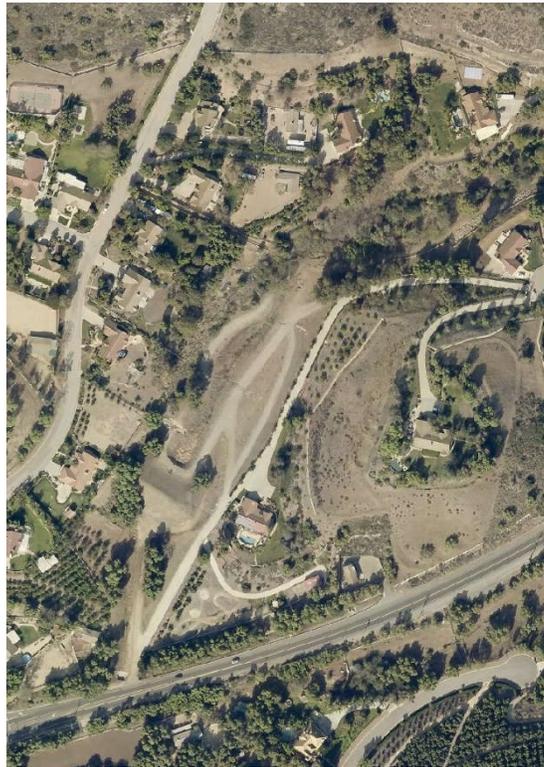


**FINAL
MITIGATED NEGATIVE DECLARATION
SANTA ROSA ROAD NO. 2 DEBRIS BASIN
DECOMMISSIONING PROJECT**

Project No. 86903



Lead Agency:

Ventura County Watershed Protection District

800 S. Victoria Avenue

Ventura, California, 93009

Contact: Mr. Tyler Barns 805/654-2064

Prepared by:

Padre Associates, Inc.

1861 Knoll Drive

Ventura, CA 93003

June 2019

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FINAL MITIGATED NEGATIVE DECLARATION FOR THE SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING PROJECT

PROJECT DESCRIPTION

The Santa Rosa Road No. 2 Debris Basin dam was constructed by the U.S. Soil Conservation Service in 1957 solely for debris collection (not storm water detention) and is currently maintained by the Ventura County Watershed Protection District (District). It serves a watershed area of 1,101 acres and is estimated to experience a peak inflow of 1,274 cubic feet/second (cfs) during a 100-year storm event. Accumulated sediment has been removed from the No. 2 Debris Basin eight times since it was constructed, with a total sediment removal of 18,500 cubic yards and an average annual debris accumulation of 318 cubic yards.

Development of the watershed (primarily rural residential) since 1957 has reduced the debris yield estimates for a 100-year storm event from approximately 12,500 cubic yards to 5,424 cubic yards (West Consultants 2016). Due to the low rates of observed debris collection, the No. 2 Debris Basin has very limited functionality and does not meet current District standards. Therefore, the debris basin is proposed for removal.

The proposed project consists of removal of the No. 2 Debris Basin, including the earthen dam, emergency spillway, intake and outlet piping and related facilities. Approximately 7,700 cubic yards of earth material would be excavated and re-used on site to create a 14-foot-wide flow channel and banks varying from a 2:1 to 2.5:1 (horizontal:vertical) slope. All earth material would remain on site with no export. Proposed No. 2 Debris Basin decommissioning comprises the following tasks:

- Removal of the existing earthen dam and associated fill, and distribution and compaction of this earth material within the project site to produce a low-flow channel and gradually sloping banks tying into existing topography.
- Removal of the outlet pipe and bulkhead outlet structure, primary intake pipe with trash rack and baffle, and the bleeder/riser intake pipe with pipe collar, concrete encasement, and perforated metal pipe.
- Repairing and extending of the existing down drain that connects a storm drain to the basin.
- Revegetation of the re-contoured slopes to reduce erosion with native plants. Trees removed during decommissioning would be replaced with native tree container stock.
- Extension of the existing box culvert that crosses beneath Santa Rosa Road and re-construction of the transition structure to provide space to relocate the Bridlewood Trail.
- Re-alignment of the Bridlewood Trail through the project site across the proposed box culvert extension to the east side of the Arroyo Santa Rosa Tributary.

Debris/sediment removal would be terminated, and regular maintenance of the project site would not be required. Establishment of the erosion control plantings would continue for 2 years after decommissioning, potentially including weeding and irrigation system repairs (and irrigation removal after plant establishment).

The initiation of decommissioning is planned for September 2019. Work in the flow channel would be conducted in the dry season to avoid surface water. The decommissioning period would be approximately three and a half months in duration (approximately 70 work days).

PROJECT LOCATION

The project site comprises the existing flood control easement held by the District along the Arroyo Santa Rosa Tributary, which empties into Arroyo Santa Rosa approximately 2.1 stream miles downstream of the No. 2 Debris Basin (Figure 1). The Santa Rosa Road No. 2 Debris Basin is located east of Vista Arroyo Drive in the Santa Rosa Valley within unincorporated Ventura County, approximately 1.2 miles south of the City of Moorpark and 4.6 miles east of the City of Camarillo.

PROJECT PROPONENT AND LEAD AGENCY

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, California 93009

Contact: Tyler Barns (805/654-2064)

PROPOSED FINDINGS

The District has prepared this Mitigated Negative Declaration (MND) pursuant to Sections 15070-15075 of the State Guidelines for the Implementation of the California Environmental Quality Act and the County of Ventura Administrative Supplement to the State CEQA Guidelines. This Mitigated Negative Declaration documents the District's finding that there are no significantly adverse unavoidable impacts associated with the proposed project, and the project does not require the preparation of an Environmental Impact Report (EIR). The attached Initial Study identifies and discusses potential impacts, mitigation measures and residual impacts for identified subject areas.

PUBLIC COMMENTS

In compliance with Section 15073 of the State Guidelines for the Implementation of the California Environmental Quality Act, the District accepted written comments on the adequacy of the information contained in the Draft MND during the public comment period (March 21 to April 22, 2019). Comments on the Draft MND received during the public comment period were submitted by the agencies and persons listed below.

- Vicki Smith (two e-mails received on April 15, 2019).
- William Brown (e-mail received on April 16, 2019).
- Ventura County Air Pollution Control District (letter dated April 22, 2019).
- California Department of Transportation (letter dated April 18, 2019)

In accordance with the County of Ventura's Administrative Supplement to the State CEQA Guidelines, responses to comments on the Draft MND are provided in Section 9.0 of the Final Initial Study.

MITIGATION MEASURES

The following mitigation measures have been integrated into the proposed project, and would reduce impacts to a level of less than significant.

Air Quality

Air pollutant emissions reduction measures recommended by the Ventura County Air Pollution Control District (APCD) Air Quality Assessment Guidelines (revised 2003) have been incorporated into the project including:

- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
- Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
- All trucks shall be required to cover their loads as required by California Vehicle Code §23114.
- All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.
- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until plant growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.
- Signs shall be posted on site limiting traffic to 15 miles per hour or less.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on site activities and operations from being a nuisance or hazard, either off site or on site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.

- Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
- Personnel involved in grading operations, including contractors and subcontractors, shall be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.
- Material stockpiles shall be enclosed, covered, stabilized, or otherwise treated as needed to prevent blowing fugitive dust off-site.
- All project construction and site preparation operations shall be conducted in compliance with all applicable Ventura County APCD Rules and Regulations with emphasis on Rule 50 (Opacity), Rule 51 (Nuisance), Rule 55 (Fugitive Dust) and Rule 10 (Permits Required).
- Signs displaying the APCD complaint line telephone number (805/645-1400 during business hours; 805/654-2797 after hours) shall be posted in a prominent location visible to the public.

Biological Resources

The following measure has been incorporated into the project to avoid take of migratory birds associated with decommissioning activities:

- Should decommissioning activities be planned during the bird breeding season (February 15 to September 1), a qualified biologist shall conduct a field survey to determine if breeding migratory birds are present. Should active nests of protected migratory birds be found within the work area, decommissioning activities shall be postponed until the young have fledged or the nest is abandoned.

Implementation of the above measure would minimize project-related disturbance of active bird nests, which would reduce impacts to migratory birds to a level of less than significant.

Archaeological Resources

The following mitigation measures have been incorporated into the project to prevent significant impacts, should resources be found during project-related earthwork:

- Should any buried archaeological materials be uncovered during project activities, such activities shall cease within 100 feet of the find. Prehistoric archaeological indicators include obsidian and chert flakes, chipped stone tools, bedrock outcrops and boulders with mortar cups, ground stone implements, locally darkened midden soils containing previously listed items plus fragments of bone and fire affected stones. Historic period site indicators may include fragments of glass, ceramic and metal objects, milled and split timber, building foundations, privy pits, wells and dumps, and old trails. All earth disturbing work within the vicinity of the find shall be temporarily suspended or redirected until the District has been notified and an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.

- If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and deposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission.

Implementation of these measures would minimize potential adverse effects to discovered cultural resources and human remains, which would reduce archaeological resources impacts to a level of less than significant.

Recreation

The following measures have been incorporated into the project to minimize the temporary loss of use of the Bridlewood Trail within the project area:

- The project schedule (projected work start and end dates) shall be provided to the Bridlewood Homeowners Association at least two weeks prior to beginning decommissioning activities.
- Signage shall be provided on the Trail both north and south of the project site at least one week prior to the initiation of decommissioning activities, notifying Trail users of planned temporary Trail closures, and the alternative Trail route along Vista Arroyo Drive.
- Vista Arroyo Drive shall be available as an alternative temporary detour equestrian trail route from Santa Rosa Road north to the existing off-street connector trail just northeast of Saddleridge Court (Figure 5). Note that Vista Arroyo Drive is considered an existing trail in the Santa Rosa Valley Trail Master Plan.

Implementation of the above measures would minimize temporary loss of use of the Bridlewood Trail through notification, signage and designation of an alternative trail route, which would reduce project-related recreation impacts to a level of less than significant.

MITIGATION MONITORING AND REPORTING

Section 15074(d) of the State Guidelines for the Implementation of the California Environmental Quality Act and Section 21081.6 of the Public Resources Code, requires the lead agency (District) to adopt a monitoring program to ensure mitigation measures are complied with during implementation of the project. In compliance with these requirements, a Mitigation Monitoring Program Implementation Table is provided below. This Table identifies the timing, monitoring methods, responsibility and compliance verification method for all mitigation measures identified in this MND. Monitoring would be conducted by the District's construction inspectors and qualified specialists under contract to the District.

**SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING PROJECT
MITIGATION MONITORING PROGRAM – IMPLEMENTATION TABLE**

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
AIR QUALITY								
The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.	Throughout the decommissioning period	The construction inspector will observe work in progress	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities	Throughout the decommissioning period	The construction inspector will observe work in progress	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
All trucks shall be required to cover their loads as required by California Vehicle Code §23114.	Throughout the decommissioning period	The construction inspector will observe work in progress	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on-site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.	Throughout the decommissioning period	The construction inspector will inspect roadways and other exposed soils for excessive dust generation	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			

**SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING PROJECT
MITIGATION MONITORING PROGRAM – IMPLEMENTATION TABLE**

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
AIR QUALITY (Continued)								
Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area should be seeded and watered until grass growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust	Throughout the decommissioning period	The construction inspector will inspect dust control efforts and order additional measures as needed	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
Signs shall be posted on-site limiting off-road traffic speed to 15 miles per hour or less	Throughout the decommissioning period	The construction inspector will ensure signs are posted and maintained	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on-site activities and operations from being a nuisance or hazard, either off-site or on-site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive	Throughout the decommissioning period	The construction inspector will coordinate with site supervisor to curtail construction operations as needed during high wind periods	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads	Throughout the decommissioning period	The construction inspector will ensure roads are swept as needed	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			

**SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING PROJECT
MITIGATION MONITORING PROGRAM – IMPLEMENTATION TABLE**

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
AIR QUALITY (Continued)								
Personnel involved in grading operations, including contractors and subcontractors, should be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations	Throughout the decommissioning period	The construction inspector will observe work in progress	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
Material stockpiles shall be enclosed, covered, stabilized, or otherwise treated as needed to prevent blowing fugitive dust off-site.	Throughout the decommissioning period	The construction inspector will observe work in progress	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
All project construction and site preparation operations shall be conducted in compliance with all applicable Ventura County APCD Rules and Regulations with emphasis on Rule 50 (Opacity), Rule 51 (Nuisance), Rule 55 (Fugitive Dust) and Rule 10 (Permits Required).	Throughout the decommissioning period	The construction inspector will observe work in progress	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
Signs displaying the APCD complaint line telephone number (805/645-1400 during business hours; 805/654-2797 after hours) shall be posted in a prominent location visible to the public.	Throughout the decommissioning period	The construction inspector will ensure the signage is in place	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will review inspection reports			
BIOLOGICAL RESOURCES								
Should decommissioning activities be planned during the bird breeding season (February 15 to September 1), a qualified biologist shall conduct a field survey to determine if breeding migratory birds are present. Should active nests of protected migratory birds be found within the work area, decommissioning activities shall be postponed until the young have fledged or the nest is abandoned.	Prior to initial ground disturbance and tree removal	The construction inspector will observe work in progress, a qualified biologist will conduct bird surveys as directed	Twice, prior to initial ground disturbance and tree removal	Ventura County Watershed Protection District	District staff will review breeding bird survey reports and project inspection reports			

**SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING PROJECT
MITIGATION MONITORING PROGRAM – IMPLEMENTATION TABLE**

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
CULTURAL RESOURCES								
Should any buried archeological materials be uncovered during project activities, such activities shall cease within 100 feet of the find. Prehistoric archeological indicators include obsidian and chert flakes, chipped stone tools, bedrock outcrops and boulders with mortar cups, ground stone implements, locally darkened midden soils containing previously listed items plus fragments of bone and fire affected stones. Historic period site indicators may include fragments of glass, ceramic and metal objects, milled and split timber, building foundations, privy pits, wells and dumps, and old trails. All earth disturbing work within the vicinity of the find shall be temporarily suspended or redirected until the District has been notified and an archeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.	Throughout the decommissioning period	The construction inspector will observe work in progress and ensure work is suspended as appropriate, the project manager will ensure evaluation of the find is completed, a qualified archaeologist will complete an evaluation of any find as directed	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will prepare an incident report to be included in the project inspection report			
If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission.	Throughout the decommissioning period	The construction inspector will observe work in progress and ensure work is suspended as appropriate, the project manager will notify the coroner	Initially and weekly thereafter	Ventura County Watershed Protection District	District staff will prepare an incident report to be included in the project inspection report			

**SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING PROJECT
MITIGATION MONITORING PROGRAM – IMPLEMENTATION TABLE**

Mitigation Measure	Implementation Timing	Monitoring Methods	Monitoring Frequency	Party Responsible for Monitoring	Method of Compliance Verification	Verification of Compliance		
						Signature	Date	Remarks
RECREATION								
<p>The following measures have been incorporated into the project to minimize the temporary loss of use of the Bridlewood Trail within the project area:</p> <ul style="list-style-type: none"> • The project schedule (projected work start and end dates) shall be provided to the Bridlewood Homeowners Association at least two weeks prior to beginning decommissioning activities. • Signage shall be provided on the Trail both north and south of the project site at least one week prior to the initiation of decommissioning activities, notifying Trail users of planned temporary Trail closures, and the alternative Trail route along Vista Arroyo Drive. • Vista Arroyo Drive shall be available as an alternative temporary detour equestrian trail route from Santa Rosa Road north to the existing off-street connector trail just northeast of Saddleridge Court. 	<p>Prior to project initiation (signage, notification), and throughout the decommissioning period</p>	<p>District staff will ensure coordination with Bridlewood Homeowners Association is completed, notifications are made and signage posted</p>	<p>Initially and weekly thereafter</p>	<p>Ventura County Watershed Protection District</p>	<p>District staff will document completion of these measures in project inspection reports</p>			

1.0 INTRODUCTION

1.1 PURPOSE AND LEGAL AUTHORITY

An Initial Study has been prepared for the Santa Rosa Road No. 2 Debris Basin Decommissioning Project (proposed project), which has been proposed by the Ventura County Watershed Protection District (District), the project proponent. Section 2.0 of this document provides a description of the proposed project. The District is also the “lead agency” for the proposed project. As defined by Section 15367 of the State California Environmental Quality Act (CEQA) Guidelines, the lead agency is “the public agency which has the principal responsibility for carrying out or approving a project which may have a significant impact on the environment.” Based on the findings of the Impact Analysis (Section 4.0 of this Initial Study), it has been determined that the project would not have a significant impact on the environment. As such, a Mitigated Negative Declaration has been prepared for the project in accordance with CEQA.

1.2 PROJECT PROPONENT AND LEAD AGENCY

Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, California 93009

Contact: Tyler Barns, (805) 654-2064

1.3 PROJECT LOCATION

The project site comprises the existing flood control easement held by the District along the Arroyo Santa Rosa Tributary, which empties into Arroyo Santa Rosa, approximately 2.1 stream miles downstream of the debris basin (Figure 1). Santa Rosa Road No. 2 Debris Basin is located east of Vista Arroyo Drive and north of Santa Rosa Road in the Santa Rosa Valley. The project site falls within unincorporated Ventura County, approximately 1.2 miles south of the City of Moorpark and 4.6 miles east of the City of Camarillo.

1.4 BACKGROUND

The Santa Rosa Road No. 2 Debris Basin dam was constructed by the U.S. Soil Conservation Service in 1957 solely for debris (sediment) collection (not storm water detention) and is currently maintained by the District. It serves a watershed area of 1,101 acres and is estimated to experience a peak inflow of 1,274 cubic feet/second (cfs) during a 100-year storm event. Accumulated sediment has been removed from Santa Rosa Road No. 2 Debris Basin eight (8) times since it was constructed, with a total sediment removal of 18,500 cubic yards. The average annual debris accumulation is 318 cubic yards.

Storm water detention in the basin behind the dam is minimal. The dam’s emergency spillway is activated during a 5- to 10-year storm event (approximately 600 cfs peak flow). A 10-year storm event would overtop the spillway by about 4 feet, while the 50- and 100-year storm events would overtop the spillway crest by about 6 feet. The emergency spillway on the dam is an unprotected earthen structure and could potentially fail from erosion and scour with virtually any sustained flow. The proposed project would remove the debris basin and dam, eliminating this dam breach risk.

Development of the watershed (primarily rural residential) since 1957 has greatly reduced the debris yield estimates for a 100-year storm event from approximately 12,500 cubic yards to 5,424 cubic yards (West Consultants 2016). Due to the low rates of observed debris collection, the Santa Rosa Road No. 2 Debris Basin has limited functionality. In addition, the earthen dam does not meet current District design standards of maintaining 3 feet of freeboard to the dam crest during a 100-year event. As it exists now, the basin is a significant hazard for dam breach due to the potential for earthen spillway erosion (West Consultants 2016). A dam breach during a 100-year (or greater) flood event would result in structure inundation and property loss downstream as well as overtopping of Santa Rosa Road by greater than seven feet of water (Figure 8). Hydraulic modelling indicates the extent of downstream flooding with and without the dam and the debris basin are nearly identical (Figures 6 and 7), illustrating that the storm flow detention function of the Santa Rosa Road No. 2 Debris Basin is negligible.

A Preliminary Design Study was completed in June 2016 and evaluated seven alternatives including no action (current maintenance activities), five modification alternatives, and basin removal. After evaluating all the alternatives based on potential cost, improvements to safety, changes to possible flood extent, downstream effects on debris/sediment, and anticipated public perception, the recommended alternative is basin removal (proposed project).

1.5 PROJECT PURPOSE

The purpose of the project is to decommission and remove the Santa Rosa Road No. 2 Debris Basin facility, minimize flood risk, and reduce future maintenance costs. The proposed project would meet this purpose and eliminate the potential flood risk associated with dam failure.

1.6 PREPARERS OF THE INITIAL STUDY

This document was prepared for the District by the following persons:

- Padre Associates: Matt Ingamells, Project Manager/Senior Biologist
- Padre Associates: Rachael Letter, Senior Archaeologist
- Padre Associates: Lucas Bannon, GIS Specialist
- Padre Associates: Pat McClure, Graphics Specialist

2.0 PROJECT DESCRIPTION

2.1 EXISTING FACILITIES

The existing Santa Rosa Road No. 2 Debris Basin is approximately 500 feet long and 70 feet wide, formed by an earthen dam on the downstream end which is approximately 150 feet long (perpendicular to the channel) and approximately 25 feet high (Figure 2). Photographs of the existing debris basin are provided as Figure 4. A vertical 36-inch diameter reinforced concrete pipe (RCP) and a vertical 10-inch diameter corrugated metal pipe (CMP) connect to a horizontal 24-inch diameter RCP, which routes surface water through the dam. An earthen emergency spillway directs storm water over the dam during major storm events when the pipe becomes overwhelmed. The maximum debris storage volume based on the dam elevation is 15,000 cubic yards (West Consultants 2016).

2.2 PROJECT CHARACTERISTICS

The proposed project consists of the removal of the Santa Rosa Road No. 2 Debris Basin facility and associated infrastructure, extension of the existing reinforced concrete (RC) box culvert that crosses beneath Santa Rosa Road, earthen channel reconstruction, and recontouring and revegetation of the site. In addition, the project would realign a portion of the Bridlewood Trail that currently traverses through the facility (Figures 2 and 5). Specific details of each project component are described below.

2.3 PROJECT COMPONENTS

2.3.1 Reinforced Concrete Box Culvert and Transition Structure

Currently, an equestrian trail extends upstream (northeast) from Santa Rosa Road on the west side of the facility. The trail then crosses the facility just downstream of the existing earthen dam and continues upstream along the east side of the facility (Figure 2). The equestrian trail is maintained by the Bridlewood Homeowner's Association (HOA). Removal of the dam and channelization of the debris basin would remove a portion of the existing equestrian trail. To connect to the trail from the west side to the east side of the facility, the existing 14-foot-wide by 6-foot-high RC box culvert that crosses beneath Santa Rosa Road would be extended by 45 linear feet and the existing 20-foot-long RC transition structure would be reconstructed at the upstream end of the new box culvert. Extending the RC box culvert would provide space to relocate the equestrian trail crossing to the south over the RC box culvert and expand the current unpaved shoulder clearance along Santa Rosa Road.

In addition to the extended RC box culvert and transition structure, removable bollards would be installed directly upstream of the transition structure. The purpose of the bollards would be to capture debris that may result from post-fire storm events.

2.3.2 Earthwork and Channel Construction

The proposed project involves removal of the existing earthen dam to restore a vegetated low-flow channel with a bed gradient of two percent and gradually sloping banks with slopes varying from 2:1 to 2.5:1 (horizontal:vertical). Approximately 7,700 cubic yards of earthen material would be excavated and re-used on site to re-establish (approximately to original condition) a 14-foot-wide, low-flow channel with banks that transition from a 2:1 slope on the downstream end to a 2.5:1 slope on the upstream end to transition and meet the existing topography upstream (Figure 3).

All earth material would be retained on site. The existing access road west of the channel would be connected from its downstream end to its upstream end following dam material removal. The remaining area of the dam from the edge of the western access road would be daylighted at a 2:1 slope to meet the existing topography. On the eastern side of the channel, a 10-foot-wide equestrian trail would be added with a cross slope of 2 percent. The edge of the proposed equestrian trail would meet the existing access road on the eastern side at a 2.25:1 slope that transitions at the top of the bank to a 2 percent slope to meet the edge of the access road (Figure 2). This would be achieved by redistributing the excavated earthen material and compacting it within the project site to produce the desired grading.

Following dam removal, the contiguous earthen low-flow channel would extend from the RC box culvert transition structure (Section 2.3.1) just north of Santa Rosa Road, to approximately 875 feet upstream (Figure 2). The low-flow channel would be approximately 14 feet-wide from toe of bank to toe of bank. The low-flow channel would have a 1 percent slope near the box culvert inlet. Figure 3 provides three cross-sections in the dam area, showing the proposed low-flow channel and removal and redistribution of earth material.

Twelve trees occur within the temporary work area and would be removed, including eleven Peruvian pepper trees (*Schinus molle*) and one blue gum tree (*Eucalyptus globulus*) (Table 4, Figure 9). Trees would be replaced with native blue elderberry (*Sambucus nigra* ssp. *caerulea*) and southern California black walnut (*Juglans californica*).

Two potential areas located outside the limits of earthwork (Figure 2) have been identified for temporary stockpiling of soil and staging heavy equipment during dam removal and redistribution of earth material.

2.3.3 Facilities Decommissioning

Debris basin decommissioning would include the removal and disposal of the following facility components:

- Outlet pipe: including approximately 22 linear feet of 24-inch diameter CMP, 112 linear feet of 24-inch diameter RC pipe and bulkhead outlet structure composed of concreted sand bags.
- Primary intake pipe: including the vertical section of 36-inch diameter RC pipe, trash rack, and baffle.
- Bleeder/riser intake: 10-inch diameter CMP, pipe collar, concrete encasement, and perforated metal pipe.

The existing access road along the east side of the Arroyo Santa Rosa Tributary channel would remain in place with a gravel (crushed miscellaneous base) surface.

2.3.4 Down Drain Reconstruction

Currently, a 36-inch diameter storm drain empties into the debris basin from Vista Arroyo Drive and includes concreted rock riprap erosion protection between the pipe outlet and the debris basin (Figure 2). The proposed project includes repairing and extending this erosion protection to the proposed low-flow channel. The improved erosion protection would extend approximately 50 feet and would be composed of 1.5-foot-thick concreted rock riprap. The width of the down drain would transition from the existing 20 feet (+/-) to 10 feet, with five-foot-deep concreted rock riprap cut-off walls along each edge.

2.3.5 Bridlewood Trail Realignment

A section of the access road along the eastern side of the Santa Rosa Road No. 2 Debris Basin is part of the Bridlewood Trail managed by the Bridlewood HOA. This equestrian trail is located on private property, with the public provided access under the provisions of California Civil Code Section 846. The trail extends northeast from Santa Rosa Road along the west side of the facility, crosses to the east side just downstream of the dam, then north along the east side of the facility (Figure 5). The trail then curves north and east along the Arroyo Santa Rosa Tributary channel to Vista Grande Street.

The proposed project includes the realignment of the trail to cross over the extended RC box culvert (Section 2.3.1) to the proposed 10-foot-wide equestrian trail on the eastern side of the facility. The trail would then join the existing access road and continue onto the existing equestrian trail.

2.3.6 Erosion Control Plantings

Planting of the recontoured slopes would be conducted at the end of decommissioning activities to prevent erosion and would consist of hydroseeding and/or planting container stock of native plants as shown in the Conceptual Revegetation Plan (Figure 10). A temporary irrigation system would be installed for watering the erosion control plantings until their root systems are established (approximately 2 years).

2.4 DECOMMISSIONING ACTIVITIES

2.4.1 General Characteristics

The initiation of decommissioning is planned for September 2019. Work in the flow channel would be conducted in the dry season to avoid surface water. The decommissioning period would be approximately three and a half months in duration (approximately 70 work days), including:

- Surveying and staking the approved work area;
- Temporary closure of the access road to hikers and equestrians;
- Heavy equipment mobilization;
- Removal of pipes and associated facilities;

- Removal of the dam and buried outlet piping;
- Extension of RC box culvert and construction of the transition structure;
- Channel construction and redistribution of earth material;
- Equestrian trail reestablishment;
- Down drain reconstruction;
- Compaction; and
- Erosion control (planting and/or hydroseeding).

Decommissioning activities would be limited to normal working hours between 7 a.m. and 7 p.m., Monday through Friday.

2.4.2 Work Area

The work area comprises approximately 2.2 acres, not including the existing access road which would be preserved.

2.4.3 Equipment

Typical vehicles and equipment anticipated to complete the project include: heavy-duty trucks, dump trucks, excavators, dozers, wheeled loaders, scrapers, motor-graders, soil compactors, and a hydroseeder.

2.4.4 Post-Decommissioning Management

Debris/sediment removal would be terminated, and regular maintenance of the project site would not be required. Establishment of the erosion control plantings would continue for 2 years after decommissioning, potentially including weeding and irrigation system repairs (and irrigation removal after plant establishment).

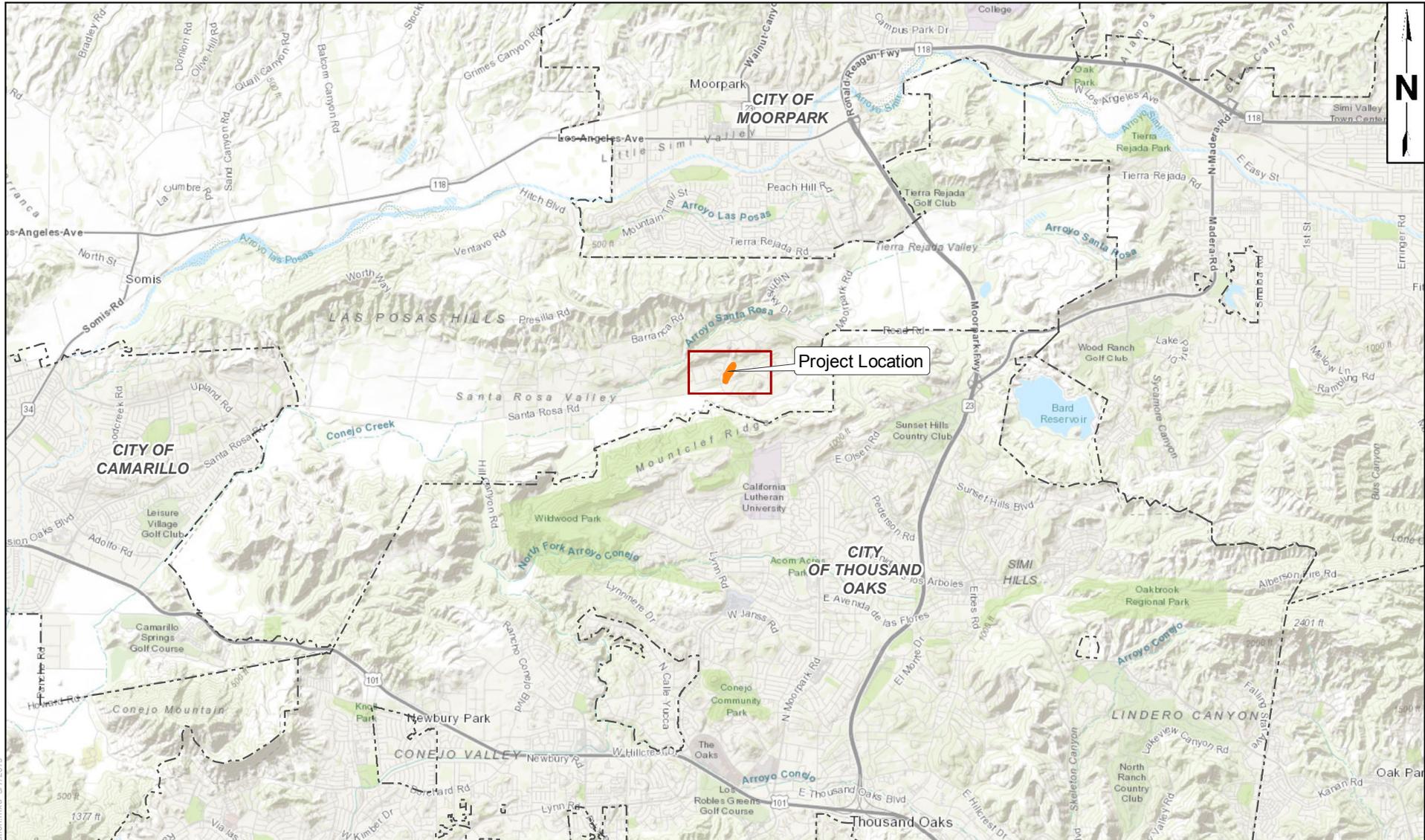
2.5 RESPONSIBLE AGENCIES AND PERMITS

Project implementation would require the following permits and/or agency consultation:

- Facility removal and recontouring within the Arroyo Santa Rosa Tributary would require a streambed alteration agreement from the California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code. This work would be conducted under a project-specific streambed alteration agreement OR the existing Streambed Alteration Agreement #1600-2004-0512-R5 which authorizes the District's Operations and Maintenance Program within identified streams in Ventura County.
- Facility removal and recontouring within the Arroyo Santa Rosa Tributary would require a Clean Water Act Section 404 permit authorization from the U.S. Army Corps of Engineers. This work would likely be conducted under a project-specific nationwide permit authorization.

- Facility removal and recontouring within the Arroyo Santa Rosa Tributary would require a Clean Water Act Section 401 water quality certification from the Regional Water Quality Control Board. This work would be conducted under a project-specific Section 401 water quality certification OR the existing Technically Conditioned Water Quality Certification (File No. 14-038) which authorizes the District's routine maintenance activities within identified streams in Ventura County.
- Facility removal and recontouring would require coverage under the General Permit for Discharges of Storm Water Associated with Construction and Land Disturbance Activities from the California Regional Water Quality Control Board, Los Angeles Region. However, this is not a discretionary action and the Regional Board would not be considered a responsible agency under CEQA.

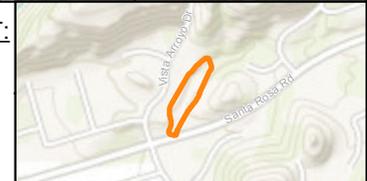
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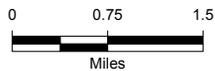
LEGEND:

- Project Location
- City Boundary

INSET:



Source: Esri Online Topo Basemap, County of Ventura
 Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
 Notes: This map was created for informational and display purposes only.



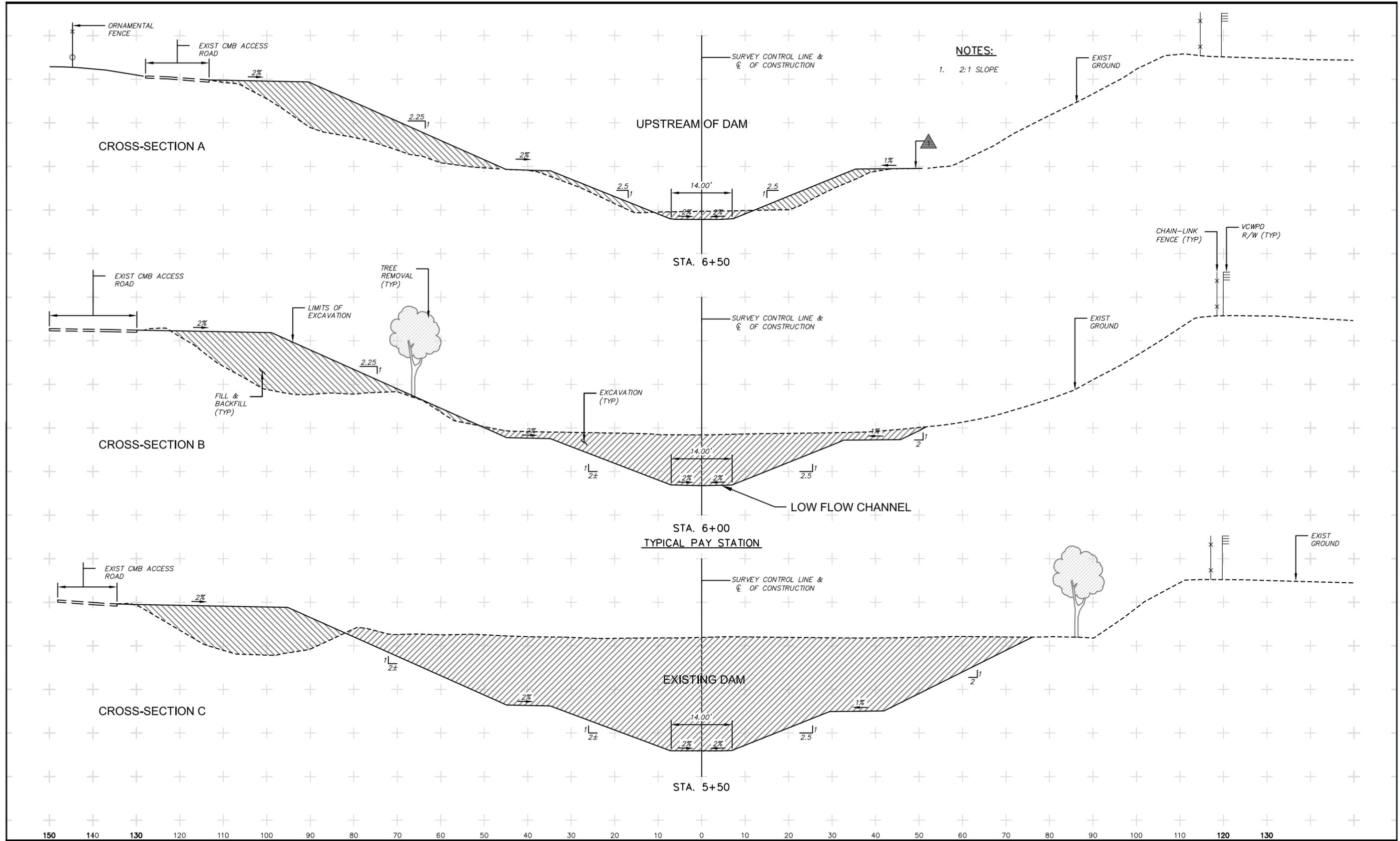
PROJECT NAME: SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING VENTURA COUNTY, CA	
PROJECT NUMBER: 1702-2551	DATE: March 2019

PROJECT LOCATION MAP

**FIGURE
1**

Back of Figure 1

Back of Figure 2



Back of Figure 3



a. Oblique view of the No. 2 Debris Basin



b. No. 2 Debris Basin from the dam crest, facing north



c. Channel downstream of the No. 2 Debris Basin dam

Back of Figure 4

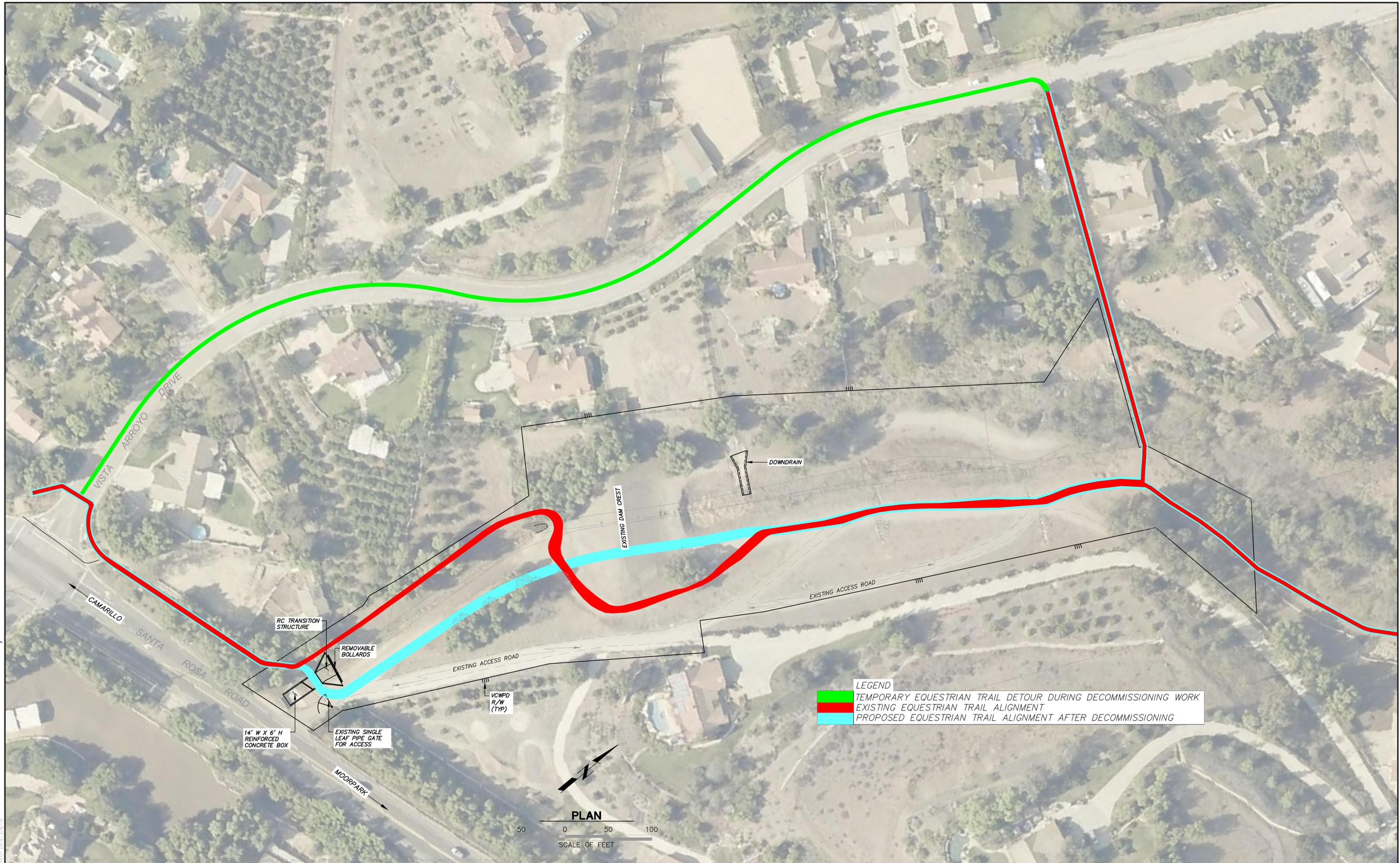


FIGURE 5

**COUNTY OF VENTURA
PUBLIC WORKS AGENCY
WATERSHED PROTECTION DISTRICT**

**SANTA ROSA ROAD #2 DEBRIS BASIN
DECOMMISSIONING**
EXISTING, PROPOSED TEMPORARY DETOUR, AND PERMANENT
EQUESTRIAN TRAIL ALIGNMENTS

D				
C				
B				
A				
Δ	REVISION	DESCRIPTION	APP	DATE

DESIGNED	—	DISTRICT PROJECT MANAGER	DATE
DRAWN	—	DEPUTY DIRECTOR	DATE
CHECKED	—	DISTRICT DIRECTOR	DATE

SPEC. NO.	—
PROJ. NO.	86903

SHEET	1
OF	1
DRAWING NO.	Y-?-?

PROJECT DATE: 2/22/25
 DATE:

Back of Figure 5



Santa Rosa Rd Debris Basin 2 Figure 6 - Existing Extent with 10 Year Flood Event.mxd - 1/26/2017

Source: West Consultants
 Notes: This map was created for informational and display purposes only.



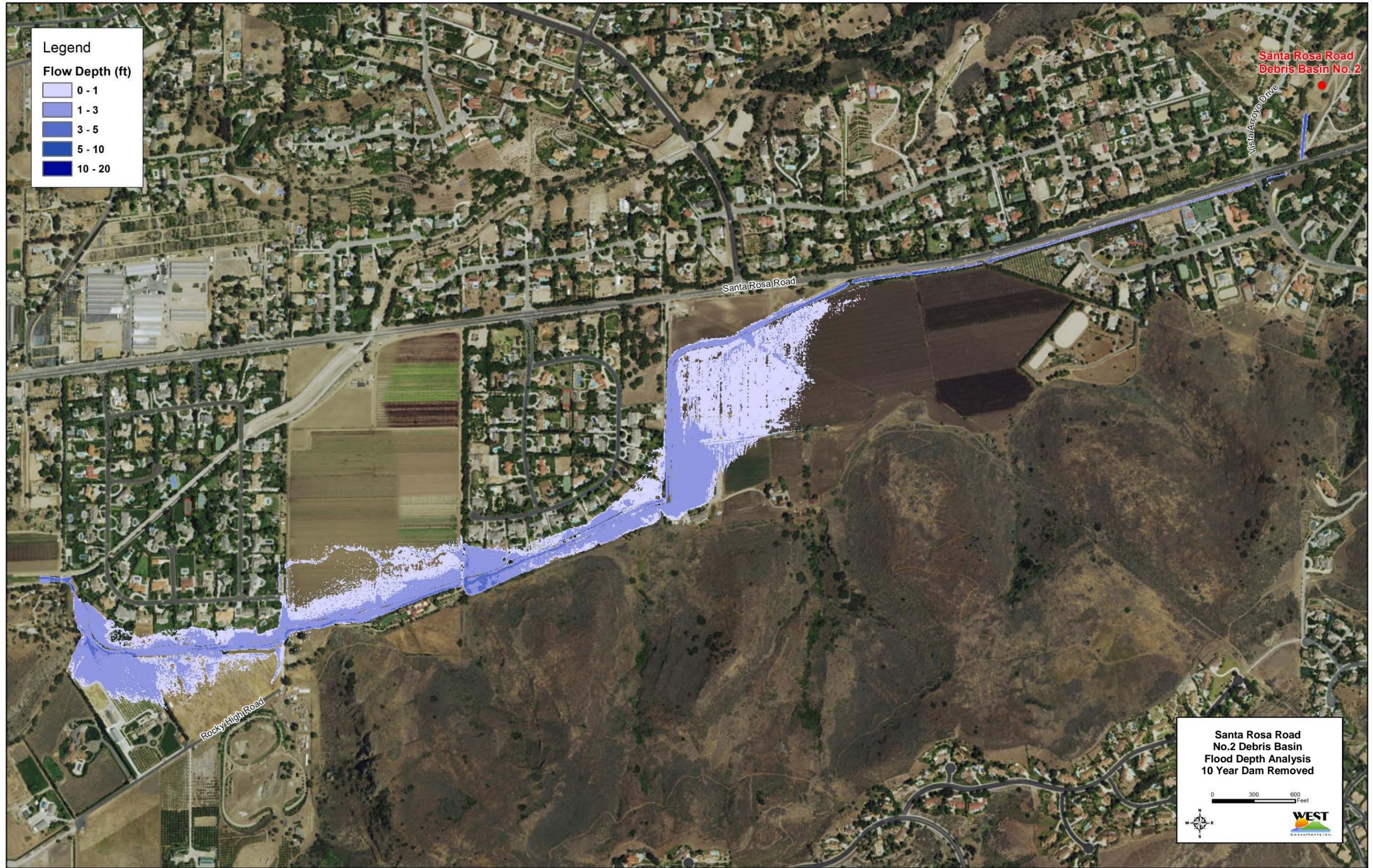
PROJECT NAME: SANTA ROSA ROAD
 NO. 2 DEBRIS BASIN DECOMMISSIONING
 VENTURA COUNTY, CA
 PROJECT NUMBER: 1702-2551
 DATE: February 2019

EXISTING EXTENT OF MODELED
 INUNDATION ASSOCIATED WITH
 A 10-YEAR FLOOD EVENT

FIGURE
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Santa Rosa Rd Debris Basin No. 2 Figure 7 - Post-Project Extent with 10 Year Flood Event.mxd 11/29/2017



Legend

Flow Depth (ft)

- 0 - 1
- 1 - 3
- 3 - 5
- 5 - 10
- 10 - 20

**Santa Rosa Road
No.2 Debris Basin
Flood Depth Analysis
10 Year Dam Removed**

0 300 600 Feet

Source: West Consultants
Notes: This map was created for informational and display purposes only.



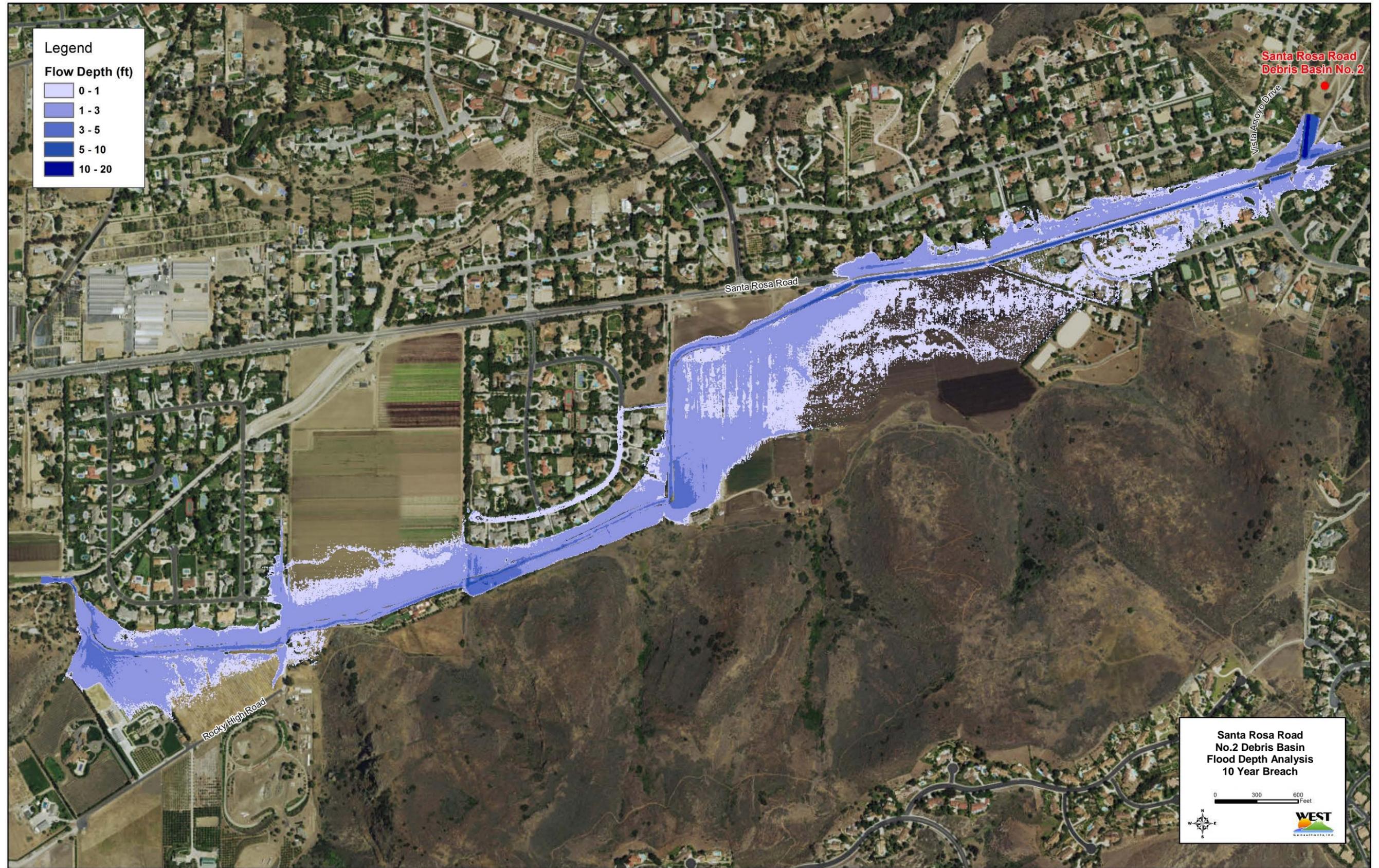
PROJECT NAME: SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING VENTURA COUNTY, CA	
PROJECT NUMBER: 1702-2551	DATE: February 2019

POST-PROJECT EXTENT OF MODELED
INUNDATION ASSOCIATED WITH
A 10-YEAR FLOOD EVENT

FIGURE
7

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Santa Rosa Rd Debris Basin 2 Figure 8 - Model of Dam Breach During 10 Year Flood Event.mxd 1/13/2017



Source: West Consultants
Notes: This map was created for informational and display purposes only.

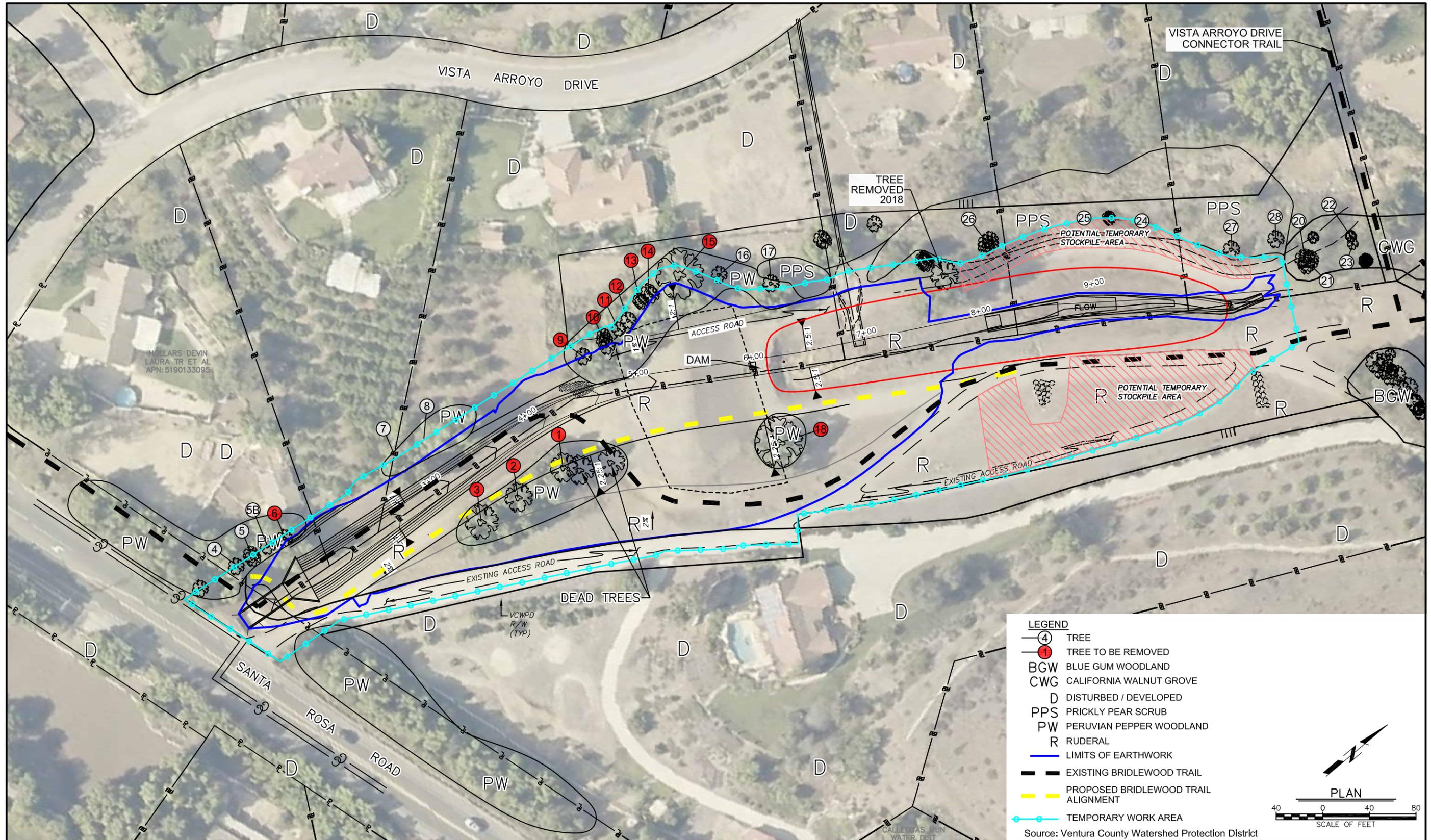


PROJECT NAME: SANTA ROSA ROAD NO. 2 DEBRIS BASIN DECOMMISSIONING VENTURA COUNTY, CA	
PROJECT NUMBER: 1702-2551	DATE: February 2019

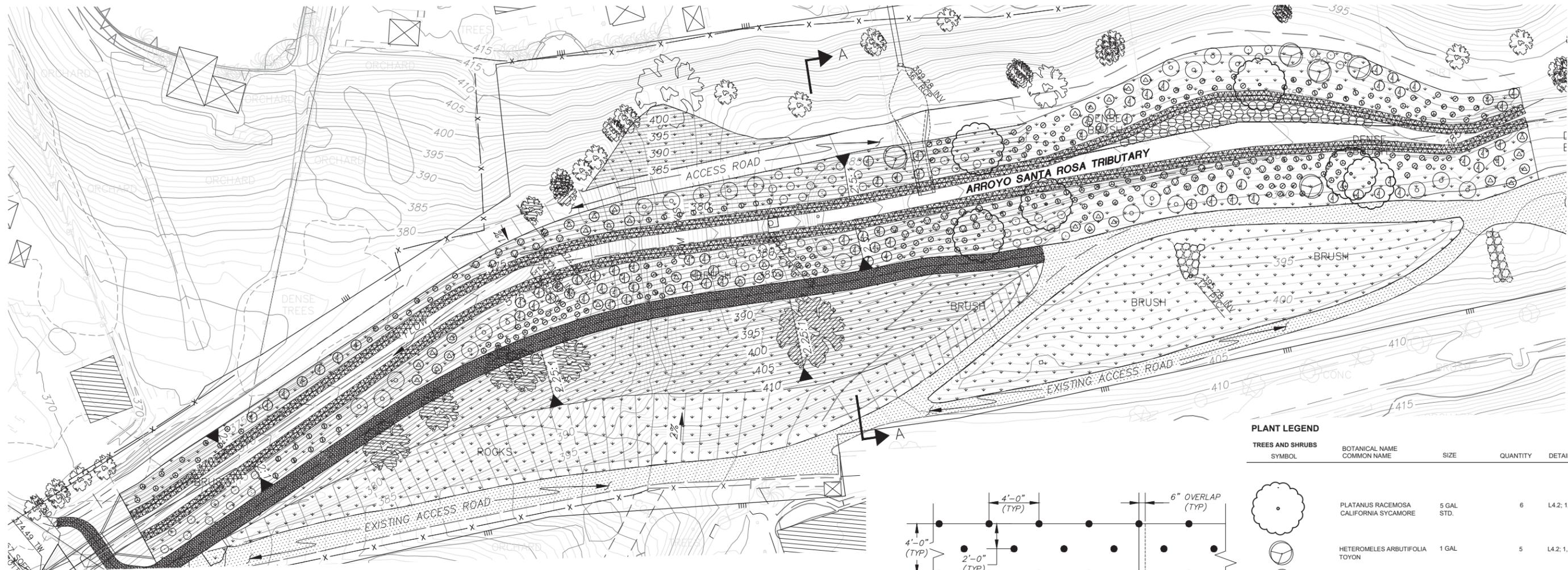
MODELED INUNDATION CAUSED
BY A DAM BREACH DURING A
10-YEAR FLOOD EVENT

FIGURE
8

Back of Figure 8



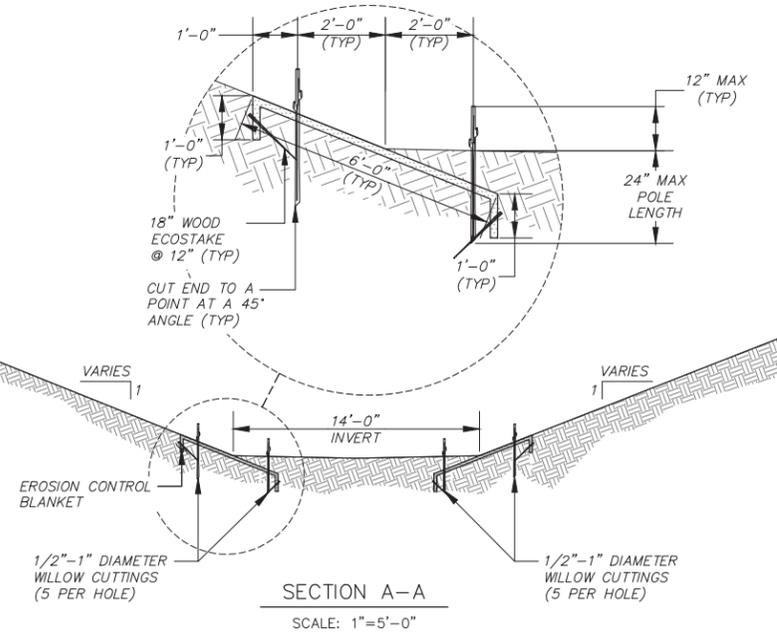
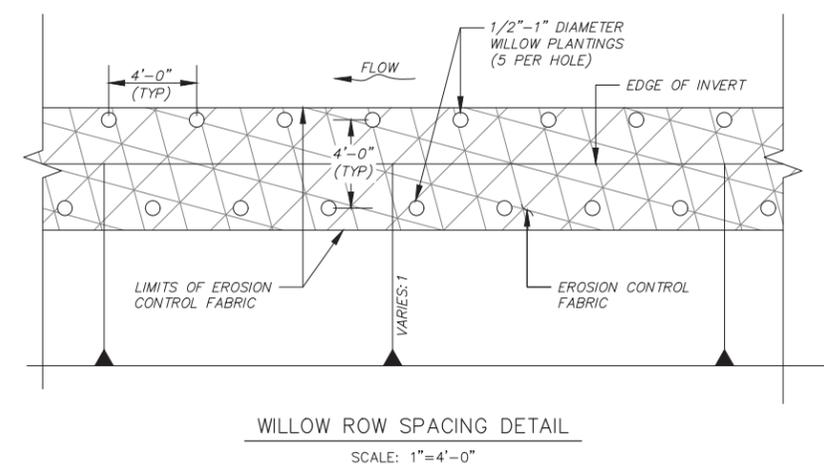
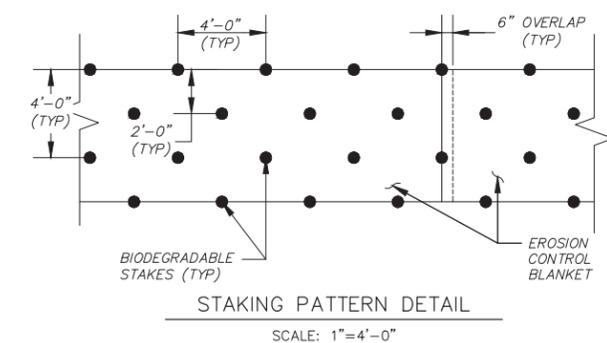
Back of Figure 9



PLANT LEGEND

TREES AND SHRUBS SYMBOL	BOTANICAL NAME COMMON NAME	SIZE	QUANTITY	DETAIL REF.
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	PLATANUS RACEMOSA CALIFORNIA SYCAMORE	5 GAL STD.	6	L4.2; 1, 2, 5
	HETEROMELES ARBUTIFOLIA TOYON	1 GAL	5	L4.2; 1, 2
	RHUS INTEGRIFOLIA LEMONADEBERRY	1 GAL	23	L4.2; 1, 2
	SALVIA MELLIFERA BLACK SAGE	1 GAL	58	L4.2; 3, 4
	BACCHARIS SALICIFOLIA MULEFAT	CUTTINGS	56	L4.2; 2
	SALVIA LEUCOPHYLLA PURPLE SAGE	1 GAL	38	L4.2; 3, 4
	DIPLACUS AURANTIACUS STICKY MONKEYFLOWER	1 GAL	59	L4.2; 3, 4
	OPUNTIA LITTORALIS COAST PRICKLY-PEAR	1 GAL	33	L4.2; 3, 4
	ARTEMISIA CALIFORNICA CALIFORNIA SAGEBRUSH	1 GAL	79	L4.2; 3, 4
	EPILOBIUM CANUM CALIFORNIA FUCSHIA	1 GAL	64	L4.2; 3, 4
	ERIOGONUM FASCICULATUM CALIFORNIA BUCKWHEAT	1 GAL	111	L4.2; 3, 4
	HYDROSEED MIX • ELYMUS CONDENSATUS (GIANT WILD RYE) • ENCELIA CALIFORNICA (BUSH SUNFLOWER) • ERIOPHYLLUM CONFERTIFLORUM (GOLDEN YARROW) • ESCHSCHOLZIA CALIFORNICA (CALIFORNIA POPPY) • ACHILLEA MILLEFOLIA (WHITE YARROW) • STIPA PULCHRA (PURPLE NEEDLEGRASS) • LASTHENIA CALIFORNICA (DWARF GOLDFIELDS) • GILIA CAPITATA (GLOBE GILIA) • LUPINUS SUCCULENTUS (ARROYO LUPINE)			
	2 ROWS OF WILLOW CUTTINGS WITH EROSION CONTROL BLANKET 4' ON CENTER. SEE DETAILS HEREON.			
	TREES TO BE REMOVED			



Source: Jordan, Gilbert & Bain Landscape Architects, Inc.
Notes: This map was created for informational and display purposes only.

padre
associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

PROJECT NAME: SANTA ROSA ROAD
NO. 2 DEBRIS BASIN DECOMMISSIONING
VENTURA COUNTY, CA

PROJECT NUMBER: 1702-2551

DATE: June 2019

LANDSCAPE PLAN

BACK OF FIGURE

3.0 LAND USE SETTING

The project site comprises the existing flood control easement, which encompasses approximately 5.9 acres on Assessor's Parcel Numbers 519-0-133-04, 519-0-133-05, 519-0-133-06, 519-0-133-07, 519-0-133-08, 519-0-133-09 and 519-0-030-15. The zoning and General Plan designations of the affected parcels is provided in Table 1. RE zoning refers to the Rural Exclusive zone, which provides for and maintains rural residential areas in conjunction with horticultural activities, and provides for a limited range of service and institutional uses which are compatible with and complementary to rural residential communities.

Table 1. Project Site Zoning and General Plan Designations

Assessor's Parcel no.	Parcel Area (acres)	Zoning	General Plan Designation
519-0-133-045	1.44	RE-1 ac	Existing Community
519-0-133-055	1.36	RE-1 ac	Existing Community
519-0-133-065	1.18	RE-1 ac	Existing Community
519-0-133-075	2.12	RE-1 ac	Existing Community
519-0-133-085	1.33	RE-1 ac	Existing Community
519-0-133-095	1.32	RE-1 ac	Existing Community
519-0-030-155	6.93	RE-5 ac	Rural

4.0 ENVIRONMENTAL IMPACT ANALYSIS

This section evaluates the potential environmental impacts of the proposed project. The analysis of potential impacts is consistent with methodology and impact threshold criteria presented in the Ventura County Initial Study Assessment Guidelines (Ventura County 2011). Impact analysis is organized by environmental topic (e.g., air quality, water resources, etc.). The determinations of significance for project-level and cumulative impacts are summarized in the Initial Study Checklist, which is attached to this document. Cumulative impacts were assessed to determine if the project's incremental contribution would be considerable, such that an environmental impact report would be required. Cumulative impacts were considered significant if project-specific impacts would be significant. Growth inducement is discussed in a separate section following cumulative impacts. In addition, a summary of project consistency with the policies of the Ventura County General Plan is provided as Table 6.

ISSUE 1: AIR QUALITY

Setting. Ventura County is located in the South-Central Coast Air Basin. The topography and climate of Southern California combine to make the basin an area of high air pollution potential. Ozone and particulate matter less than 10 microns (PM₁₀) are of particular interest in Ventura County because State air quality standards for these pollutants are regularly exceeded. The air quality of Ventura County is monitored by a network of five stations, operated by the California Air Resources Board (CARB) and the Ventura County Air Pollution Control District (APCD). The Thousand Oaks monitoring station is the nearest station to the project site, located approximately 2.2 miles to the south-southeast.

Table 2 lists the monitored maximum concentrations and number of exceedances of air quality standards for the years 2015 through 2017. As shown in Table 2, ozone concentrations monitored at the Thousand Oaks station did not exceed the State 1-hour standard and rarely exceeded the State 8-hour ozone standard from 2015 through 2017. PM₁₀ concentrations exceeded the State 24-hour standard at the Simi Valley station (not monitored at the Thousand Oaks station) during 16 sampling events from 2015 through 2017.

Significance Thresholds. The APCD has prepared Air Quality Assessment Guidelines (2003) for the preparation of air quality impact analyses. The Guidelines indicate that projects within the County would have a significant impact on the environment if they would:

- Result in daily emissions exceeding 25 pounds of reactive organic compounds (ROC) or oxides of nitrogen (NO_x).
- Cause a violation or make a substantial contribution to a violation of an ambient air quality standard.
- Directly or indirectly cause the existing population to exceed the population forecasts in the most recently adopted Ventura County Air Quality Management Plan (AQMP).
- Be inconsistent with the AQMP and emit greater than 2 pounds per day ROC or NO_x.

Due to the temporary, short-term nature of construction emissions, the APCD does not apply the quantitative emissions thresholds for ROC and NO_x to construction activities. The APCD does require that emission reduction measures be implemented during construction to reduce exhaust emissions and fugitive dust generation.

Table 2. Air Quality Summary

Parameter	Standard	Year		
		2015	2016	2017
Ozone (O₃) – parts per million (Thousand Oaks station)				
Maximum 1-hour concentration monitored (ppm)		0.078	0.080	0.090
Number of days exceeding State standard	0.095 ppm	0	0	0
Maximum 8-hour concentration monitored (ppm)		0.069	0.076	0.073
Number of days exceeding State & Federal 8-hour standard	0.070 ppm	0	1	6
Particulate Matter less than 10 microns (PM₁₀) – micrograms per cubic meter (Simi Valley station)				
Maximum sample (µg/m ³)		62.8	156.3	149.8
Number of samples exceeding State standard	50 µg/m ³	3	4	9
Number of samples exceeding Federal standard	150 µg/m ³	0	1	0
Particulate Matter less than 2.5 microns (PM_{2.5}) – micrograms per cubic meter (Thousand Oaks station)				
Maximum sample (µg/m ³)		32.2	35.2	32.0
Number of samples exceeding Federal 24-hour standard	35 µg/m ³	0	0	0

Part 1.a Regional

Impacts (LS). Emissions would be generated during the removal of the No. 2 Debris Basin dam and associated facilities and recontouring the site, which are essentially construction-related emissions sources. No long-term air pollutant emissions would be generated by the project. Proposed decommissioning would remove the need for future debris/sediment removal activities, which would also prevent air pollutant emissions associated with these activities.

Project emissions were estimated using the OFFROAD and EMFAC2014 emissions estimation models developed by the CARB. Peak day project emissions would be 20.3 pounds NO_x and 2.5 pounds ROC. As such, NO_x emissions during peak construction periods would not exceed the 25 pounds per day threshold established by the APCD. In any case, due to the temporary, short-term nature of construction emissions, the APCD does not apply the quantitative emissions thresholds for ROC and NO_x to construction activities. The APCD does require that emission reduction measures be implemented during construction-type activities to reduce exhaust emissions and fugitive dust generation.

Projects that cause local populations to exceed population forecasts in the Air Quality Management Plan (AQMP) are considered inconsistent with the AQMP, as exceeding population forecasts can result in the generation of emissions beyond those which have been projected in the AQMP. The proposed project would not provide any housing or long-term employment opportunities; therefore, it would not result in any population growth. As such, the project would be consistent with the AQMP.

The combustion of diesel fuel in truck engines (as well as other internal combustion engines) produces exhaust containing a number of compounds that have been identified as hazardous air pollutants by EPA and toxic air contaminants by the CARB. Particulate matter (PM) from diesel exhaust has been identified as a toxic air contaminant, which has prompted CARB to develop a Final Risk Reduction Plan (released October 2000) for exposure to diesel PM. Based on CARB Resolution 00-30, full implementation of emission reduction measures recommended in the Final Risk Reduction Plan would result in a 75 percent reduction in the diesel PM Statewide inventory and the associated cancer risk by 2010, and an 85 percent reduction by 2020 in the diesel PM inventory and potential cancer risk.

Construction of the proposed project would involve diesel exhaust emissions from heavy equipment and/or heavy-duty trucks as close as 50 feet from several residences. However, these residences are currently exposed to regional diesel exhaust emissions from motor vehicle traffic on Santa Rosa Road, State Route 23, and rail traffic on the Union Pacific Railroad/MetroLink tracks. The proposed project would have a small, short-term contribution to existing diesel PM emissions associated with decommissioning activities, and impacts are considered less than significant. The proposed project would eliminate the need for future facility maintenance (e.g., debris removal from the basin), which would result in a small long-term reduction in diesel PM emissions.

APCD Emissions Reduction Measures. Air emissions reduction measures recommended by the Ventura County APCD Air Quality Assessment Guidelines (revised 2003) will be incorporated into the project including:

- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized to prevent excessive amounts of dust.
- Pre-grading/excavation activities shall include watering the area to be graded or excavated before commencement of grading or excavation operations. Application of water (preferably reclaimed, if available) should penetrate sufficiently to minimize fugitive dust during grading activities.
- All trucks shall be required to cover their loads as required by California Vehicle Code §23114.
- All graded and excavated material, exposed soil areas, and active portions of the construction site, including unpaved on site roadways, shall be treated to prevent fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally-safe soil stabilization materials, and/or roll-compaction as appropriate. Watering shall be done as often as necessary and reclaimed water shall be used whenever possible.

- Graded and/or excavated inactive areas of the construction site shall be monitored at least weekly for dust stabilization. Soil stabilization methods, such as water and roll-compaction, and environmentally-safe dust control materials, shall be periodically applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until plant growth is evident, or periodically treated with environmentally-safe dust suppressants, to prevent excessive fugitive dust.
- Signs shall be posted on site limiting traffic to 15 miles per hour or less.
- During periods of high winds (i.e., wind speed sufficient to cause fugitive dust to impact adjacent properties), all clearing, grading, earth moving, and excavation operations shall be curtailed to the degree necessary to prevent fugitive dust created by on site activities and operations from being a nuisance or hazard, either off site or on site. The site superintendent/supervisor shall use his/her discretion in conjunction with the APCD in determining when winds are excessive.
- Adjacent streets and roads shall be swept at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.
- Personnel involved in grading operations, including contractors and subcontractors, shall be advised to wear respiratory protection in accordance with California Division of Occupational Safety and Health regulations.
- Material stockpiles shall be enclosed, covered, stabilized, or otherwise treated as needed to prevent blowing fugitive dust off site.
- All project construction and site preparation operations shall be conducted in compliance with all applicable Ventura County APCD Rules and Regulations with emphasis on Rule 50 (Opacity), Rule 51 (Nuisance), Rule 55 (Fugitive Dust) and Rule 10 (Permits Required).
- Signs displaying the APCD complaint line telephone number (805/645-1400 during business hours; 805/654-2797 after hours) shall be posted in a prominent location visible to the public.

Part 1.b Local

Impacts (LS). State 1-hour ambient standards for carbon monoxide (CO) are sometimes exceeded at urban roadway intersections during times of peak traffic congestion. These localized areas are sometimes called CO hotspots. The project site is located near a major arterial roadway (Santa Rosa Road) and is exposed to vehicle emissions. However, ambient CO levels in the region are low due to increasingly stringent vehicle emissions standards, use of oxygenated fuels, and relatively low population density.

The number of daily vehicle trips that would be generated by the project (up to 20 one-way trips per day) would not substantially add to traffic volumes on Santa Rosa Road (22,100 average daily trips in 2018) (Ventura County Public Works Agency 2018). Considering the above, the project would not be expected to create or contribute substantially to the violation of CO standards.

Fugitive dust would be generated by the operation of heavy equipment and vehicles during dam removal and recontouring. Dust generation from these activities would be considered a significant impact if APCD Rule 51 is violated. Rule 51 states “A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public or which endangers the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.” Fugitive dust generated by the project may be considered a nuisance by adjacent land uses. Therefore, fugitive dust reduction measures listed in Part 1.a above have been incorporated into the project.

ISSUE 2: WATER RESOURCES

Part 2.a Groundwater Quantity

Setting. Portions of the project site downstream of the dam are located in the Arroyo Santa Rosa Valley Groundwater Basin, which encompasses a surface area of 3,730 acres underlying the Santa Rosa Valley. Groundwater is found in alluvium and the San Pedro Formation. Groundwater is generally unconfined, except in the lower San Pedro Formation in the western part of the basin (California Department of Water Resources 2004).

The Arroyo Santa Rosa Valley Groundwater Basin includes portions of the Lower Aquifer System managed by the Fox Canyon Groundwater Management Agency. Groundwater levels are heavily influenced by surface flows in Conejo Creek, which are augmented by discharge of wastewater from the Hill Canyon Wastewater Treatment Plant and dewatering wells in Thousand Oaks. The Santa Rosa Basin Groundwater Management Plan was completed in 2013 to protect and enhance groundwater quality and provide a sustainable source of local groundwater. The Arroyo Santa Rosa Basin Groundwater Sustainability Agency was formed in 2016.

The existing No. 2 Debris Basin is located in the Conejo-Tierra Rejada Volcanic Basin, which lies (in part) between the Arroyo Santa Rosa Valley Groundwater Basin and the Tierra Rejada Groundwater Basin. The Volcanic Basin is not an important source of groundwater.

Significance Thresholds. The following significance thresholds are from the Ventura County Initial Study Assessment Guidelines (ISAG):

1. Any land use or project that will directly or indirectly decrease, either individually or cumulatively, the net quantity of groundwater in a groundwater basin that is overdrafted or creates an overdrafted groundwater basin shall be considered to have a significant groundwater quantity impact.

2. In groundwater basins that are not overdrafted, or are not in hydrologic continuity with an overdrafted basin, net groundwater extraction that will individually or cumulatively cause overdrafted basin(s), shall be considered to have a significant groundwater quantity impact.
3. In areas where the groundwater basin and/or hydrologic unit condition is not well known or documented and there is evidence of overdraft based upon declining water levels in a well or wells, any proposed net increase in groundwater extraction from that groundwater basin and/or hydrologic unit shall be considered to cause a significant groundwater quantity impact until such time as reliable studies determine otherwise.
4. Regardless of items 1-3 above, any land use or project which would result in 1.0 acre-feet, or less, of net annual increase in groundwater extraction is not considered to have a significant project or cumulative impact on groundwater quantity.
5. Any project that is inconsistent with any of the policies or development standards relating to groundwater quantity of the Ventura County General Plan Goals, Policies and Programs or applicable Area Plan, may result in a significant environmental impact.

Impacts (LS). The project would require a small amount of water for dust control and soil compaction purposes during decommissioning, and for irrigation of erosion control plantings (infrequently for two years). Water would be supplied by the Camrosa Water District from an existing irrigation valve adjacent to the southern end of the project site. Water supplied by the Camrosa Water District is primarily obtained from diversion of surface flows in Conejo Creek and imported water, with only 18 percent pumped from the Arroyo Santa Rosa Valley and Tierra Rejada Groundwater Basins (MWH 2013). Due to the small volume required (maximum of a few thousand gallons per day for up to 70 work days), and temporary water demand of the project, additional groundwater extraction would not be required to meet project demands. In any case, potentially affected groundwater basins are not overdrafted, and any project-related groundwater extraction would not result in overdraft of any groundwater basin. The proposed project would not impede sustainable groundwater management of the Arroyo Santa Rosa Valley and Tierra Rejada Groundwater Basins.

Part 2.b Groundwater Quality

Setting. Groundwater extracted from wells in the Arroyo Santa Rosa Valley Groundwater Basin frequently exceeds the primary maximum contaminant level for nitrate and occasionally the secondary maximum contaminant level for sulfate (MWH 2013).

Significance Thresholds. The following significance thresholds are from the Ventura County ISAG:

1. Any land use or project proposal that will individually or cumulatively degrade the quality of groundwater and cause groundwater to exceed groundwater quality objectives set by the Basin Plan shall be considered to have a significant impact.

2. A land use or project shall be considered to have a significant impact on groundwater quality where there is evidence that the proposed land use or project could cause the quality of groundwater to fail to meet the groundwater quality objectives set by the Basin Plan.
3. Any land use or project that proposes the use of groundwater in any capacity and is located within two miles of the boundary of a former or current test site for rocket engines shall be considered to have a significant impact.
4. Any project that is inconsistent with any of the policies or development standards relating to groundwater quality of the Ventura County General Plan Goals, Policies and Programs or applicable Area Plan, may result in a significant environmental impact.

Impacts (NI). The project would not discharge any wastewater or other materials that may infiltrate to a groundwater basin and adversely affect groundwater quality. Fueling and maintenance of heavy equipment associated with the proposed project would be conducted in areas away from the Arroyo Santa Rosa Tributary to prevent any inadvertent spillage from affecting any underlying groundwater. In addition, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared, which would include best management practices to be implemented which would also prevent discharges to surface waters.

Part 2.c Surface Water Quantity

Setting. The proposed project includes a portion of the Arroyo Santa Rosa Tributary, which empties into Arroyo Santa Rosa approximately 2.1 stream miles downstream of the project site. Arroyo Santa Rosa empties into Conejo Creek approximately 1.1 stream miles downstream of its confluence with the Arroyo Santa Rosa Tributary.

The No. 2 Debris Basin watershed area is 1,101 acres and is estimated to experience a peak inflow of 1,274 cubic feet/second (cfs) during a 100-year storm event. The project site supports surface water only after storm events, and is dry for most of the year. A stream flow gauge (No. 838) measured peak storm flow rates in Arroyo Santa Rosa approximately 1,700 feet downstream of its confluence with the Arroyo Santa Rosa Tributary, between 1985 and 2014. The largest flow event recorded was 2,986 cfs on January 9, 2005.

Significance Thresholds. The following significance thresholds are from the Ventura County ISAG:

1. Any project that will increase surface water consumptive use (demand), either individually or cumulatively, in a fully appropriated stream reach as designated by the State Water Resources Control Board or where unappropriated surface water is unavailable, shall be considered to have a significant adverse impact on surface water quantity.

2. Any project that will increase surface water consumptive use (demand) including but not limited to diversion or dewatering downstream reaches, either individually or cumulatively, resulting in an adverse impact to one or more of the beneficial uses listed in the Basin Plan is considered a significant adverse impact.
3. Any project that is inconsistent with any of the policies or development standards relating to surface water quantity of the Ventura County General Plan Goals, Policies and Programs or applicable Area Plan may result in a significant environmental impact.

Impacts (NI). The project would require a small amount of water for dust control and soil compaction purposes during decommissioning, and for irrigation of erosion control plantings (infrequently for two years). Water would be supplied by the Camrosa Water District which obtains water from diversion of surface flows in Conejo Creek, imported water provided by the Calleguas Municipal Water District, and local groundwater. Imported water (in part) originates as surface flows in the Sacramento River delta. The environmental impacts associated with obtaining this water have been fully addressed in CEQA documents prepared for the State Water Project. The proposed project would not result in any consumptive use of local surface water. The proposed project would be consistent with the Ventura County General Plan with regard to surface water uses.

Part 2.d Surface Water Quality

Setting. The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) has jurisdiction over waters between Rincon Point (at the western boundary of Ventura County) and the eastern Los Angeles County line. The Regional Board has developed a Water Quality Control Plan, or “Basin Plan”, to protect the quality of surface and groundwaters of the region. The Basin Plan designates beneficial uses of waters within the region, sets narrative and numerical water quality objectives to protect beneficial uses, and describes implementation programs intended to meet the Basin Plan objectives.

Beneficial uses established for surface water in Arroyo Santa Rosa are groundwater recharge, intermittent water contact recreation, intermittent non-water contact recreation, intermittent warm freshwater habitat and wildlife habitat (LARWQCB 1994, revised 2013).

Surface water of Arroyo Santa Rosa is considered impaired under Section 303(d) of the Clean Water Act, due to elevated levels of indicator bacteria, ammonia, ChemA (tissue), chlordane, DDT (tissue), dieldrin, endosulfan, polychlorinated biphenyls, sedimentation/siltation, sulfates, total dissolved solids, toxaphene (tissue and sediment) and toxicity (SWRCB 2016). A water body is impaired when data indicate that adopted water quality objectives are continually exceeded or that beneficial uses are not protected.

Significance Thresholds. The following significance thresholds are from the Ventura County ISAG:

1. Any land use or project proposal that is expected to individually or cumulatively degrade the quality of surface water causing it to exceed water quality objectives of the Basin Plan may have a significant impact.

2. Any land use or project development that directly or indirectly causes stormwater quality to exceed water quality objectives or standards in the County's Municipal Stormwater MS4 Permit or any other NPDES Permits may have a significant impact.

Impacts (LS). Although earthwork and culvert extension construction is planned for the dry season, rainfall may occur during decommissioning activities and storm water run-off from the project site may degrade surface water quality. The project would disturb over one acre of land such that it would require coverage under the National Pollutant Discharge Elimination System General Permit for Discharges of Storm Water Associated with Construction and Land Disturbance Activities (Water Quality Order 2009-0009-DWQ). As required by the conditions of the General Permit, a SWPPP would be prepared, which would include best management practices to be implemented and a monitoring program. The intent of the SWPPP would be to prevent project-related pollutants from contacting surface water and prevent products of erosion from moving off site into receiving waters.

Project-related construction activities would be subject to Best Management Practices identified for construction sites exceeding one acre as identified in the County's stormwater quality management program developed for the Ventura County Municipal Separate Storm Sewer System Permit (Order R4-2010-0108, NPDES Permit no. CAS004002) and must complete a Form SW-2. Implementation of the SWPPP and best management practices identified on Form SW-2, and monitoring required under the General Permit would prevent significant impacts to surface water quality.

ISSUE 3: MINERAL RESOURCES

Part 3.a Aggregate Resources

Setting. Aggregate resources are defined as construction grade sand and gravel. The project site is located in an area designated as MRZ-1 by the State of California Division of Mines and Geology (CDMG 1993). This designation indicates the area is not expected to contain significant aggregate deposits. The nearest aggregate mining operation in the project area is the Grimes Rock quarry, located approximately 6.4 miles north of the project site.

Significance Thresholds. The following significance thresholds are from the Ventura County ISAG:

1. Any land use or project activity which is proposed to be located on or immediately adjacent to land zoned Mineral Resource Protection overlay zone, or adjacent to a principal access road to an existing aggregate Conditional Use Permit, and which has the potential to hamper or preclude extraction of or access to the aggregate resources, shall be considered to have a significant adverse impact on the environment.
2. A project would have a cumulative impact on aggregate resources if when considered with other pending and recently approved projects in the area, hampers or precludes extraction or access to identified resources.

Impacts (LS). The project site is not located within an area that may contain significant aggregate deposits. The proposed project would require a small amount of aggregate resources for the box culvert extension and transition structure and reconstruction of the down drain, but would not generate any regional or long-term demand for aggregate resources or hamper future extraction of aggregate from the area. Therefore, the project would have a less than significant impact on aggregate resources.

Part 3.b Petroleum Resources

Setting. Petroleum resources are defined as oil and gas deposits. Known petroleum fields are mapped by the State of California Division Oil, Gas, and Geothermal Resources (DOGGR). According to DOGGR's on-line mapping system, the nearest active well to the project site is an oil well operated by California Resources Corporation, located approximately 5.1 miles to the northeast (Oak Park Field). There are no oil or gas processing facilities in the immediate project area.

Significance Thresholds. The following significance thresholds are from the Ventura County ISAG:

1. Any land use that is proposed to be located on or immediately adjacent to any known petroleum resource area, or adjacent to a principal access road to an existing petroleum CUP, has the potential to hamper or preclude access to petroleum resources.
2. If the subject property is not located on or adjacent to land located in an oil field or containing an oil extraction CUP, then the project would not cause a significant impact on the extraction of oil resources. If the subject property is located on or adjacent to land located in an oil field or containing an oil extraction CUP, then the state Division of Oil and Gas Regulation should be consulted for their review of the project application.
3. If the subject property is not located adjacent to a road used as a principal means of access to an existing CUP for oil extraction, and the proposed use is not sensitive to the effects of truck traffic to and from the oil CUP, then the project would not cause a significant impact on access to oil resources.

Impacts (NI). As indicated above, the project site is not located within or adjacent to a petroleum resource area or petroleum production facility. Project-related activities would only use a minor amount of petroleum products for heavy equipment and vehicle fuels, and would not affect the supply of petroleum in the County. In addition, the proposed project would not create a barrier to the extraction of petroleum resources, if discovered near the project site. Therefore, the proposed project would not impact petroleum resources.

ISSUE 4: BIOLOGICAL RESOURCES

Part 4.a Species

Setting. Biological field surveys of the project site were conducted by Padre Associates Senior Biologist Matt Ingamells on October 5, 2017 and February 22, 2019. A total of 64 vascular plant species were identified during the field surveys of the project site. Plants observed within the project site consisted of 23 (36 percent) native taxa and 41 (64 percent) non-native, naturalized taxa. The high proportion of non-native plant species reflects the disturbed nature of the site. Twenty-eight of the 41 non-native plant species are listed as invasive by the California Invasive Plant Council, including two species rated as highly invasive, 13 species rated as moderately invasive, and 13 species rated as limited invasiveness.

Wildlife observed at the project site during the field surveys included California scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), northern mockingbird (*Mimus polyglottos*), Anna’s hummingbird (*Calypte anna*), band-tailed pigeon (*Patagioenas fasciata*), Audubon’s warbler (*Setophaga coronata*), Say’s phoebe (*Sayornis saya*), black phoebe (*Sayornis nigricans*), mourning dove (*Zenaida macroura*), California quail (*Callipepla californica*), northern flicker (*Colaptes auratus*), blue-gray gnatcatcher (*Polioptila caerulea*), American robin (*Turdus migratorius*), house finch (*Haemorhous mexicanus*), Botta’s pocket gopher (*Thomomys bottae*), western gray squirrel (*Sciurus griseus*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), and black-tailed deer (*Odocoileus hemionus*).

Table 3 lists special-status species observed or reported within 10 miles of the project site based on the results of the biological field surveys, literature research (including biological studies prepared for nearby projects) and review of the California Natural Diversity Data Base and California Native Plant Society (CNPS) inventory.

Table 3. Special-Status Species Reported within 10 miles of the Project Site

Common Name (<i>Scientific Name</i>)	Status	Nearest Reported Location to the Project Site
Southern California black walnut (<i>Juglans californica</i>)	List 4	Observed at the project site during the field survey
Catalina mariposa lily (<i>Calochortus catalinae</i>)	List 4	Tentative Tract Map 4410, 2.1 miles to the west
Plummer’s mariposa lily (<i>Calochortus plummerae</i>)	List 4	Conejo Valley, 5 miles to the southwest
Ojai navarretia (<i>Navarretia ojaiensis</i>)	List 1B	Conejo Center Drive, 4.3 miles to the southwest
Gerry’s curly-leaved monardella (<i>Monardella sinuata</i> ssp. <i>gerryi</i>)	List 1B	Las Posas Road, 1.1 miles to the west
White-veined monardella (<i>Monardella hypoleuca</i> ssp. <i>hypoleuca</i>)	List 1B	Circle X Ranch, 9.2 miles to the south

Table 3. Continued

Common Name (Scientific Name)	Status	Nearest Reported Location to the Project Site
Dune larkspur (<i>Delphinium parryi</i> ssp. <i>blochmaniae</i>)	List 1B	Near Lake Eleanor, 8.0 miles to the south
Blochman's dudleya (<i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>)	List 1B	Near Conejo Center Drive, 4.3 miles to the southwest
Chaparral ragwort (<i>Senecio aphanactis</i>)	List 2B	Lynnmere Open Space, 2.2 miles to the south
Southern tarplant (<i>Centromadia parryi</i> ssp. <i>australis</i>)	List 1B	Near the Borchard Road bridge, 4.8 miles to the southwest
Verity's dudleya (<i>Dudleya verityi</i>)	FT, List 1B	Conejo Mountain, 6.6 miles to the southwest
Conejo buckwheat (<i>Eriogonum crocatum</i>)	SR, List 1B	Wildwood Park, 0.9 miles to the south
Marcescent dudleya (<i>Dudleya cymosa</i> ssp. <i>marcescens</i>)	FT, SR, List 1B	Hidden Valley; 7.4 miles to the south-southwest
Conejo dudleya (<i>Dudleya parva</i>)	FT, List 1B	Mount Clef Ridge Open Space; 0.6 miles to the southeast
Braunton's milkvetch (<i>Astragalus brauntonii</i>)	FE, List 1B	Long Grade Canyon, 8.9 miles to the southwest
Lyon's pentachaeta (<i>Pentachaeta lyonii</i>)	FE, SE, List 1B	Near California Lutheran University, 0.7 miles to the southeast
Santa Susana tarplant (<i>Deinandra minthornii</i>)	SR, CNPS List 1B	Near Lake Sherwood, 6.6 miles to the south
California Orcutt grass (<i>Orcuttia californica</i>)	FE, SE, CNPS List 1B	Near State Route 23, 2.5 miles to the northeast
Riverside fairy shrimp (<i>Streptocephalus woottoni</i>)	FE	Near State Route 23, 2.5 miles to the northeast
Southern California Coast steelhead (<i>Oncorhynchus mykiss</i>)	FE	Conejo Creek (very rare occurrence), 6.7 miles to the west-southwest
Arroyo chub (<i>Gila orcuttii</i>)	CSC	Conejo Creek, 2.9 miles to the southwest
Western spadefoot toad (<i>Spea hammondi</i>)	CSC	Roseland Avenue, 6.4 miles to the north
Western pond turtle (<i>Emys marmorata</i>)	CSC	Conejo Creek, 2.9 miles to the southwest
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	CSC	Las Posas Hills, 2.8 miles to the west
Coastal western whiptail (<i>Aspidoscelis tigris stejnegeri</i>)	CSC	Tentative Tract Map 4410, 2.1 miles to the west

Table 3. Continued

Common Name (Scientific Name)	Status	Nearest Reported Location to the Project Site
California glossy snake (<i>Arizona elegans occidentalis</i>)	CSC	Happy Camp Canyon, 5.1 miles to the north
San Bernardino ring-neck snake (<i>Diadophis punctatus modestus</i>)	SA	Las Posas Hills, 2.1 miles to the west-northwest
Two-striped garter snake (<i>Thamnophis hammondi</i>)	CSC	Conejo Creek, 2.9 miles to the southwest
Tri-colored blackbird (<i>Agelaius tricolor</i>)	ST, CSC	Lake Sherwood, 7.3 miles to the south
Golden eagle (<i>Aquila chrysaetos</i>)	WL, FP	Boney Mountain, 9.2 miles to the south-southwest
Southern California rufous-crowned sparrow (<i>Aimophila ruficeps canescens</i>)	WL	Tentative Tract Map 4410, 2.1 miles to the west
California horned lark (<i>Eremophila alpestris actia</i>)	WL	Tentative Tract Map 4410, 2.1 miles to the west
Burrowing owl (<i>Athene cunicularia</i>)	CSC	Upper Dry Canyon, 9.8 miles to the northeast
Cooper's hawk (<i>Accipiter cooperii</i>)	WL	Tentative Tract Map 4410, 2.1 miles to the west
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE, SE	Arroyo Santa Rosa, 2.7 miles to the west-southwest
California gnatcatcher (<i>Polioptila californica</i>)	FT, CSC	Near California Lutheran University, 0.8 miles to the southeast
San Diego desert woodrat (<i>Neotoma lepida intermedia</i>)	CSC	Western Moorpark, 3.0 miles to the northwest
American badger (<i>Taxidea taxus</i>)	CSC	Northern Moorpark, 3.4 miles to the north

- CSC California Species of Special Concern (CDFW)
- FE Federal Endangered (USFWS)
- FT Federal Threatened (USFWS)
- FP Protected under the California Fish & Game Code (CDFW)
- SE State Endangered (CDFW)
- FE Federal Endangered (USFWS)
- FT Federal Threatened (USFWS)
- List 1B Plants rare, threatened, or endangered in California and elsewhere (CNPS)
- List 2B Plants rare, threatened, or endangered in California but more common elsewhere (CNPS)
- List 4 Plants of limited distribution (CNPS)
- SA Special Animal (CDFW)
- SE California Endangered (CDFW)
- SR California Rare (CDFW)
- ST California Threatened (CDFW)
- WL Watch List (CDFW)

The only special-status species observed at the project site during the biological field surveys was southern California black walnut, mostly on the slope west of the No. 2 Debris Basin and along the Bridlewood Trail north of the basin. Due to the long history of periodic disturbance associated with basin maintenance and fuel management activities, and surrounding residential development, wildlife habitat is limited to landscaping trees and a few patches of native vegetation (coast prickly pear scrub, California walnut grove) located west of the debris basin (Figure 9). Therefore, no other special-status species listed in Table 3 are anticipated at the project site due to the site's extensive disturbance history and lack of suitable habitat.

Significance Thresholds. The following significance thresholds are from the Ventura County ISAG. A project will have a direct or indirect physical impact to a plant or animal species if a project, directly or indirectly:

- Reduces a species' population,
- Reduces a species' habitat,
- Increases habitat fragmentation, or
- Restricts reproductive capacity.

The determination of whether a project's impact is significant or not shall be based on both the current conservation status of the species affected and the severity or intensity of impact caused by the project. Endangered, rare and threatened species, as well as special-status species, are more susceptible to project impacts than a more common species. If a project's impact is severe or intense, it may cause a population of a more common species to decline substantially or drop below self-sustaining levels, which would be considered a significant impact.

Impacts (PS-M). Proposed decommissioning activities would avoid southern California black walnut trees at the project site.

The project site has been repeatedly disturbed through debris basin construction, periodic sediment removal and annual fire prevention (dozer track-walking, mowing, herbicide application) activities. Coast prickly pear scrub is located on the slope west of the No. 2 Debris Basin and may provide isolated, low quality habitat for coastal western whiptail and San Diego desert woodrat. However, coast prickly pear scrub would not be removed by the proposed decommissioning. Therefore, impacts to special-status wildlife species would be less than significant. In addition, proposed revegetation (Figure 10) would provide habitat suitable for these and other wildlife species.

Take of migratory birds protected under the Federal Migratory Bird Treaty Act of 1918 and Section 3513 of the California Fish and Game Code may occur as a result of proposed removal of 12 non-native invasive trees (Table 4, Figure 9), should protected birds nest in these trees. Due to periodic basin maintenance, bird nesting habitat affected by the project is limited to the 12 non-native trees. Project-related take of migratory birds is considered a potentially significant impact.

Table 4. Tree Removal Summary

Tree no.	Species	Trunk Diameter at Breast Height (“)
1	Peruvian pepper	25,17
2	Peruvian pepper	19,22
3	Peruvian pepper	29
6	Peruvian pepper	23
9	Blue gum eucalyptus	19
10	Peruvian pepper	36,12,12
11	Peruvian pepper	6
12	Peruvian pepper	21
13	Peruvian pepper	9,9
14	Peruvian pepper	13,14
15	Peruvian pepper	23,24,21
18	Peruvian pepper	57
Total		

Mitigation. Should decommissioning activities be planned during the bird breeding season (February 15 to September 1), a qualified biologist shall conduct a field survey to determine if breeding migratory birds are present. Should active nests of protected migratory birds be found within the work area, decommissioning activities shall be postponed until the young have fledged or the nest is abandoned.

Part 4.b Ecological Communities

Setting. Vegetation at the No. 2 Debris Basin and the immediate vicinity is primarily ruderal, dominated by non-native annual grasses (such as hare barley [*Hordeum murinum*]) and other weedy herbs that colonize the basin between disturbances associated with sediment removal and/or fire prevention activities (Figure 9). However, the lower slopes west of the No. 2 Debris Basin support coast prickly pear scrub (*Opuntia littoralis* Shrubland Alliance), dominated by coast prickly pear, with scattered lemonade-berry (*Rhus integrifolia*) and southern California black walnut. In addition, California walnut groves (*Juglans californica* Woodland Alliance) occur upstream of the basin near the Arroyo Santa Rosa Tributary, and consist of patches of southern California black walnut trees. Coast prickly pear scrub and California walnut groves are considered vulnerable to extirpation or extinction by CNPS (Sawyer et al., 2009).

Significance Thresholds. The following types of impacts to sensitive plant communities (critically imperiled, imperiled or vulnerable to extinction or extirpation) are considered potentially significant:

1. Construction, grading, clearing, or other activities that would temporarily or permanently remove sensitive plant communities. Temporary impacts to sensitive plant communities would be considered significant unless the sensitive plant community is restored once the temporary impact is complete.
2. Indirect impacts resulting from project operation at levels that would degrade the health of a sensitive plant community.

Impacts (NI). Proposed decommissioning activities would occur within disturbed areas lacking native vegetation, and avoid sensitive communities (coast prickly pear scrub, California black walnut groves) adjacent to the project site.

Part 4.c Waters and Wetlands

Setting. The U.S. Army Corps of Engineers (Corps) has jurisdiction over waters of the United States (U.S.) under the authority of Section 404 of the Clean Water Act. The limit of jurisdiction in non-tidal waters extends to the ordinary high water mark and includes all adjacent wetlands. Waters of the U.S. are defined as:

"All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; including all interstate waters including interstate wetlands, all other waters such as intrastate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce."

The Arroyo Santa Rosa Tributary channel through the project site is considered waters of the U.S. under the Clean Water Act, and the project is subject to permits from the Corps and the Regional Water Quality Control Board (Section 2.5). The Arroyo Santa Rosa Tributary channel is also considered "waters of the State" as defined in Section 13050 of the California Water Code.

The Arroyo Santa Rosa Tributary at the project site meets the definition of "stream" in Title 14 Section 1.72 of the California Code of Regulations. Therefore, project-related disturbance of the Arroyo Santa Rosa Tributary would require a streambed alteration agreement under Section 1602 of the California Fish and Game Code.

The Corps and U.S. Environmental Protection Agency define wetlands as:

"Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Ventura County defines wetlands as (General Plan Goals Policies and Programs glossary):

“Lands that are transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is periodically covered with shallow water. The frequency of occurrence of water is sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands include marshes, bogs, sloughs, vernal pools, wet meadows, river and stream overflows, mudflats, ponds, springs and seeps.”

About 500 square feet of wetland vegetation occurs in the bottom of the No. 2 Debris Basin, where landscape irrigation run-off discharges from the down drain to the Basin. This area meets the County wetland definition due to the presence of vegetative life that requires seasonally saturated soil conditions. This wetland vegetation includes curly dock (*Rumex crispus*), alternate-leaf flat-sedge (*Cyperus involucratus*) and water-cress (*Nasturtium officinale*). This area meets the County wetland definition, but is not a significant wetland habitat due to its small area, isolated location and lack of development of a native plant community or aquatic habitat.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to waters and wetlands include:

1. Removal of vegetation, grading, obstruction or diversion of water flow, change in velocity, siltation, volume of flow or runoff rate, placement of fill, placement of structures, construction of a road crossing, placement of culverts or other underground piping and/or any disturbance of the substratum.
2. Disruptions to wetland or riparian plant communities that would isolate or substantially interrupt contiguous habitats, block seed dispersal routes, or increase vulnerability of wetland species to exotic weed invasion or local extirpation. An example would be disruption of adjacent upland vegetation to a level that would adversely affect the ecological function of the wetland, such as where such vegetation plays a critical role in supporting riparian-dependent wildlife species (e.g., amphibians), or where such vegetation aids in stabilizing steep slopes adjacent to the riparian habitat, which reduces erosion and sedimentation potential.
3. Interference with ongoing maintenance of hydrological conditions in a water or wetland. The hydrology of wetlands systems must be maintained if their function and values are to be preserved. Adverse hydrological changes might include altered freshwater input; changes in the watershed area or run-off quantity, quality, or velocity; drawing down of the groundwater table to the detriment of groundwater-dependent habitat; substantial increases in sedimentation; introduction of toxic elements or alteration of ambient water temperature.

4. The project does not provide an adequate buffer for protecting the functions and values of existing waters or wetlands. The buffer is measured from the top-of-bank or edge of wetland or riparian habitat, whichever is greater. Ventura County General Plan Policy 1.5.2-4 requires a minimum buffer of 100 feet from significant wetland habitat. In accordance with this policy, buffer areas may be increased or decreased upon evaluation and recommendation by a qualified biologist and approval by the decision-making body. Factors to be used in determining adjustment of the 100-foot buffer include soil type, slope stability, drainage patterns, presence or absence of endangered, threatened or rare plants or animals, and compatibility of the proposed development with the wildlife use of the wetland habitat area.

Impacts (LS). The patch of wetland vegetation would be temporarily disturbed during decommissioning of the No. 2 Debris Basin and reconstruction of the down drain. The affected vegetation has colonized the debris basin during periods between maintenance events, and would also recolonize the area at the down drain outlet following completion of decommissioning activities. In any case, the affected vegetation is considered very low quality habitat due to its small area (0.01 acres), isolated location, low species diversity and lack of plant community development. Due to the temporary nature of project impacts and very low quality of affected vegetation, impacts to wetlands are considered less than significant.

Proposed removal of the dam and construction of a low-flow channel would increase the area of streambed at the project site, and thereby result in an increase in the area of waters of the U.S. and waters of the State.

In the long-term, dam removal, restoration of the channel, and termination of maintenance of the affected reach of the Arroyo Santa Rosa Tributary may result in the colonization of the proposed low-flow channel by riparian and wetland plant species, which would increase the wetland area meeting the County's wetland definition.

Part 4.d Coastal Habitat

Setting. The project site is not located within the Coastal Zone.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to Environmentally Sensitive Habitat Areas (ESHA) include:

1. Construction, grading, clearing, or other activities and uses that would temporarily or permanently remove ESHA or disturb ESHA buffers. (ESHA buffers are within 100 feet of the boundary of ESHA as defined in Section 8172-1 of the Coastal Zoning Ordinance).
2. Indirect impacts resulting from project operation at levels that would degrade the health of an ESHA.

Impacts (NI). No project-related impacts to ESHA or other coastal resources would occur.

Part 4.e Habitat Connectivity

Setting. Wildlife migration corridors are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Migration corridors may be local such as between foraging and nesting or denning areas, or they may be regional in nature. Migration corridors are not unidirectional access routes; however, reference is usually made to source and receiver areas in discussions of wildlife movement networks. "Habitat linkages" are migration corridors that contain contiguous strips of native vegetation between source and receiver areas. Habitat linkages provide cover and forage sufficient for temporary inhabitation by a variety of ground-dwelling animal species. Wildlife migration corridors are essential to the regional ecology of an area as they provide avenues of genetic exchange and allow animals to access alternative territories as fluctuating dispersal pressures dictate.

The South Coast Wildlands Missing Linkages Project (Penrod et al., 2006) has identified the Santa Monica-Sierra Madre Landscape Linkage which connects the Santa Monica Mountains to the south and the Sierra Madre Ranges of the Los Padres National Forest to the north. The east end of Las Posas Hills meets the southwestern strand of the Santa Monica-Sierra Madre Landscape Linkage near Tierra Rejada Valley, approximately 2.1 miles east of the site, where the Linkage then heads toward the southwest through the western Simi Hills to Palo Comado Canyon and Point Mugu State Park. The Las Posas Hills are not mapped as part of the Santa Monica-Sierra Madre Landscape Linkage, and at its nearest point, the Linkage is located approximately 2.1 miles east of the site, but is separated by substantial development (residential land uses, Santa Rosa Road, and agricultural fields).

The Arroyo Santa Rosa Tributary is not expected to function as wildlife movement corridor due to the lack of contiguous vegetation, minimal vegetation cover downstream of the No. 2 Debris Basin and encroachment of residential development. In addition, evidence of focused wildlife movement (game trails) was not observed.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to habitat connectivity include:

1. A habitat connectivity feature (e.g., a linkage, corridor, chokepoint or stepping stone) would be severed, substantially interfered with, or potentially blocked.
2. Wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction would be prevented or substantially interfered with.
3. Wildlife would be forced to use routes that endanger their survival. For example, constraining a corridor for mule deer or mountain lion to an area that is not well-vegetated or that runs along a road instead of through a stream corridor or along a ridgeline.
4. Lighting, noise, domestic animals, or other indirect impacts that could hinder or discourage fish and/or wildlife movement within habitat connectivity feature (e.g., a linkage, corridor, chokepoint or stepping stone) would be introduced.

5. The width of linkage, corridor or chokepoint would be reduced to less than the sufficient width for movement of the target species (the species relying upon the connectivity feature). The adequacy of the width shall be based on the biological information for the target species; the quality of the habitat within and adjacent to the linkage, corridor, or chokepoint; topography; and adjacent land uses.
6. For wildlife relying on visual cues for movement, visual continuity (i.e., lines-of-sight) across highly constrained wildlife corridors, such as highway crossing structures or stepping stones, would not be maintained.

Impacts (NI). The proposed decommissioning of the No. 2 Debris Basin would not involve any barriers to wildlife movement, remove native vegetation or introduce any incompatible land uses that would involve lighting, noise or domestic animals. In addition, highway crossing structures or stepping stones would not be adversely affected.

ISSUE 5: AGRICULTURAL RESOURCES

Part 5.a Agricultural Soils

Setting. The project site is located in an area mapped as “Urban and Built-up Land” by the California Department of Conservation. The nearest farmlands (row crops) are located approximately 1,900 feet to the southwest, which have been designated as “Prime” farmland. However, avocado orchards are located on rural residential properties in the area, including immediately west of the Arroyo Santa Rosa Tributary channel and across Santa Rosa Road.

The soils of the No. 2 Debris Basin have been mapped as Hambright very rocky loam, 15-75 percent slopes, and the channel downstream of the Debris Basin has been mapped as Rincon silty clay loam, 2-9 percent slopes (Edwards et al. 1970).

Significance Thresholds. The project would have a significant impact if it would either directly or indirectly result in the loss of important agricultural soils exceeding thresholds in the Ventura County ISAG, including 10 acres of farmlands classified as “Prime” or “Statewide Importance” in open space/rural areas.

Impacts (NI). Project-related soil disturbance would be limited to the existing disturbed site. No loss of any crops, agricultural soils or farmlands would occur.

Part 5.b Land Use Incompatibility

Setting. The nearest farmland are row crops located approximately 1,900 feet southwest of the project site. This area has been classified as “Prime” farmland by the California Department of Conservation. The nearest agricultural zoned land (AE) is located 0.8 miles to the southwest.

Significance Thresholds. The project would have a potentially significant impact if it would be located within 300 feet of classified farmland (without vegetative screening), unless it qualified for a waiver or deviation from the distance standard. Issues to be considered in determining the significance of land use incompatibility include construction-related dust suppression, storage of wood that may spread sudden oak death disease and depletion of a water source intended for agricultural irrigation.

Impacts (NI). The project site is not located within 300 feet of classified farmland. The project would not interfere with the existing zoning or designated land uses for this area or the adjacent properties. In addition, construction-related dust would be suppressed as discussed under Issue 1 (Air Quality). Storage of firewood would not occur on the site, and the project would not require irrigation (except temporarily for two years to establish drought-tolerant erosion control plantings). Therefore, the project would not result in impacts to agriculture relating from land use incompatibilities.

ISSUE 6: SCENIC RESOURCES

Setting. There are no County-designated Scenic Resource Areas or scenic resource protection areas in the project area. The Ventura County General Plan Resources Appendix designates Santa Rosa Road as an eligible County Scenic Highway. The project site is located immediately north of Santa Rosa Road. However, views of the project site from Santa Rosa Road are obscured by trees along the northern roadway shoulder, except for a 75-foot-wide opening for the Arroyo Santa Rosa Tributary channel and access road.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to scenic resources include:

1. Is located within an area that has a scenic resource that is visible from a public viewing location; and would physically alter the scenic resource either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects.
2. Would substantially obstruct, degrade, or obscure a scenic vista, either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects.
3. Inconsistent with any of the scenic resources policies of the Ventura County General Plan Goals, Policies and Programs or policies of the applicable Area Plan.

Impacts (LS). The project would not adversely affect any scenic resources, or be inconsistent with General Plan Policies (Section 5). The southern portion of project site is briefly visible through an opening in roadside trees by motorists on Santa Rosa Road, an eligible County Scenic Highway. The proposed decommissioning of the No. 2 Debris Basin would return landforms to near their natural state through the removal of the dam and recontouring slopes. In addition, slopes would be planted to address post-decommissioning erosion.

The project site is visible from a viewing area open to the public (Bridlewood Trail), and removal of 12 trees at the project site may degrade the visual quality of the site and result in an impact to scenic resources. However, these trees would be replaced with native trees (Section 2.3.2), which would avoid a significant impact to scenic resources. Overall, the project site would be returned to a more natural state and debris/sediment removal activities would be terminated, which would improve the visual quality of the site.

ISSUE 7: PALEONTOLOGICAL RESOURCES

Setting. A record search was conducted of the on-line collections data base of the University of California Museum of Paleontology. *Globothalamea* (foraminiferan, marine invertebrate) fossils have been reported from a road cut along Santa Rosa Road. The project site is underlain by surficial sediments (alluvium) of Quaternary age (Dibblee & Ehrenspeck 1990). Geologic formations of paleontological importance as defined in the ISAG do not occur at the project site.

Significance Thresholds. The project would have a significant impact if it would result in the loss of or damage to important paleontological resources. Paleontological resources are important if they are well preserved, identifiable, type/topotypic specimens, age diagnostic, useful in environmental reconstruction, represent rare and or endemic taxa, represent a diverse assemblage, or represent associated marine or non-marine taxa.

Impacts (NI). All ground disturbance associated with the proposed project would be located within areas previously disturbed by construction and maintenance of the No. 2 Debris Basin. Therefore, no disturbance of potentially fossil-bearing formations would occur. As such, project decommissioning activities would not result in impacts to known or suspected paleontological resources.

ISSUE 8: CULTURAL RESOURCES

Part 8.a Archaeological Resources

Setting. The project site lies within the historic territory of the Native American Indian group known as the Chumash. The Chumash occupied the region from San Luis Obispo County to Malibu Canyon on the coast, and inland as far as the western edge of the San Joaquin Valley, and the four northern Channel Islands (Grant 1978). Chumash society developed within its historic boundaries for over 7,500 years based on the continuity of mortuary practices, as well as the development of artifacts used in social activities.

Prior to colonization by the Spanish, the long period of development of Chumash society was possible since the Santa Barbara Channel area contained a higher concentration of resources than adjacent areas, and the society occupying this area was more powerful than the surrounding societies. The length of time during which the indigenous Santa Barbara Channel society developed was long compared to the majority of extant societies, which acquired their territories more recently. At the time of the first European contact, Chumash society was uniquely adapted to its environments, and well organized as a result of their evolution over long periods of time.

Evidence of Earliest Occupation. Knowledge of occupations during the Pleistocene in the study area is very limited. This is due to the small size of early groups, and since charcoal, bones, and shells are not as likely to be preserved in earlier sites. Some early coastal sites were probably inundated or eroded away by the rise in sea level, associated with the melting of ice at the end of the Pleistocene. Also, it is difficult to define the earliest occupations at most early sites due to poor preservation of stratigraphic features.

The earliest date of human occupation in Ventura County has not been determined, although it is believed that the area was settled prior to 11,000 years ago, since archaeological evidence does exist elsewhere throughout North America. The end of the Pleistocene was marked by climatic warming and resulting changes in environmental conditions, which led to extinction or geographical displacement of most large Pleistocene animals. The changes in plants and animals caused by a changing environment, coupled with the growth of human populations, resulted in changes in subsistence patterns.

Early Period. This period dates to approximately 6000-600 B.C., is the first period identified by archaeologists in California that contains the preserved remains of permanent settlements with associated cemeteries. Types of ornaments, charms, and other artifacts changed little throughout the period, although the numbers of artifact types increased, indicating a growth in social complexity. Several cemetery and residential contexts have been excavated in Chumash territory that are approximately 7000 years old. Artifacts and food remains recovered from these contexts indicate that people living along the coast were fishing with bone hooks, using boats or rafts to trade with the Channel Islands, and occasionally were taking sea mammals and large fish. The presence of deer bones, other animal bones, stone points, and knives indicates that hunting was also important.

Most early settlements consisted of small hamlets defensively situated on elevated landforms. During the Early Period, some settlements increased in size with the largest containing several hundred people. Large settlements were often less defensively situated than their smaller predecessors. Analysis of artifacts used to maintain social relationships and their distribution in mortuary contexts indicates that political power was largely dependent on the acquisition of wealth and ritual power (King 1990 and 2000).

Differences in the contents of burial lots found at large and small Early Period settlements on Santa Cruz Island indicate that the occupants of large ceremonial centers had more valuable ceremonial regalia than those of small settlements. The inhabitants of small villages probably lived at more than one settlement during the year, and the inhabitants of large settlements may have maintained only one residence. Although the Early Period settlement pattern apparently resulted in the formation of many sites which were not continuously inhabited, the degree to which the population was sedentary may differ little from the Protohistoric Period.

Middle Period. The end of the Early Period and the beginning of the Middle Period (ca. 600 B.C.) is marked by changes in ornaments and other artifacts, as well as changes in the organization of cemeteries, which indicate the development of hereditary control of political and economic power. The presence of separate cemetery areas containing a predominance of either ritual objects or wealth objects at early Middle Period sites indicates the presence of a system of checks and balances between chiefs and priest-judge executioners. At the beginning of the Middle Period, the more powerful ritual objects, such as stone pipes, libation vessels, stone effigies, and pointed charmstones, were owned by people who were not political leaders but who had inherited rights to perform rituals. Similar systems of checks and balances were necessary to maintain stability in social systems throughout California, and these systems evolved shortly after the development of hereditary leadership positions. Similar changes in social organization occurred at the time of the Early-Middle period transition throughout North America and were accompanied by migrations into areas that were marginal to major population centers.

Late Period. Differentiation of bead types indicates the development of new economic subsystems. After ca. A.D. 1000, there was a rapid growth of systems which culminated in the highly developed economic system observed by the Spanish explorers. After the 1542 Cabrillo voyage, many small Chumash settlements were abandoned and some of the largest historic towns were founded. This change in population distribution can be attributed to growth in importance of trade centers and the development of more integrated political confederations, which were necessary to encourage trade. Since environments of people living in inland valleys lacked marine resources, fish and other sea foods were obtained from people living on the coast and from islanders trading at mainland coastal villages. The pooling of resources, which resulted from the development of their economic system, served to reduce the negative effects of local crop failures (King 1976 and 1990).

Religious institutions regulate behavior by molding perceptions of society and the physical world. Changes in the types and distributions of objects used in ritual contexts indicate corresponding changes in religious systems. The rarity of ritual objects in Late Period burial lots reflects control over religion by institutions that owned the ritual objects. By the Late Period, more powerful objects were controlled by institutions. Changes in whistles, historically used in the organization of ceremonies, indicate a growth in the importance of organized ceremonies. Objects associated with supernatural power, such as charmstones, effigies, and sunstick stones, did not change greatly over time. It appears that most Chumash religious ceremonies had their roots in the Early Period when objects similar to those used historically were regularly placed in mortuary associations and owned by religious leaders.

Ethnography. At the time of historic contact, the project area (Ventura County) was occupied by the Ventureño branch of the Chumash, who were a Hokan speaking people. The Chumash achieved a cultural complexity unique for hunter and gatherer groups in California. They possessed a stratified society containing an upper, middle, and lower class. Moreover, attributes usually attributed to chiefdom societies, such as ownership of resources/property, craft specialists, large permanent population centers (villages), a sodality consisting of religious elitists (*Antap*), and a market economy, were all a part of Chumash culture at the time of historic contact (Blackburn 1974).

Politically, there were at least six ethnographically known Chumash provinces. The following are the provinces from north to south and their corresponding capitals, respectively: 1) Gaviota (capital at *Shisholop* or *Upop*); 2) Dos Pueblos (capital at *Mikiw*); 3) Santa Barbara (capital at *Synhten*); 4) Ventura (capital at *Shishopop*); 5) Mugu (capital at *Muwu* or *Simomo*); and 6) Malibu (capital at *Humaliwu*). In addition, there were apparently two religious federations, *Muwu* and *Upop* (Hudson and Underhay 1978).

All high status (Wots and shamans) or wealthy people were required to join a religious sodality known as the *Antap*. The *Antap* was the principal religious cult which dominated all aspects of Chumash religious and political society at the time of Spanish contact. Chumash religion could be accurately described as celestial, revolving around the worship of the sun, and various stars and planets comprising the Chumash pantheon (Blackburn 1975).

Traditionally, the Chumash were noted by the Spanish for their large domed houses, wood and stone craftsmanship, basketry, and foremost for the plank canoe (*tomo*). The implementation of the Spanish Mission system brought about a precipitous decline in the Chumash culture, with a disruption of the traditional social structure and a steady demise of the native population, caused in part by European diseases. This cultural decimation continued and perhaps was amplified during the post mission or Mexican period, until their near cultural extinction in the later Anglo (American) period. Chumash culture has been documented by John P. Harrington and C. Hart Merriam, and well summarized by Blackburn, Hudson, and others.

Records Search. A records search conducted by the South-Central Coast Information Center was received on October 18, 2017. The records search included a review of all recorded historic-era and prehistoric archaeological sites within a 1/8-mile radius of the project site as well as a review of known cultural resource surveys and technical reports. The State Historic Property Data Files, National Register of Historic Places, National Register of Determined Eligible Properties, California Points of Historic Interest, and the California Office of Historic Preservation Archaeological Determinations of Eligibility also were analyzed. The records search did not identify any previously recorded cultural resources within the project site or within a 1/8-mile radius of the project site.

Tribal Consultation. On September 28, 2017, the District formally notified Ms. Julie Tumamait-Stenslie of the Barbareno/Ventureno Band of Mission Indians and Mr. Rudy Ortega of the Fernandeno-Tataviam Band of Mission Indians via certified mail of the decision to undertake the proposed project to allow the tribes to request consultation under Section 21080.3.1(d) of the Public Resources Code. These two tribal representatives are the only traditionally and culturally affiliated contacts that have requested consultation notification from Ventura County. The requisite 30-day time period for the tribal contacts to request consultation coordination with the District on this project expired on November 2, 2017 without a request from either tribal contact. A lack of response within the 30-day time period concludes the tribal consultation process and thus no formal tribal consultation for this project is required.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to archaeological resources include:

1. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not archaeologically or culturally significant; or
2. Demolishes or materially alters in an adverse manner those physical characteristics of an archaeological resource that convey its archaeological significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Impacts (PS-M). The record search did not identify any archaeological resources within the project's area of potential effect. The record search and notification of affiliated tribal contacts did not identify any tribal cultural resources near the project site. All ground disturbance associated with the proposed project would be located within areas previously disturbed by construction and maintenance of the existing No. 2 Debris Basin. Therefore, impacts to cultural resources are not anticipated. However, unknown buried cultural resources may be encountered during excavation at the project site.

Mitigation. The following mitigation measures are consistent with the guidelines of the State Office of Historic Preservation and shall be incorporated into the project to prevent significant impacts, should resources be found during excavation.

- Should any buried archaeological materials be uncovered during project activities, such activities shall cease within 100 feet of the find. Prehistoric archaeological indicators include obsidian and chert flakes, chipped stone tools, bedrock outcrops and boulders with mortar cups, ground stone implements, locally darkened midden soils containing previously listed items plus fragments of bone and fire affected stones. Historic period site indicators may include fragments of glass, ceramic and metal objects, milled and split timber, building foundations, privy pits, wells and dumps, and old trails. All earth disturbing work within the vicinity of the find shall be temporarily suspended or redirected until the District has been notified and an archaeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.
- If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to the origin and deposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission.

Implementation of the above measures would reduce impacts to archaeological resources to a level of less than significant.

Part 8.b Historical Resources

Setting. By 1846, most of the arable land in Ventura County had been parceled out into nineteen large ranchos, ranging in size from Rancho Simi (113,000 acres) to the Tico lot in San Buenaventura (29 acres) (Triem 1985). These ranchos involved a hacienda system of economic organization relying for the most part on native labor bound in debt peonage. The primary product of the ranchos was cattle and, to a lesser extent, sheep. Between 1848 and 1856, during the Gold Rush in the Sierra Foothills, the cattle market peaked and generated considerable wealth for many of the Spanish and Mexican rancho families in Ventura County. Thereafter, the ranchos slowly declined with the arrival of Anglo settlers and traders who brought with them a more developed system of resource exploitation.

This, combined with the difficulties in providing legal title to the land grants with the advent of the Land Act of 1851, served to weaken Hispanic control over the local economy. By the 1870's, a majority of the rancho lands were in the hands of Anglos who transformed the face of Ventura County. The cattle industry declined and was quite rapidly replaced by agriculture and an increasing interest in oil exploration and production.

Until 1873, Ventura County was attached to Santa Barbara County, but the difficulties of traveling to Santa Barbara and the natural geographic cohesiveness of the Ventura County region was recognized early on. With oil, agriculture and shipping taking the lead, the 1870's gave rise to much of the structure which characterizes the County to this day. Many of the communities were founded during the 1870's, including Santa Paula (which was the second largest town after San Buenaventura by 1879), and Port Hueneme. Thomas Bard, the County's only United States Senator, laid out the port in 1869 and had grand plans for a western rail hub. His wharf, completed in 1871, instead became a focus of harvest time agricultural shipments to the East. Oxnard did not get its start until 1889 with the completion of the Oxnard Brother's sugar beet factory, and was incorporated in 1903. The 1870's also saw Nordhoff laid out, later changed back to its original name of Ojai. The railroads, which arrived in 1886, spurred the growth of the Santa Clara River towns of Fillmore, Bardsdale and Piru, and helped increase County population from 5,073 in 1880 to 10,071 in 1890. Santa Paula also prospered from the railroad. The oil industry grew quickly in the 1880's, especially in and around the Ojai and Sespe fields, which continue in production today. Other important industries established prior to the turn of the century were citrus ranching, especially navel oranges, and tourism, centered on Ojai and Santa Paula's natural hot spring resorts.

A second tier of towns was laid out with the completion of a faster San Francisco - Los Angeles rail link through Santa Susana Pass in 1901. Camarillo, Moorpark and Santa Susana (later, Simi Valley) all were founded and grew up around the Southern Pacific depots of the railroad line. Newbury Park and the Conejo Valley had a somewhat different origin, having developed as dry farming and cattle ranching areas serviced by an overland stage coach line.

In 1916, the Ventura oil field in the Ventura Avenue area, was discovered. This created a development boom in Ventura and to a lesser extent, in the Santa Paula and Fillmore areas which also increased their oil production. The decade of the 1920's saw increased building activity and the development of the California bungalow as a distinct architectural style as large areas were built up for oil field worker housing. The disaster of the stock market crash of 1929 was preceded by another disaster in Ventura County which has yet to be rivaled. On March 12, 1928, the Saint Francis Dam in San Francisquito Canyon near Castaic, gave way, killing 400 people and destroying more than 1,200 homes and 7,900 acres of farmland in the Santa Clara River Valley (Triem 1985).

The Depression of the 1930's, although difficult for Ventura County farmers and businesses, has left the County with a wealth of architectural monuments. Particularly, through the many New Deal relief programs instituted after 1933, a good deal of the County's infrastructure in the form of roads, post offices, fire stations, schools and public art works was created. In addition, an influx of immigrants from the hard hit central and southern United States put down roots in Ventura County during this period. And beginning in 1940 with the completion of the U.S. Navy's deep-water port facilities in Port Hueneme, the military and, to a lesser extent, the fishing industry, became important elements in the rich economic mix of southern Ventura County.

The nearest Ventura County designated landmarks are the Moorpark First Baptist Southern Church and High Street Pepper Trees, both located approximately three miles north of the project site.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to historic resources include:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources.
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant.
3. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Impacts (NI). No historic structures or properties would be adversely affected by implementation of the proposed project.

ISSUE 9: COASTAL BEACHES AND SAND DUNES

Setting. The nearest coastal beach (at Yerba Buena Road) is located approximately 13.9 miles to the south-southwest of the project site. The nearest sand dunes are located near Point Mugu, approximately 14.9 miles south-southwest of the project site.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to coastal beaches and sand dunes include:

1. Any project that causes a direct or indirect adverse physical change to a coastal beach or sand dune, which is inconsistent with any of the coastal beaches and coastal sand dunes policies of the California Coastal Act, corresponding Coastal Act regulations, Ventura County Coastal Area Plan, or Ventura County General Plan Goals, Policies and Programs.
2. Any project, when considered together with one or more recently approved, current, and reasonably foreseeable probable future projects, would result in a direct or indirect, adverse physical change to a coastal beach or sand dune.

Impacts (NI). The proposed project would not directly affect any beaches or sand dunes. The project involves removal of the No. 2 Debris Basin dam, which currently traps small amounts of sediment, which may result in an increase in downstream sediment transport. Due to the very small amount of sediment trapped and distance to beach areas, potentially beneficial sediment transport to beaches is anticipated to be negligible.

ISSUE 10: FAULT RUPTURE HAZARD

Setting. The entire Southern California region, including the Ventura area, is located within a seismically active area. The nearest fault (Simi) is located approximately one mile north of the project site (Dibblee & Ehrenspeck 1990). Surface evidence north of Simi Valley and within Santa Rosa Valley indicates this fault has been active during Holocene time (0-11,000 years before present) (Ventura County General Plan Hazards Appendix). No faults are known to pass through the project site, and it is not located within a designated Alquist-Priolo Special Studies Zone.

Significance Thresholds. The project would have a significant impact if it would place persons or property at risk of loss of life or damage due to fault rupture.

Impacts (NI). As described above, the project site is not within an Alquist-Priolo Special Study Zone or seismic hazard zone. The proposed project does not involve the construction of any structures that may be damaged by fault rupture, and would not increase the number of persons exposed to fault rupture hazards.

ISSUE 11: GROUND-SHAKING HAZARD

Setting. Ground-shaking is the cause of most damage during earthquakes. The project area has a 10 percent chance of exceeding a peak ground acceleration of 0.60 g (alluvium conditions) in 50 years (California Department of Conservation 2002).

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts related to ground-shaking hazard include:

- Proposed structures not designed to be built in accordance with all applicable requirements of the Ventura County Building Code, which has the potential to expose people or other structures to potential significant adverse effects, including the risk of loss, injury or death involving ground shaking hazards.

- Significant impacts from ground-shaking hazards would result for projects involving high-rise structures, critical facilities, and projects of unique design not covered by ordinary provisions of the Uniform Building Code. Such projects may subject persons and property to greater risk of loss of life or substantial damage during strong ground-shaking events.

Impacts (NI). The proposed project does not involve the construction of any structures that may be damaged by ground-shaking, and would not increase the number of persons exposed to ground-shaking hazards.

ISSUE 12: LIQUEFACTION HAZARDS

Setting. Liquefaction occurs when strong, cyclic motions during an earthquake cause water-saturated soils to lose their cohesion and take on a liquid state. Liquefied soils are unstable and can subject overlying structures to substantial damage. The occurrence of liquefaction is highly dependent on local soil properties, depth to groundwater, and the strength and duration of a given ground-shaking event. The southern portion of the project site (near Santa Rosa Road) is located within a liquefaction hazard zone as designated by the California Department of Conservation (2002).

Significance Thresholds. The project would have a significant impact if liquefaction hazards would subject persons or property to loss of life or substantial injury or damage. Projects located within liquefaction hazard areas identified by the California Department of Conservation may result in significant adverse effects.

Impacts (NI). The proposed project does not involve the construction of any structures that may be damaged by liquefaction, and would not increase the number of persons exposed to liquefaction hazards.

ISSUE 13: SEICHE AND TSUNAMI HAZARDS

Setting. Tsunamis are seismically induced sea waves that can be of sufficient size to cause substantial damage to coastal areas. The last major tsunami in Southern California was in 1812, generated by an earthquake in the Santa Barbara Channel. The largest tsunami wave amplitude recorded by modern instrumentation in Ventura County was 8.8 feet, associated with the Chilean earthquake of 1960. The most recent tsunami was in 2010, caused by an earthquake in Chile which caused minor damage to structures and vessels in the Ventura Harbor. The nearest tsunami inundation hazard area is located approximately 14.8 miles south-southwest of the project site (California Emergency Management Agency 2009).

Seiches are oscillating waves that occur in enclosed or semi-enclosed bodies of water such as lakes and bays. Seiches are commonly caused by earthquakes. There is no record of a seiche occurring in Ventura County. The nearest body of water that may be subject to seiches is Lake Bard, located approximately 3.0 miles east of the project site.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts related to seiche and tsunami hazards include:

1. The proposed project is located within about 10 to 20 feet of vertical elevation from an enclosed body of water such as a lake or reservoir. The height of hazard above the water level is dependent on the ground motion intensity, duration of shaking, and subsurface topography of the lake or reservoir and surface topography of the shoreline.
2. The proposed project is located in a mapped area of tsunami hazard as shown on Tsunami Inundation Maps prepared by the California Emergency Management Agency.

Impacts (NI). The proposed project is not located in a tsunami hazard zone and would not increase the severity or the number of persons potentially affected by a tsunami. The proposed project is not located in a seiche hazard zone and would not increase the severity or the number of persons potentially affected by a seiche.

ISSUE 14: LANDSLIDES/MUDFLOW HAZARD

Setting. Areas of high landslide or mudflow potential are typically hillside areas with slopes of greater than 10 percent. The project site is not located within a seismically-induced landslide hazard area (California Department of Conservation 2002).

Significance Thresholds. A project would have a significant impact if the project site would be affected by a landslide/mudflow hazard or contribute to landslides/mudslides that could not be mitigated. The threshold for landslide/mudflow hazard is determined by the Public Works Agency Certified Engineering Geologist based on the location of the site or project within, or outside of mapped landslides, potential earthquake induced landslide zones, and geomorphology of hillside terrain.

Impacts (NI). The proposed project would involve construction of channel side slopes exceeding 10 percent. However, these slopes would face the proposed low-flow channel and would not be located adjacent to any other land uses. Therefore, the project would not result in any hazards associated with landslides or mudslides.

ISSUE 15: EXPANSIVE SOILS HAZARDS

Setting. Expansive soils are primarily clay-rich soils subject to changes in volume with changes in moisture content. Based on the regional soil map, soils at the project site are mapped as Hambright very rocky loam and Rincon silty clay loam with a moderate shrink-swell potential (Edwards et al. 1970).

Significance Thresholds. The determination of a significant soils expansion effect shall be based upon an inquiry of whether a proposed project will expose people or structures to potential adverse effects, including the risk of loss, injury, or death involving soil expansion if it is located within an expansive soils hazard zone or where soils with an expansion index greater than 20 are present.

Impacts (NI). Soils at the project site are not highly expansive. The proposed project does not involve the construction of any structures that may be damaged by expansive soils, and would not increase the number of persons exposed to these hazards.

ISSUE 16: SUBSIDENCE HAZARD

Setting. Subsidence is generally related to over-pumping of groundwater or petroleum reserves from deep underground reservoirs. Subsidence of up to 2.2 feet occurred in the Pleasant Valley area by the early 1970's due to over-pumping of groundwater in this area (Fox Canyon Groundwater Management Agency 2007). The project site is not located within a probable subsidence zone identified in the Ventura County General Plan Hazards Appendix (amended 2013).

Significance Thresholds. The determination of a significant subsidence effect is based upon an inquiry of whether a proposed project will expose people or structures to potential adverse effects, including the risk of loss, injury, or death involving subsidence if it is located within a subsidence hazard zone.

Impacts (NI). Groundwater levels in the area are not declining and subsidence is not anticipated. As such, the project would neither cause nor be subjected to ground subsidence, and would have no impact.

ISSUE 17: HYDRAULIC HAZARDS

Part 17.a Non-FEMA (Erosion & Siltation)

Setting. Generally speaking, erosion is the wearing away of soil and rock by weathering, mass wasting, and the action of streams, glaciers, waves, wind and underground water. The process of deposition of sediment from a state of suspension in water or air is referred to as sedimentation or siltation. There are no non-FEMA flood control facilities in the project area.

Significance Thresholds. The project would have a significant impact if it would cause substantial erosion or siltation. Potential erosion/siltation hazards and flooding hazards are addressed through compliance with the Ventura County Watershed Protection District's Standards and Specifications Design Manual. Erosion/siltation hazards and the effects of flooding hazards are required to be considered within the existing framework of grading and building code ordinances, which apply to all sites and projects.

Impacts (NI). As proposed decommissioning activities would be limited to the FEMA-regulated floodplain, no impacts to non-FEMA facilities would occur.

Part 17.b FEMA

Setting. As a flood control facility, the project site is located within a FEMA-regulated floodplain (1% annual chance), and the Arroyo Santa Rosa Tributary downstream of the dam is a designated floodway (Flood Insurance Rate Map panel 06111C0957E, effective January 20, 2010).

Significance Thresholds. Methodology to determine the significance of impacts is taken from the Ventura County ISAG:

- **No Impact:** If the entire development is located outside of the boundaries of a Special Flood Hazard Area and is located entirely within a FEMA-determined 'X-Unshaded' flood zone (beyond the 0.2% annual chance floodplain: beyond the 500-year floodplain).
- **Less than Significant:** If the entire development is located outside of the boundaries of a Special Flood Hazard Area and is located entirely within a FEMA-determined 'X-Shaded' flood zone (within the 0.2% annual chance floodplain: within the 500-year floodplain). If the proposed development, in part or in whole, is located within the boundaries of a Special Flood Hazard Area, but is located outside of the boundaries of the Regulatory Floodway, if it can be demonstrated that the proposed development can be designed and constructed, as part of the Floodplain Development Permit and Building Permit processes, to be in compliance with all applicable floodplain management standards and measures.
- **Potentially Significant – Mitigation Incorporated:** Potentially significant impacts from the 1% annual chance flood can be mitigated through project design or measures, such as but not limited to, relocating the proposed development elsewhere on the property where the risk of flood damage is potentially lower, implementing FEMA-supported building construction and grading technologies that mitigate flood damage and thereby reducing the risk of the flood hazard.
- **Potentially Significant:** If the proposed development, in part or in whole, is located within the boundaries of the Regulatory Floodway, as determined using the 'Effective' and latest available Flood Insurance Rate Maps.

Impacts (LS). The proposed project involves removal of the dam and decommissioning of the No. 2 Debris Basin. Based on the Preliminary Design Study prepared for the project by West Consultants, the storm water detention effect of the No. 2 Debris Basin is negligible. The dam's emergency spillway is activated during a storm in the range of a 5- to 10-year event (approximately 600 cfs peak flow). A 10-year storm event would overtop the spillway by about 4 feet, while the 50- and 100-year events would overtop the spillway crest by about 6 feet. The emergency spillway on the dam is an unprotected earthen structure and could potentially fail from erosion and scour with virtually any sustained flow. Removing the debris basin and dam removes this dam breach risk. Hydraulic modeling for the project indicates the extent of inundation would be virtually the same following dam removal, with the same number of potentially inundated structures as under existing conditions (Figures 6 and 7). Specifically, a 10-year event would cause inundation of two structures under existing conditions or with the dam removed, and a 100-year event would cause inundation of 12 structures under existing conditions or with the dam removed.

Hydraulic modeling conducted for the Preliminary Design Study indicates if the No. 2 Debris Basin dam were breached during a 10-year (or 50-year or 100-year) flood event it would cause Santa Rosa Road to be overtopped by 7 feet of water, and would result in inundation of 17 structures during a 10-year event (or 29 and 30 structures during a 50-year or 100-year event, respectively). Thus, the proposed dam removal would eliminate this flood hazard and risk of additional property loss associated with dam breaching during major storm events.

Sediment transport modeling conducted for the Preliminary Design Study indicates that higher storm flow velocities associated with dam removal would prevent excess sediment deposition. Therefore, dam removal would not produce areas of excessive sediment deposition.

ISSUE 18: FIRE HAZARDS

Setting. Ventura County Building Code, Article III Section 702A identifies High Fire Hazard Areas/Fire Hazard Severity Zones as “geographical areas in unincorporated Ventura County designated by the Ventura County Fire Protection District pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code, Sections 51175 through 51189. The Fire Code also defines Hazardous Watershed Fire Areas as a location within 500 feet of a forest or brush, grass, or grain covered land, exclusive of small individual lots or parcels of land located outside of a brush, forest, or grass covered area.

The project site is located within a very high fire hazard severity zone as designated by CalFire. Santa Rosa Valley (including the project site) is served by Ventura County Fire Department Station 52, which is staffed by three firefighters, a medic/engine, reserve engine and reserve squad. Station 52 is located approximately 6.6 road miles west of the project site. Fuel reduction activities (including track-walking the dam and basin side slopes with a dozer) are conducted periodically by the District at the project site.

Significance Thresholds. Projects located within High Fire Hazard Areas/Fire Hazard Severity Zones or Hazardous Watershed Fire Areas may have a significant fire hazard impact. The fire hazard impact can be mitigated by compliance with Building and Safety requirements for structures and the Fire Protection District Hazard Abatement program which calls for the clearing of brush, flammable vegetation, or combustible growth located within 100 feet of structures or buildings. Projects not located within High Fire Hazard Areas/Fire Hazard Severity Zones or Hazardous Watershed Fire Areas will not have a significant impact.

Impacts (LS). Project-related ignition sources are limited to construction equipment and vehicles. All construction equipment and vehicles would be equipped with manufacturer-supplied mufflers, and water applied for dust control (see emissions reduction measures under Issue 1.a) would minimize the potential for ignition of nearby vegetation.

Property owners in the vicinity of the No. 2 Debris Basin currently have the responsibility to clear flammable vegetation within 100 feet of structures on their property as required by Appendix W of the Ventura County Fire Code. This fire prevention responsibility would remain the same following completion of proposed decommissioning activities. Proposed erosion control plantings would be designed to minimize fuel loads near habitable structures. Overall, potential increases in fire hazard are considered less than significant.

ISSUE 19: AVIATION HAZARDS

Setting. The project site is located approximately 10.8 miles east of the Camarillo Airport, and outside the Airport's sphere of influence.

Significance Thresholds. A review of a project's potential aviation hazards, as those hazards relate to proposed development of properties near County public airports, will focus on that project's compliance with the County's Airport Comprehensive Land Use Plan and pre-established federal criteria set forth in Federal Aviation Regulation Part 77 (Obstruction Standards), as well as those recommendations for good land-use planning made by state and county governments. The Airport Land Use Commission will give special attention to all residential development within the sphere of influence of County airports, as well as churches, schools and high commercial purpose buildings within the same sphere of influence. Projects which do not meet these applicable criteria may have the potential to cause a significant aviation impact.

Impacts (NI). The project would not adversely affect aircraft operations or implementation of the Airport Comprehensive Land Use Plan. The project would not involve any activities or structures that are incompatible with the safe operation of aviation facilities, and impacts to aviation safety would not occur.

ISSUE 20: HAZARDOUS MATERIALS/WASTE

Part 20.a Materials

Setting. A "hazardous material" means any material that, because of its quantity, concentration, physical or chemical characteristics poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment. A review of the State Water Resources Control Board's GeoTracker data base identified one hazardous materials site within one mile of the project site. An underground storage tank leaked gasoline at Santa Rosa School and resulted in soil contamination. This site was cleaned up and closed by the State Water Resources Control Board in 1996. No other hazardous materials sites are located in the project area.

Significance Thresholds. Methodology to determine the significance of impacts is taken from the Ventura County ISAG:

- No Impact: the proposed project will not utilize hazardous materials.

- Less than Significant: A project will utilize hazardous materials that are subject to regulation by the Environmental Health Division and/or Ventura County Fire Protection District (VCFPD). Compliance with applicable state regulations enforced by the Environmental Health Division and/or VCFPD will reduce potential project related and cumulatively impacts to a less than significant level. A determination of less than significant will be made when the project will utilize hazardous materials and will be connected to an onsite sewage disposal system. For development in areas without public sewer service, intentional or unintentional discharges of hazardous materials into a building's plumbing system may result in groundwater contamination. State regulations have been enacted to ensure that public health, the environment and natural resources are protected from potential adverse impacts from the improper storage, handling and disposal of hazardous materials. Compliance with these State regulations will reduce potential impacts to a less than significant level.
- Potentially Significant - Mitigation Incorporated: Project related and cumulatively potentially significant impacts from hazardous material(s) can be successfully mitigated to a less than significant level by project design or measures using currently acceptable technology and/or through adoption of specific project condition. Compliance with applicable regulations enforced by the Environmental Health Division and through adoption of a specific project conditions will mitigate existing underground tanks not in compliance to a less than significant level.
- Potentially Significant: Project related and cumulatively significant or potentially significant impacts from hazardous materials cannot be feasibly mitigated to a less than significant level using currently available information.

Impacts (NI). Due to the lack of past or present industrial or commercial land uses at or near the project site, hazardous materials are not anticipated to be encountered during project-related earthwork. Fueling and maintenance of heavy equipment used at the project site would be conducted in areas away from the Arroyo Santa Rosa Tributary, such that discharge of these materials to the watershed is not anticipated. In addition, a SWPPP would be implemented, including standard best management practices to avoid discharges of fuel and other hydrocarbons.

Part 20.b Hazardous Waste

Setting. Hazardous materials are defined as any substance, which if improperly handled, can be damaging to the health and well-being of humans (Ventura County General Plan Hazards Appendix, amended 2013). Hazardous materials become hazardous waste when the material has been used for its original intended purpose and is going to be discarded or recycled.

Significance Thresholds. Methodology to determine the significance of impacts is taken from the Ventura County ISAG:

- No Impact: The proposed project will not produce hazardous waste.

- Less than Significant: The project will produce hazardous waste that is subject to State regulations enforced by the Environmental Health Division. The project will produce hazardous waste and will be connected to an onsite sewage disposal system. A determination of less than significant will be made when the project will utilize hazardous materials and will be connected to an onsite sewage disposal system. For development in areas without public sewer service, intentional or unintentional discharges of hazardous materials into a building's plumbing system may result in groundwater contamination. State regulations have been enacted to ensure that public health, the environment and natural resources are protected from potential adverse impacts from the improper storage, handling and disposal of hazardous materials. Compliance with these State regulations will reduce potential impacts to a less than significant level.
- Potentially Significant - Mitigation Incorporated: The project will produce hazardous waste, and the Environmental Health Division identifies that a potentially project related and cumulative significant impact is present which can be successfully mitigated to a less than significant level by project design or measures using currently acceptable technology and/or through adoption of specific project condition.
- Potentially Significant: If the Environmental Health Division finds that the character and quantity of the hazardous waste produced by the project and cumulative projects may seriously degrade groundwater that cannot be feasibly mitigated to a less than significant level.

Impacts (NI). The proposed project is limited to decommissioning of an existing earthen debris basin. Therefore, no hazardous waste would be generated, and no impacts would occur.

ISSUE 21: NOISE AND VIBRATION

Setting. Noise is generally defined as unwanted or objectionable sound. Noise levels are measured on a logarithmic scale because of physical characteristics of sound transmission and reception. Noise energy is typically reported in units of decibels (dB). Noise levels diminish (or attenuate) as distance to the source increases according to the inverse square rule, but the rate constant varies with the type of sound source. Sound attenuation from point sources such as industrial facilities is about 6 dB per doubling of distance. Heavily traveled road with few gaps in traffic behave as continuous line sources and attenuate at 3 dB per doubling of distance. Noise from more lightly traveled roads is attenuated at 4.5 dB per doubling of distance.

Community noise levels are measured in terms of the A-weighted decibel (dBA). A-weighting is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear. Equivalent noise level (Leq) is the average noise level on an energy basis for a specific time period. The duration of noise and the time of day at which it occurs are important factors in determining the impact of noise on communities. Noise is more disturbing at night and noise indices have been developed to account for the time of day and duration of noise generation. The Community Noise Equivalent Level (CNEL) and Day-Night Average Level (DNL or Ldn) are such indices. These indices are time-weighted, and average acoustic energy values over a 24-hour period. The CNEL index penalizes nighttime noise (10 p.m. to 7 a.m.) by adding 10 dB and evening noise (7 p.m. to 10 p.m.) by adding 5 dB to account for increased sensitivity of the community during these hours. The Ldn index penalizes nighttime noise the same as the CNEL index, but does not penalize evening noise.

The dominant source of noise in the project area is motor vehicle traffic on local roadways (primarily Santa Rosa Road) and occasional use of agricultural and landscape maintenance equipment. Consistent with the Ventura County ISAG, noise sensitive uses are considered dwellings, schools, hospitals, nursing homes, churches and libraries. Existing noise sensitive uses within a one-mile radius of the project site are limited to nearby dwellings and the Santa Rosa Elementary School, located 1,440 feet east of the project site.

Noise levels were measured at the project site (adjacent to the residence immediately east of the site) on October 5, 2017 from 7:32 to 7:52 a.m., which represents peak hour for traffic noise on Santa Rosa Road. The noise measurement location is approximately 330 feet from the center-line of Santa Rosa Road, and the measurement was conducted using a Larson-Davis LXT Type 1 Precision Integrating Sound Level Meter. The Meter was calibrated using a Larson-Davis CAL200 Calibrator at 114 dBA. The measured noise value was 54.6 dBA Leq, indicating noise levels at the project site are moderate, but higher than most rural areas due to proximity to Santa Rosa Road.

Significance Thresholds. Policy 2.16.2-1 of the Ventura County General Plan provides the following thresholds:

Noise-sensitive uses proposed to be located near highways, truck routes, heavy industrial activities and other relatively continuous noise sources shall incorporate noise control measures so that:

- Indoor noise levels in habitable rooms do not exceed 45 dBA CNEL; and
- Outdoor noise levels do not exceed 60 dBA CNEL or 65 dBA Leq during any hour.

Noise generators proposed to be located near any noise sensitive use shall incorporate noise control measures so that ongoing outdoor noise levels received at the noise receptor, measured at the exterior wall of the building do not exceed any of the following standards:

- Leq1H of 55 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 6 a.m. and 7 p.m.

- Leq1H of 50 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 7 p.m. and 10 p.m.
- Leq1H of 45 dBA or ambient noise level plus 3 dBA, whichever is greater, during any hour from 10 p.m. and 6 a.m.

General Plan Policy 2.16.2-1(5) requires construction noise to be evaluated and mitigated in accordance with the Construction Noise Threshold Criteria and Control Plan prepared by Advanced Engineering Acoustics (2010). Based on this document, noise-sensitive receptors include:

- Hospitals and nursing homes (sensitive 24 hours/day);
- Residences (sensitive during evening and nighttime – 7 pm to 7 am);
- Hotels and motels (sensitive during evening and nighttime); and
- Schools, churches and libraries (daytime and evening, when in use).

Demolition (using typical construction equipment) would occur from 7 a.m. to 4 p.m.; therefore, local schools would be in use and considered noise-sensitive receptors, and the following daytime construction noise thresholds would apply:

- 60 dBA Leq OR ambient noise level + 3 dBA, for construction duration of 2 to 8 weeks; and
- 55 dBA Leq OR ambient noise level + 3 dBA, for construction duration greater than 8 weeks.

Impacts (LS). The proposed project would generate noise during proposed decommissioning activities. Potential noise sensitive receptors in the project area are limited to adjacent residences and the nearby Santa Rosa Elementary School. Decommissioning-related noise was estimated using the Federal Highway Administration (FHWA) Roadway Construction Noise Model, based on a peak day, composed of simultaneous operation of a dozer, scraper and soil compactor. The results of the noise modelling are presented in Table 5. Work would not be conducted during the evening or nighttime; therefore, local residences are not considered noise-sensitive receptors.

Santa Rosa Elementary School is considered a noise sensitive receptor; however, the modelled noise value (53.4 dBA Leq) is less than the 55 dBA Leq daytime construction noise threshold. Therefore, noise impacts are considered less than significant.

Table 5. Project Noise Modeling Results*

Receptor	Distance to Work Area (feet)	Modelled Peak Noise Level (dBA Leq)
Nearest residence	45	79.9
Santa Rosa Elementary School	1440	53.4

*Project-specific results from the Roadway Construction Noise Model

Decommissioning-related vibration was estimated using methodology provided by the Federal Transit Administration (2006), which indicates construction-related vibration at the nearest structure (minimum 45 feet away) would be 79 Lv¹, which is less than the vibration damage criteria for non-engineered timber and masonry buildings (94 Lv). Therefore, vibration impacts would be less than significant.

ISSUE 22: DAYTIME GLARE

Setting. Sources of light in the immediate project area are limited to exterior lighting at adjacent residential land uses, and vehicle headlights on Santa Rosa Road. The project site does not have any existing lighting or reflective surfaces.

Significance Thresholds. The project would have a significant impact if the post-project luminance histogram (generated by a computer-based comparison of before and after digital photographs) would be greater than 3 times the median background.

Impacts (NI). Proposed decommissioning activities would be conducted during daytime and would not involve any lighting.

ISSUE 23: PUBLIC HEALTH

Setting. A public health issue is defined by the County's ISAG as a human health related issue, such as, but not limited to, vectors, bioaerosols, and other pathogens or environmental factors that may pose a substantial present or potential hazard to public health. Note that hazardous materials or waste that may adversely affect human health are addressed under Issue 20.

Significance Thresholds. Significance for public health related impacts must be determined on a case-by-case basis, and is related to project type, location, and other environmental factors.

Impacts (NI). Currently, the No. 2 Debris Basin does not impound surface water for sufficient periods to allow mosquito reproduction. The proposed project involves removing the existing dam and eliminating any impoundment of surface water. The project would not generate or be exposed to vectors, bioaerosols, and other pathogens or environmental factors that may pose a substantial present or potential hazard to public health.

ISSUE 24: GREENHOUSE GASES

Setting. Climate change, often referred to as "global warming" is a global environmental issue that refers to any significant change in measures of climate, including temperature, precipitation, or wind. Climate change refers to variations from baseline conditions that extend for a period (decades or longer) of time and is a result of both natural factors, such as volcanic eruptions, and anthropogenic, or man-made, factors including changes in land-use and burning of fossil fuels. Anthropogenic activities such as deforestation and fossil fuel combustion emit heat-trapping greenhouse gases (GHG), defined as any gas that absorbs infrared radiation within the atmosphere.

¹ Lv: Root mean square velocity in decibels referenced to 1 micro-inch/second

According to data from the National Oceanic and Atmospheric Administration, the 2017 average global temperature across land and ocean surface areas was 0.84°C (1.51°F) above the twentieth-century average of 13.9°C (57.0°F), making it the third-warmest year on record behind 2016 (warmest) and 2015 (second warmest). 2017 was the warmest non-El-Niño year in the record. Since the start of the twenty-first century, the annual global temperature record has been broken five times. From 1900 to 1980 a new temperature record was set on average every 13.5 years; however, since 1981 the average period between temperature records has decreased to every 3 years.

In efforts to reduce and mitigate climate change impacts, state and local governments are implementing policies and initiatives aimed at reducing GHG emissions. California, one of the largest state contributors to the national GHG emission inventory, has adopted significant reduction targets and strategies. The primary legislation affecting GHG emissions in California is the California Global Warming Solutions Act (Assembly Bill [AB] 32). AB 32 focuses on reducing GHG emissions in California, and requires the CARB to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. In addition, two State-level Executive Orders have been enacted by the Governor (Executive Order S-3-05, signed June 1, 2005, and Executive Order S-01-07, signed January 18, 2007) that mandate reductions in GHG emissions.

In June 2008, CARB developed a Draft Scoping Plan for Climate Change, pursuant to AB 32. The Scoping Plan was approved at the Board hearing on December 12, 2008. The Scoping Plan proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, and enhance public health while creating new jobs and enhancing the growth in California's economy. Key elements of the Scoping Plan for reducing California's greenhouse gas emissions to 1990 levels by 2020 include:

- Expansion and strengthening of existing energy efficiency programs and building and appliance standards.
- Expansion of the Renewables Portfolio Standard to 33 percent.
- Development of a California cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system.
- Implementation of existing State laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
- Targeted fees to fund the State's long-term commitment to AB 32 administration.

The Climate Change Scoping Plan was updated in May 2014, and again in November 2017. In 2016, the State Legislature passed Senate Bill (SB) 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. The 2017 update to the Scoping Plan indicates the State is on track to reduce GHG emissions to 1990 levels by the 2020 target, and focuses on strategies to achieve the 2030 target set by Executive Order B-30-15 and codified by SB 32.

The CARB developed regulations for mandatory reporting of greenhouse gas emissions in 2007, which incorporated by reference certain requirements promulgated by the USEPA in its Final Rule on Mandatory Reporting of Greenhouse Gases (Title 40, Code of Federal Regulations, Part 98). These regulations were revised in 2010, 2012, 2013, and 2014, with the current regulations becoming effective on January 1, 2015. The proposed project would not be subject to these regulations, as it does not involve any industrial processes and does not meet the 10,000-metric ton CO₂E reporting threshold.

SB 97, enacted in 2007, amends the CEQA statute to clearly establish that greenhouse gas emissions and the effects of GHG emissions are appropriate for CEQA analysis. It directs the California Office of Planning and Research (OPR) to develop guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by this division." (Pub. Res. Code § 21083.05(a)).

In December of 2009, the California Natural Resources Agency adopted amendments to the CEQA Guidelines (Title 14, Cal. Code of Regulations, §15000 et seq.) to comply with the mandate set forth in Public Resources Code §21083.05. These revisions became effective March 18, 2010. According to the 2019 State CEQA Guidelines (Section 15064.4), a lead agency may use a model or methodology to estimate GHG emissions, has the discretion to select the most appropriate model or methodology, and must support the selection of the model or methodology with substantial evidence.

Many California counties have developed a climate change action plan focusing on reducing GHGs from local sources, to facilitate meeting the State reduction targets of AB 32. To date, Ventura County has not published any draft documents related to GHG emissions reduction in the County.

Significance Thresholds. To date, GHG thresholds of significance have not been adopted by Ventura County. On November 8, 2011, the Ventura County APCD completed a staff report assessing several options and strategies in developing GHG thresholds for land development projects. Although no GHG thresholds were developed, the November 8, 2011 staff report stated that consistency with any GHG thresholds developed by the South Coast Air Quality Management District (SCAQMD) is preferred. On December 5, 2008, the SCAQMD governing board adopted an interim GHG significance threshold of 10,000 metric tons per year CO₂ equivalent (including amortized construction emissions) for industrial projects. Due to the lack of any other applicable threshold, this value is used in this analysis to determine the significance of the contribution of the project to global climate change.

Impacts (LS). GHG emissions associated with the project were estimated using the OFFROAD and EMFAC2014 models. These models were selected as they were developed by CARB for the preparation of emissions inventories and are appropriate for the emissions sources associated with the project. Total project annual greenhouse gas emissions would be 69.0 metric tons CO₂ equivalent. Since annual GHG emissions would be less than the significance threshold, global climate change impacts are considered less than significant.

ISSUE 25: COMMUNITY CHARACTER

Setting. The project site is located entirely within an existing flood control easement granted to the District in 1957, and encompasses portions of Assessor's Parcel Numbers 519-0-133-04, 519-0-133-05, 519-0-133-06, 519-0-133-07, 519-0-133-08, 519-0-133-09 and 519-0-030-15. The existing flood control easement is an easement and right-of-way in, on, over, under and across the described property for all purposes of constructing a thereon a debris dam and basin with appurtenant structures for periodic inundation resulting from temporary impounding of water from time to time. The easement also establishes the right to establish a borrow pit, permit silt and debris to accumulate, the right to remove silt and debris, and construction, maintenance and repair of facilities. As indicated in Table 1, zoning is Rural Residential.

Significance Thresholds. The project would have a significant impact to community character if it was:

1. A project that is inconsistent with any of the policies or development standards relating to community character of the Ventura County General Plan Goals, Policies and Programs or applicable Area Plan, is regarded as having a potentially significant environmental impact; and/or
2. A project has the potential to have a significant impact on community character, if it either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable probable future projects would introduce physical development that is incompatible with existing land uses, architectural form or style, site design/layout, or density/parcel sizes within the community in which the project site is located.

Impacts (NI). The project is consistent with applicable Ventura County General Plan policies (Section 5.0). The proposed project involves decommissioning the No. 2 Debris Basin, which would return the site to a more natural appearance consistent with the character of the surrounding rural residential area. With the debris basin and associated dam removed from the site, the Bridlewood HOA would be responsible to maintain its easement for equestrian use over the new trail configuration shown on Figure 2.

ISSUE 26: HOUSING

Setting. The project site is surrounded by rural residences, on parcels at least one acre in size.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to housing include:

1. Elimination of three or more dwelling units that are affordable to households with moderate income levels (coastal zone) or lower income (entire County) is considered a significant project-specific and cumulative impact on existing housing.
2. Projects that result in 30 or more new full-time-equivalent (“FTE”) lower-income employees.

Impacts (NI). The project would not involve the removal of any existing housing. However, any project that would involve construction has the potential to generate a demand for construction worker housing. Any employment opportunities associated with proposed decommissioning activities are not expected to generate demand for housing, due to the short-term nature (about 70 working days) and small number of workers needed (about 10). Therefore, these services are anticipated to be supplied by existing construction workers within the County, and an impact on housing demand is not anticipated.

ISSUE 27: TRANSPORTATION/CIRCULATION

The following analysis is consistent with the Ventura County ISAG, which have not been updated to address revisions to the State CEQA Guidelines (Section 15064.3) regarding determining the significance of transportation impacts. These revisions focus on increases in vehicle miles travelled associated with proposed changes in land use. The proposed project does not involve any change in land use as the project site would remain within a flood control easement and would not generate any vehicle miles.

Setting. The quality of traffic service provided by a roadway system can be described through the Level of Service (LOS) concept. LOS is a standardized means of describing traffic conditions by comparing traffic volumes in a roadway system with the system's capacity. An LOS rating of A-C indicates that the roadway is operating efficiently. Minor delays are possible on an arterial with a LOS of D. Level E represents traffic volumes at or near the capacity of the highway, resulting in possible delays and unstable flow.

The project site is served by a circulation system comprised of highways, arterial streets, and collector streets. The project site is accessed from Santa Rosa Road, a 2-lane County roadway linking the City of Camarillo to the cities of Thousand Oaks and Moorpark (via Moorpark Road). Santa Rosa Road is also a city thoroughfare within the City of Camarillo, where it is a 4-lane facility, except east of Upland Road where it transitions into a 2-lane rural highway.

Traffic volumes recorded in 2018 on Santa Rosa Road (west of Moorpark Road) were 22,100 vehicles per day, which is considered LOS E (Ventura County Resource Management Agency 1988, amended 2015). LOS E is considered acceptable on the Ventura County portion of Santa Rosa Road (see Ventura County ISAG).

Part 27.a Roads and Highways

Roadway Significance Thresholds. The minimum acceptable level of service for County maintained local roads is LOS C, and LOS D for County thoroughfares and state highways. However, the minimum acceptable LOS is E for five specified roadway segments, including the segment of Santa Rosa Road adjacent to the project site. The project would have a significant impact on roads and highways if it would:

- Add one or more peak hour trip to a roadway currently operating at an unacceptable LOS.
- Cause a roadway to fall below an acceptable LOS.

Intersection Significance Thresholds. The project would have a significant impact on intersection if it would:

- Increase volume/capacity ratios (V/C) by 0.20 for intersections operating at LOS A;
- Increase V/C by 0.15 for intersections operating at LOS B;
- Increase V/C by 0.10 for intersections operating at LOS C;

27.a(1) Roads and Highways Level of Service

Impacts (LS). The proposed project would generate short-term vehicle traffic on Santa Rosa Road, with up to 20 one-way trips on a peak day. However, many of these trips would occur during off-peak hours because proposed decommissioning activities would generally begin prior to a.m. peak hour and typically end at or before p.m. peak hour. In any case, Santa Rosa Road operates at an acceptable LOS, and the project would not cause LOS to fall below acceptable levels to LOS F, or 27,000 vehicles per day. Therefore, project impacts to roadway level of service would be less than significant.

27.a(2) Safety and Design of Public Roads

Impacts (NI). The project does not involve construction of a public road; therefore, no impacts to the safety and design of public roads would occur. Any project-related damage to public roadways would be repaired to County standards by the decommissioning contractor.

27.a(3) Safety and Design of Private Access

Impacts (NI). The project does not involve construction of a private road; therefore, no impacts to the safety and design of private access roads would occur.

27.a(4) Tactical Access

Setting. Tactical access describes an organized system of roads that provides access to and from a project site in the event of any emergency or disaster. The project may have a significant impact with respect to tactical access if it would involve the construction of a public or private road with single access that is over 800 feet in length.

Impacts (NI). The project site does not support any habitable structures requiring emergency access. In any case, the existing access road would be maintained during decommissioning activities. Surrounding residences have private driveways that would not be affected by the project. Therefore, adequate emergency access to the site and adjacent land uses would be provided.

Part 27.b Pedestrian/Bicycle Facilities

Setting. In the project area, Santa Rosa Road is provided with bike lanes along the roadway shoulder (Class II facility).

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to pedestrian/bicycle facilities include:

1. A project that would cause actual or potential barriers to existing or planned pedestrian/bicycle facilities.
2. Projects that generate or attract pedestrian/bicycle traffic volumes meeting requirements to provide protected highway crossings or pedestrian and bicycle facilities (pedestrian overcrossings, traffic signals, and bikeways).

Impacts (NI). The proposed project would not adversely affect the use of Santa Rosa Road or any designated bikeways by bicyclists and pedestrians.

Part 27.c Bus Transit

Setting. Bus service in the project area is provided along U.S 101 and State Route 34. Regular bus transit service is not provided along Santa Rosa Road.

Significance Thresholds. A project may have a significant impact if it would substantially interfere with existing bus transit facilities or routes, or create a substantial demand for bus transit facilities or services.

Impacts (NI). The project would not involve the construction of housing, provide long-term employment opportunities or otherwise increase the population in the area. Therefore, the project would not result in an increase in demand for bus transit services, or adversely affect bus transit facilities. Project-related decommissioning activities would not hamper access to bus stops or bus service.

Part 27.d Railroads

Setting. The nearest tracks (Union Pacific Railroad/Metrolink) are located approximately 2.8 miles north of the project site.

Significance Thresholds. A project would normally have a significant impact on a railroad if it would substantially interfere with an existing railroad's facilities or operations.

Impacts (NI). The proposed project would not generate rail traffic or interfere with railroad operations. No impacts to railroads would occur.

Part 27.e Airports

Setting. The nearest airport is the Camarillo Airport, located approximately 10.7 miles west of the project site.

Significance Thresholds. Incompatible uses (such as tall buildings, residential units, refineries, churches and schools) within the airport sphere of interest may cause a significant impact. Generally, projects with the potential to generate complaints and concerns, or which are within the sphere of influence of a County-operated airport, would interfere with the County's mission and be deemed as having a significant project-specific and/or cumulative impact.

Impacts (NI). The project site is not located within the airport sphere of interest or height restriction zone, and does not involve any new structures. The project would not conflict with airport operations, or adversely affect airport facilities.

Part 27.f Harbor Facilities

Setting. The nearest harbor is in Port Hueneme, located approximately 19.2 miles to the southwest.

Significance Thresholds. The significance of impacts to harbors is determined by the harbor operator, which is the Oxnard Harbor District for the Port Hueneme harbor.

Impacts (NI). The project would not increase harbor traffic, or adversely affect harbor facilities.

Part 27.g Pipelines

Setting. There are pipelines in the project area, including water supply and natural gas. A standard utility investigation (i.e., Digalert, utility company contact) would be conducted to identify any pipelines within construction work areas.

Significance Thresholds. A project would have a significant impact if it would substantially interfere with, compromise the pipeline integrity or otherwise affect the operations of an existing pipeline.

Impacts (NI). The project would not interfere with the operation of existing pipelines.

ISSUE 28: WATER SUPPLY

Setting. The potable water needs of the area are served by local groundwater and imported water provided by the Camrosa Water District.

Part 28.a Quality

Setting. Domestic water is defined by the County of Ventura ISAG as a supply of potable water used for human consumption or connected to domestic plumbing fixtures in which the supply is obtained from an approved individual water supply system or a public water system operating with an unrevoked permit from the Ventura County Environmental Health Division or the California State Department of Health Services.

Significance Thresholds. The project would have a significant impact if it would result in the use of domestic water that does not meet applicable State Drinking Water Standards as described in Title 22 of the California Code of Regulations, as well the Ventura County Building Code and Ordinance Code.

Impacts (NI). The proposed project would utilize water during decommissioning activities provided by the Camrosa Water District that meets all applicable water quality standards. Therefore, no impacts to domestic water quality would result.

Part 28.b Quantity

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to water supply include:

1. Projects without a demonstrated permanent supply of water.
2. Any project that is inconsistent with any County policies or development standards relating to water supply.
3. Either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable probable future projects would introduce physical development that would adversely affect the water supply of the hydrologic unit in which the project site is located.

Impacts (NI). The proposed project would not require a permanent water supply. The proposed project would use small amounts of water on a temporary basis for dust control and compaction during decommissioning activities, and temporary irrigation of erosion control plantings for approximately two years until established. Drought-tolerant plants that do not require long-term irrigation would be selected for use.

Part 28.c Fire Flow

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to fire water flow include:

1. Projects that cannot meet the required fire flow.
2. Served by a private water system that cannot meet flow, duration or reliability requirements of the Ventura County Waterworks Manual and VCFPD Code.

Impacts (NI). The project would not require fire protection or a source of fire water. As such, no impacts with respect to fire flow are expected.

ISSUE 29: WASTE TREATMENT AND DISPOSAL FACILITIES

Part 29.a Individual Sewage Disposal Systems

The project would not involve the use of any individual septic systems, and would have no impacts in this respect.

Part 29.b Sewage Collection/Treatment Facilities

Setting. The project site does not generate sewage. Domestic wastewater produced by surrounding residences are treated by individual private septic systems.

Significance Thresholds. The project would have a significant impact if it would individually or cumulatively generate sewage effluent which would be discharged to and exceed the capacity of an existing sewer main or sewage treatment plant. If the project description includes improvements to existing, or construction of new sewer mains and/or sewage treatment plants which would then be capable of serving the project and other cumulative development, there would be a less than significant impact.

Impacts (NI). The proposed project would not contribute wastewater to any wastewater treatment or disposal facilities.

Part 29.c Solid Waste Management

Setting. Solid waste generated in the project area is disposed at the Toland Road Landfill by E.J. Harrison & Sons, with recyclables transported to the Gold Coast Transfer Station for sorting and recovery.

Significance Thresholds. Any project that generates solid waste would have an impact on the demand for solid waste disposal capacity in Ventura County. However, unless the County has reason to believe that there is less than 15 years of disposal capacity available for County disposal, no individual project would have a significant impact on the demand for solid waste capacity.

The Countywide Siting Element approved by the California Integrated Waste Management Board on June 20, 2001 demonstrates that the approval of extension of the existing Solid Waste Facility Permit for the Simi Valley Landfill and Recycling Center, combined with the existing permitted capacity of the Toland Road Landfill would provide Ventura County with sufficient disposal capacity beyond the 15-year planning period mandated by State law. Therefore, no individual project would have a significant impact on the demand for solid waste capacity.

Impacts (LS). The proposed project may generate a small amount of solid waste associated with disposal of removed metal and concrete piping, concreted rock and sandbags, and green-waste from tree removal. The project would comply with the requirements of the Ventura County Public Works Integrated Waste Management Division, including recycling demolition debris, using recyclable construction materials, segregation of green-waste, and recycling and reusing soil and green-waste. Solid waste impacts would be less than significant.

Part 29.d Solid Waste Facilities

Setting. Solid waste generated in the project area is disposed at the Toland Road Landfill.

Significance Thresholds. Solid waste facilities shall be in compliance with the following statutes and regulations and are subject to enforcement by the Ventura County Environmental Health Division, the Local Enforcement Agency:

- California Health and Safety Code, Parts 13 and 14.
- California Code of Regulations, Title 14.
- California Code of Regulations, Title 27.

- California Public Resources Code, Division 30.
- Ventura County Ordinance Code.

Impacts (NI). The proposed project does not involve a solid waste operation or facility, and would not have an impact on solid waste facilities within the region.

ISSUE 30: UTILITIES

Energy: Impacts (LS). The proposed project would consume non-renewable energy in the form of fuels for vehicles and equipment used to conduct decommissioning activities. This energy use would not be wasteful, inefficient or unnecessary.

Electricity: Impacts (NI). The project site is not currently provided with electricity service, and proposed decommissioning activities would not require electricity service. Therefore, no impacts to electricity service would result.

Natural Gas: Impacts (NI). The project site is not currently provided with natural gas service, and proposed decommissioning activities would not require natural gas service. Therefore, no impacts to natural gas service would result.

Communications: Impacts (NI). The project site is not currently provided with communications service, and proposed decommissioning activities would not require communications service. Therefore, no impacts to communications service would result.

ISSUE 31: FLOOD CONTROL FACILITIES/WATERCOURSES

Part 31.a Watershed Protection District Facilities/Watercourses

Setting. The project site (No. 2 Debris Basin) is a District facility, including the affected reach of the Arroyo Santa Rosa Tributary.

Significance Thresholds. Significance thresholds are taken from the Ventura County ISAG. Potentially significant project impacts to County-maintained water courses include:

1. Reducing the capacity of flood control facilities and watercourses, including planting of vegetation within the watercourse or on the banks thereof.
2. Eroding watercourse bed and banks due to high velocities, changes in adjacent land use, encroachments into the channel such as bridges, and loading the top of the channel embankment with structures.
3. Deposition of any material of any kind in a watercourse.
4. Placement of a structure that encroaches on a flood control facility or that does not have sufficient setback from a watercourse.

Impacts (LS). The proposed project involves removal of the dam and decommissioning of the No. 2 Debris Basin. Based on the Preliminary Design Study prepared for the project by West Consultants, the storm water detention effect of the No. 2 Debris Basin is negligible because hydraulic modeling indicates the extent of inundation would be virtually the same following dam removal, with the same number of potentially inundated structures as under existing conditions (Figures 6 and 7). Specifically, a 10-year event would cause inundation of two structures under existing conditions or with the dam removed, and a 100-year event would cause inundation of 12 structures under existing conditions or with the dam removed.

Hydraulic modeling conducted for the Preliminary Design Study indicates if the No. 2 Debris Basin dam were breached during a 10-year (or 50-year or 100-year) flood event it would cause Santa Rosa Road to be overtopped by 7 feet of water, and would result in inundation of 17 structures during a 10-year event (or 29 and 30 structures during a 50-year or 100-year event, respectively). Thus, the proposed dam removal would eliminate this flood hazard and risk of additional property loss associated with dam breaching during major storm events.

Sediment transport modeling conducted for the Preliminary Design Study indicates that higher storm flow velocities associated with dam removal would prevent excess sediment deposition. Therefore, dam removal would not produce areas of excessive sediment deposition.

The proposed project includes the extension of the existing box culvert under Santa Rosa Road and construction of a transition structure between the upstream earthen channel and box culvert. These project components would not adversely affect the capacity of the earthen channel or culvert.

Overall, the proposed project would not substantially reduce the capacity of the Arroyo Santa Rosa Tributary channel, substantially increase erosion or sedimentation, or encroach into a flood control facility. Therefore, impacts to District facilities would be less than significant.

Part 31.b Other Facilities/Watercourses

Setting. The project site is located in the Arroyo Santa Rosa Tributary watershed, which includes District-maintained, privately maintained and unmaintained channels. The Tributary empties into Arroyo Santa Rosa approximately 2.1 stream miles downstream of the project site. Arroyo Santa Rosa empties into Conejo Creek approximately 1.1 stream miles downstream of its confluence with the Arroyo Santa Rosa Tributary.

The Santa Rosa Road No. 2 Debris Basin is located near the upper end of the Arroyo Santa Rosa Tributary watershed, which totals approximately 18,580 linear feet of channels, and parallels Santa Rosa Road in a northeast to southwest direction. The Tributary channel begins several hundred feet east of the intersection of Moorpark Road and Santa Rosa Road, and traverses approximately 6,500 linear feet as a small natural channel with several bridge and culvert features. The District does not own or have easements to maintain any of the upper reach as a facility.

Moving downstream, the next 500 feet of channel falls within the maintained portion of the District's No. 2 Debris Basin facility, which abuts the 200-foot (upstream to downstream) earthen dam. Downstream (south) of the dam, the channel is maintained by the District as an earthen trapezoidal channel for about 350 feet to the culvert under Santa Rosa Road. The culvert outlets south of the road into a nearly 3,500 foot-long concrete box channel built in 1969 that parallels Santa Rosa Road.

The Arroyo Santa Rosa Tributary channel then separates southward from Santa Rosa Road into a wide earthen channel which is maintained by the District. These reaches are maintained by the District via maintenance agreements over land owned by other parties.

Downstream of this point, the Arroyo Santa Rosa Tributary channel traverses many private properties for about 1.3 linear miles to the confluence with Arroyo Santa Rosa. This reach is maintained by the property owners, as the District lacks maintenance easements.

The Arroyo Santa Rosa upstream and downstream of the confluence with the Tributary comprises mostly District-maintained reaches, with earth, rock and concrete treatments. The Arroyo Santa Rosa terminates at its confluence with Conejo Creek approximately 1.1 miles downstream of its confluence with the Arroyo Santa Rosa Tributary.

Significance Thresholds. The project would have a significant impact if it would substantially change the flow rate (i.e., increased runoff), velocity, erosion potential, or capacity of flood control channels. In reviewing a project for impacts, the following are to be given consideration:

- Deposition of sediment and debris materials within existing channels and allied obstruction of flow.
- Capacity of the channel and the potential for overflow during design storm conditions.
- Increased runoff and the effects on areas of special flood hazard and regulatory channels both on and off site.

Impacts (NI). After decommissioning the Santa Rosa Road No. 2 Debris Basin, the District would continue to maintain concrete rectangular and earthen trapezoidal facilities downstream of Santa Rosa Road for approximately 0.8 linear miles. Because flooding and sediment loading would not change substantially, the maintenance requirements of non-District-maintained facilities is not expected to change.

ISSUE 32: LAW ENFORCEMENT/EMERGENCY SERVICES

Setting. The project area is served by the Ventura County Sheriff Department's East Valley Station at 2101 E. Olsen Road, Thousand Oaks, located approximately 5.5 road miles from the project site. Emergency (paramedic) services would be provided from Ventura County Fire Department Station 52, located approximately 6.6 road miles west of the project site.

Significance Thresholds. Projects that do not include adequate measures to address increased demand for law enforcement or emergency services would have a potentially significant project-specific and cumulative impact.

Impacts (NI). The proposed project does not involve any habitable structures or other facilities requiring law enforcement or emergency services.

ISSUE 33: FIRE PROTECTION SERVICES

Part 33.a Distance and Response

Setting. Fire protection services would be provided from Ventura County Fire Department Station 52, located approximately 6.6 road miles west of the project site.

Significance Thresholds. Projects located greater than five miles (measured from the apron of the fire station to the structure or pad of the proposed structure) from a full time paid fire department is considered a significant impact.

Impacts (NI). The proposed project does not involve any habitable structures or other facilities requiring fire protection services.

Part 33.b Personnel, Equipment and Facilities

Impacts (NI). Additional Ventura County Fire Department personnel, equipment or facilities would not be needed to serve the proposed project.

ISSUE 34: EDUCATION

Part 34.a Schools

Setting. The term “schools” includes public elementary, secondary and college level educational facilities. This issue entails the direct impact to, and demand for school facilities. Schools in the project area include California Lutheran University, Las Colinas Middle School, Somis Elementary School, Santa Rosa Elementary School, Arroyo West Elementary School, Moorpark High School, Mountain Meadows Elementary School, Peach Hill Elementary School, Mesa Verde Elementary School, Flory Elementary School and Chaparral Middle School. The nearest school is Santa Rosa Elementary, located approximately 0.3 miles east of the project site.

Significance Threshold. A project will normally have a significant impact on school facilities if it would substantially interfere with the operations of an existing school facility.

Impacts (NI). The proposed project is non-residential and would not provide any long-term employment opportunities, or otherwise create any demand for schools. The proposed project would not interfere with the operations of any school.

Part 34.b Public Libraries

Setting. The term “public libraries” includes public library facilities and services. This issue entails the direct impact to, and demand for, public library facilities and services. The nearest public library is the Moorpark City Library, located approximately 2.9 miles north of the project site.

Significance Threshold. A project has a significant project-specific impact on public library facilities and services if it would substantially interfere with the operations of an existing public library facility, put additional demands on a public library facility which is currently deemed overcrowded, or limit the ability of individuals to access public library facilities by private vehicle or alternative transportation modes. A project has a cumulative impact on public library facilities and services if the project, in combination with other approved projects in its vicinity, would cause a public library facility to become overcrowded.

Impacts (NI). The proposed project is non-residential and would not provide any long-term employment opportunities, or otherwise create any demand for public libraries or services. The proposed project would not interfere with the operations of any public library.

ISSUE 35: RECREATION FACILITIES

Local Parks/Facilities

Setting. The nearest local park in the area is Peach Hill in the City of Moorpark, located approximately 1.7 miles north-northeast of the project site.

Significance Thresholds. A project would have a significant impact on recreation if it would cause an increase in the demand for recreation when measured against the following standards:

- Local Parks/ Facilities: 5 acres of developable land (less than 15% slope) per 1000 population.
- Regional Parks/Facilities: 5 acres of developable land per 1000 population.
- Regional Trails/Corridors: 2.5 miles per 1000 population.

A project would have a significant impact on recreation if it would impede future development of Recreation Parks/Facilities and/or Regional Trails/Corridors.

Impacts (NI). The proposed project is not a new or expanded development and would not create a demand for recreational facilities, or affect access or future development of existing facilities. Therefore, the project would not impact local parks/facilities.

Regional Parks/Facilities

Setting. A regional park is defined as an extent of land that, by its unique, natural character or unusual or extensive development, offers recreation opportunities that attract patronage from beyond the local vicinity without regard to physical, political, or municipal boundaries. The nearest regional park in the project area is Wildwood Regional Park in the City of Thousand Oaks, located approximately 0.7 miles to the south of the project site.

Impacts (NI). The proposed project would not create a demand for recreational facilities and would not impede the use of any park. Therefore, no impacts to regional parks would occur.

Regional Trails/Corridors

Setting. Regional trails are intended to accommodate non-motorized recreational travel through areas removed from vehicular traffic. Regional trails/corridors should link major park and recreation facilities. Regional trails in the project area include those in Wildwood Park (Santa Rosa, Lower Santa Rosa, Mount Clef Ridge), located as close as 0.5 mile south of the project site.

The access road along the eastern side of the No. 2 Debris Basin is part of the Bridlewood Trail managed by the Bridlewood Homeowners Association. This primarily equestrian trail is located on private property, with the public provided access under the provisions of California Civil Code Section 846. In the vicinity of the No. 2 Debris Basin, the trail extends north from Santa Rosa Road along the west side of the channel, then crosses to the east side just downstream of the dam, then north along the east side of the project site and the No. 2 Debris Basin (Figure 5). The trail then curves north and east along the Arroyo Santa Rosa Tributary channel to Vista Grande Street.

Impacts (PS-M). The project includes the permanent realignment of the Bridlewood Trail across the proposed box culvert extension at Santa Rosa Road to the east side of the Arroyo Santa Rosa Tributary (Figure 5). For public safety reasons, access to the portion of the Bridlewood Trail within the project site would be closed for approximately three months during decommissioning activities. This temporary loss of recreational use of a portion of the Bridlewood Trail is considered a potentially significant impact.

Mitigation. The following measures shall be implemented to minimize the temporary loss of use of the Bridlewood Trail within the project area during decommissioning activities:

- The project schedule (projected work start and end dates) shall be provided to the Bridlewood Homeowners Association at least two weeks prior to beginning decommissioning activities.
- Signage shall be provided on the Trail both north and south of the project site at least one week prior to the initiation of decommissioning activities, notifying Trail users of planned temporary Trail closures, and the alternative Trail route along Vista Arroyo Drive.
- Vista Arroyo Drive shall be available as an alternative temporary detour equestrian trail route from Santa Rosa Road north to the existing off-street connector trail just northeast of Saddleridge Court (Figure 5). Note that Vista Arroyo Drive is considered an existing trail in the Santa Rosa Valley Trail Master Plan.

Implementation of the above measures would reduce impacts related to loss of equestrian trail usage to a level of less than significant.

5.0 CONSISTENCY WITH THE VENTURA COUNTY GENERAL PLAN

Section 15063(d) of the State CEQA Guidelines requires a discussion of the consistency of the proposed project with existing zoning, plans and other applicable land use controls. Table 6 provides a discussion of project consistency with the policies of the Ventura County General Plan.

Table 6. Summary of Project Consistency with Applicable Policies of the Ventura County General Plan

Policy Area	Consistency Determination
RESOURCES	
1.1 General Goals, Policies and Programs	Consistent: This Initial Study/Mitigated Negative Declaration was prepared for the project in compliance with CEQA, and mitigation is provided to reduce all impacts to less than significant levels.
1.2 Air Quality	Consistent: the project is consistent with the AQMP, impacts have been identified and emissions reduction measures provided (see Issue 1), the project is not subject to APCD permit authority.
1.3 Water Resources	Consistent: the project would not require a permanent water supply and complies with all State and County regulations, does not involve irrigated landscaping, surface water diversion, mining, wells or golf courses (see Issue 2).
1.4 Mineral Resources	Consistent: the project does not involve mineral or petroleum extraction/production, or affect a mineral resource area (see Issue 3).
1.5 Biological Resources	Consistent: on site biological resources (including wetland habitats) have been evaluated, significant impacts would be mitigated, no significant wetland habitat would be affected, wildlife passage would not be substantially affected (see Issue 4).
1.6 Farmland Resources	Consistent: the project does not involve loss of farmland, hillside agricultural grading or development adjacent to agricultural-designated lands or greenbelts (see Issue 5).
1.7 Scenic Resources	Consistent: the project would not degrade visual resources, or adversely affect a scenic resource area (see Issue 6).
1.8 Paleontological and Cultural Resources	Consistent: impacts to these resources have been evaluated (see Issues 7 and 8). No prehistoric resources have been reported at or near the site; however, measures are provided to address evaluation and disposition of any cultural resources found during proposed decommissioning activities.
1.9 Energy Resources	Consistent: the proposed project would not consume energy, including electricity and natural gas.
1.10 Coastal Beaches and Sand Dunes	Consistent: the project would not affect beaches or sand dunes, or involve shoreline structures or mining (see Issue 9).
HAZARDS	
2.1 General Goals, Policies & Programs	Consistent: due to the nature of the project (decommissioning) geologic or soil engineering reports are not needed (see Issues 10-12).
2.2 Fault Rupture	Consistent: the project site is not located on an active fault and is not located in a fault hazard area (see Issue 10).

Table 6. Continued

Policy Area	Consistency Determination
2.3 Ground Shaking	Consistent: the project does not involve any habitable structures that could be affected by ground shaking (see Issue 11).
2.4 Liquefaction	Consistent: the project does not involve any habitable structures, essential facilities, or hazardous materials storage facilities that could be affected by liquefaction (see Issue 12).
2.5 Seiche	Consistent: the proposed project is not located in a seiche hazard area (see Issue 13).
2.6 Tsunami	Consistent: the proposed project is not located in a tsunami hazard area (see Issue 13).
2.7 Landslides/Mudslides	Consistent: the project would not be located in a landslide/mudslide hazard area or hillside areas (see Issue 14).
2.8 Expansive Soils	Consistent: the proposed project does not involve any new or modified structures or individual sewage disposal systems, and is not subject to County and State building codes (see Issue 15).
2.9 Subsidence	Consistent: the project does not involve any new or modified structures, extraction wells, or any public safety or emergency services facilities (see Issue 16).
2.10 Flood Hazards	Consistent: the proposed project does not involve any habitable structures, is designed to withstand inundation and would not alter floodplain limits (see Issue 17).
2.11 Inundation from Dam Failure	Consistent: the project involves the removal of a small dam, which would remove the potential for inundation associated with dam failure.
2.12 Coastal Wave and Beach Erosion Hazards	Consistent: the project is not located on the coast.
2.13 Fire Hazard	Consistent: the project is located in a high fire hazard area, but does not involve any new or modified structures requiring fire protection or emergency access (see Issue 18).
2.14 Transportation Related Hazards	Consistent: the project is not located in proximity to an airport, railroad or truck route (see Issue 19).
2.15 Hazardous Materials and Waste	Consistent: the project would not generate or utilize hazardous materials, and would not be implemented at a waste site (see Issue 20).
2.16 Noise	Consistent: the project is not a noise-sensitive use, and would not exceed the construction noise thresholds at adjacent land uses (see Issue 21).
2.17 Civil Disturbance	Consistent: the project would have no effect on law enforcement resources to be used to restore the peace.
LAND USE	
3. General Goals, Land Use Designations, Population & Housing, Employment	Consistent: the project is consistent with the existing land use designation and zoning, and does not involve any commercial or industrial development (see Issues 25 and 26).

Table 6. Continued

Policy Area	Consistency Determination
PUBLIC FACILITIES AND SERVICES	
4.1 General Goals, Policies and Programs	Consistent: public improvements would not be needed to serve the project site. The project does not involve annexation or change in sphere or area of interest.
4.2 Transportation/ Circulation	Consistent: the project would generate a small amount of traffic during the 3-month decommissioning process, but would not cause or contribute to roadways or intersections operating at an unacceptable level of service (see Issue 27). The project does not include a change in land use designation or zoning, or other feature that would result in long-term traffic generation.
4.3 Water Supply Facilities	Consistent: the project would not require a potable water supply (see Issue 28).
4.4 Waste Treatment and Disposal Facilities	Consistent: the project would not generate wastewater, is not located near a waste treatment or disposal site, and any solid waste generated during decommissioning would be recycled to the extent feasible (see Issue 29).
4.5 Public Utilities	Consistent: the project would not require any public utilities or involve any new transmission lines (see Issue 30).
4.6 Flood Control and Drainage Facilities	Consistent: the project would decommission an existing debris basin, and not require any new flood control facilities (see Issue 31).
4.7 Law Enforcement and Emergency Services	Consistent: the project does not involve any new or modified structures or other facilities requiring law enforcement or emergency services (see Issue 32).
4.8 Fire Protection	Consistent: the project does not involve any new or modified structures or other facilities requiring fire protection services (see Issue 33).
4.9 Education and Library Facilities and Services	Consistent: the project does not involve any schools or library facilities (see Issue 34).
4.10 Parks and Recreation	Consistent: the project would not generate any demand for recreational facilities and would not affect existing facilities (see Issue 35).
4.11 Other Public Buildings and Grounds	Consistent: the project would not affect any government-owned or leased facilities.

6.0 CUMULATIVE IMPACTS

Cumulative impacts are defined as two or more individual effects which, when considered together are considerable, or which compound or increase other environmental impacts. Under Section 15064 of the State CEQA Guidelines, the lead agency must identify cumulative impacts, determine their significance and determine if the effects of the project are cumulatively considerable.

6.1 CUMULATIVE PROJECTS DESCRIPTION

The following provides a list of other planned or recently approved projects in adjacent areas of Ventura County and the cities of Moorpark and Thousand Oaks that may contribute to cumulative environmental impacts.

6.1.1 Ventura County

Based on the February 2019 list of pending and approved projects, the following projects within about 5 miles involving substantial physical changes to the environment are under review by the Resource Management Agency:

- 15 lot residential subdivision on 50 acres in Santa Rosa Valley (Tentative Tract Map 4410).
- Telecommunications tower at Ventavo Road, Moorpark.
- Lumber yard expansion near Somis including detention basin, wastewater treatment system and parking reconfiguration.
- Lot line adjustment on a 5-acre parcel along Santa Rosa Road.

6.1.2 City of Moorpark

Based on the City's Quarterly Status Report for October 2018, the following projects involving substantial physical changes to the environment are under review or have been recently approved:

- 284 single-family residences on Championship Drive.
- 755 single-family residences west of Casey Road.
- 110 single-family residences east of Walnut Canyon Road.
- 60 condominium units at Walnut Canyon Road/Everett Street.
- 390-unit senior retirement community north of Casey Road.
- 200-unit apartment complex south of Casey Road.
- 21 single-family residences at Marine View Drive.
- 69 condominium units at 635 Los Angeles Avenue.
- 95-unit townhouse complex at Spring Street/Los Angeles Avenue.
- 133 single-family residences at 5979 Gabbert Road.

- 17 lot industrial tract map west of Gabbert Road.
- Motion picture studio complex on Los Angeles Avenue.

6.1.3 City of Thousand Oaks

Based on the City's February 2019 Development Activity Report, the following projects involving substantial physical changes to the environment are under review or have been recently approved:

- Mixed use with 142 apartment units and retail uses on Thousand Oaks Boulevard.
- Nine single-family residences on East Hillcrest Drive.
- Three single-family residences on Highgate Road.
- Five single-family residences on Skyline Drive.
- Hotel expansion on South Westlake Boulevard.
- Demolition and construction of a new industrial building on Lawrence Drive.
- Fifteen new industrial buildings on Rancho Conejo Boulevard.

6.2 CUMULATIVE IMPACT ANALYSIS

6.2.1 Air Quality

Each of the projects listed in Section 6.1 would generate short-term construction emissions. Project decommissioning activities would contribute to cumulative short-term construction emissions, should construction of these projects occur at the same time as the proposed project. However, construction emissions of both the proposed project and other projects would be mitigated by standard measures required by the Ventura County APCD. Implementation of these measures is considered to prevent significant project-specific and cumulative air quality impacts from construction. Therefore, the incremental contribution of the project to cumulative air quality impacts from construction is considered less than significant.

Each of the projects listed in Section 6.1 would generate motor vehicle emissions associated with operation, and some of the industrial projects may generate point source air pollutant emissions. The proposed project would not generate any long-term emissions and would not contribute to cumulative long-term vehicle emissions. Overall, the incremental contribution of the project to cumulative air quality impacts would not be considerable.

6.2.2 Water Resources

Each of the projects listed in Section 6.1 would involve construction and may result in storm water run-off during the construction period, contributing to surface water quality impacts. The proposed project would be conducted during the dry season and is unlikely to contribute to storm water-related surface water quality impacts. In any case, each of these projects would be subject to the General Permit for Discharges of Storm Water Associated with Construction and Land Disturbance Activities and would implement a SWPPP.

The cumulative projects would be subject to the County's stormwater quality management program developed for the Ventura County Municipal Separate Storm Sewer System Permit (Order R4-2010-0108, NPDES Permit No. CAS004002). Implementation of the storm water pollution prevention plan and monitoring required under the General Permit, and compliance with the Storm Sewer System Permit would prevent significant impacts to surface water quality.

In addition, the proposed project would require execution of a Streambed Alteration Agreement from CDFW which typically restricts fueling and maintenance of equipment and vehicles near the drainage, and other measures to prevent water quality impacts. The project's incremental contribution to surface water quality impacts would not be cumulatively considerable.

Most of the projects listed in Section 6.1 would require a permanent potable water supply for domestic uses. The proposed project would not require a permanent potable water supply and would not incrementally contribute to the water supply demand.

6.2.3 Biological Resources

Some of the cumulative projects listed above would result in the loss of native vegetation and wildlife habitat, and may significantly impact special-status species, sensitive ecological communities or wetlands. The proposed project would not result in the loss of sensitive ecological communities, and impacts to special-status species and temporary impacts to wetlands would be negligible. Therefore, the project's incremental contribution to cumulative impacts to biological resources would not be considerable.

6.2.4 Cultural Resources

Cumulative projects listed in Section 6.1 may adversely affect intact and/or known archaeological resources. In addition, similar to the proposed project, isolated and/or unreported resources may be inadvertently discovered during construction-related ground disturbance. The proposed project may contribute to this cumulative impact; however, mitigation measures are provided to avoid and minimize potential impacts to discovered archaeological resources.

The cumulative projects may adversely affect historic resources. The proposed project would not contribute to such impacts.

6.2.5 Noise

Most of the projects listed in Section 6.1 may generate both short-term construction noise and long-term traffic noise. The proposed project would contribute to short-term cumulative noise impacts. However, the proposed project is not located in close proximity to other projects and would not have a considerable incremental contribution to impacts at noise sensitive receptors affected by these projects.

6.2.6 Traffic and Circulation

Only one cumulative project (Tentative Tract Map 4410) would directly contribute traffic on Santa Rosa Road. Due to the small number of proposed residences (15), the combination of these vehicle trips with project-related decommissioning vehicle trips could not increase existing traffic volumes (22,100 vehicles per day) to 27,000 which would cause Santa Rosa Road to operate at an unacceptable level of service (LOS F). Therefore, the project's contribution to traffic impacts would not be cumulatively considerable.

7.0 GROWTH INDUCEMENT

Projects have the potential to foster economic or population growth, which may cause indirect impacts associated with construction of housing and/or community service facilities (Section 15126.2(d) of the State CEQA Guidelines). A project would have a significant impact if it would induce substantial growth. A project would have the potential to induce substantial growth if it would eliminate or remove an impediment to growth in the area. This includes both physical impediments (lack of roads, flood control facilities, sewers, water lines, etc.) and policy impediments (e.g., existing land use and zoning designations, General Plan policies, etc.).

The proposed project would not provide long-term employment opportunities or housing, and would not draw people to the area and increase population.

The proposed project would not involve expansion of any service infrastructure that could support future development and induce population growth. In addition, the project would not require the amendment of existing land use designations, zoning designations, General Plan policies, ordinances, development guidelines, or any other policies that would allow for increased development of the area.

The proposed project does not include residential units or commercial land uses that may generate substantial employment opportunities; therefore, it would not directly increase population levels, or create a demand for goods or services. Since the proposed project would not affect existing physical and/or policy impediments to growth, it would not induce population growth.

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9.0 RESPONSE TO COMMENTS

Section 15073 of the State CEQA Guidelines provides an opportunity for the public and agencies to review the Draft MND and submit comments regarding its adequacy. All comment letters received during the public comment period (March 21 to April 22, 2019) are presented with written responses. Comments on the Draft MND received during the public comment period were submitted by the agencies and persons listed below.

- Vicki Smith (two e-mails received on April 15, 2019).
- William Brown (e-mail received on April 16, 2019).
- Ventura County Air Pollution Control District (letter dated April 22, 2019).
- California Department of Transportation (letter dated April 18, 2019)

In accordance with the County of Ventura's Administrative Supplement to the State CEQA Guidelines, responses to comments are provided in this section.

CL1

From: Vicki Smith
To: Barns, Tyler
Subject: Debris Basin
Date: Monday, April 15, 2019 3:27:25 PM

Hi Tyler,

I have a few questions. What is an inundation easement? What is the difference between this and what we have now?(flow age easement)

Also, who is responsible for maintaining this? Once this is all done and the water conserving plants are on their own, who maintains this area?

Thank you.
Vicki Smith
President of Bridlewood HOA

Sent from my iPhone
Vnsmith24@gmail.com

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Commenter: Vicki Smith

Date: E-mail received on April 15, 2019, 3:27 p.m. (CL1)

Response:

1. Flowage and inundation easements are essentially synonyms. The District has a flood control easement in the location of the dam and debris basin and a flowage easement upstream of the debris basin. The holder of the flood control easement (District) has the right to perform any activities that contribute to and enhance flood control, including constructing and maintaining a channel, basin, or other drainage structure, repairing and rebuilding the channel, having roads for equipment to access the channel, etc.

A flowage easement (aka inundation easement) establishes the right of the holder of the easement (District) to allow floodwater to flow over the easement, and the right to prohibit structures within the easement. A flowage easement is essentially an enforced water flow area.

2. The District will maintain the proposed irrigation system and landscaping for an approximately two-year plant establishment period. After the landscaping has been established, the District, in consultation with underlying fee landowners, may consider relinquishing its flood control easement in favor of an inundation easement. If the District relinquishes its flood control easement, use and maintenance of the land within the current flood control easement would fall to the underlying fee owners. The owners would need to comply with restrictions and requirements of the flowage/inundation easement.

CL 2

From: Vicki Smith
To: Barns, Tyler
Subject: Debris Basin
Date: Monday, April 15, 2019 3:49:29 PM

We have never maintained this basin. So in the event of a 100 year flood, and things get eroded or destroyed, is the county going to fix it or each individual homeowner what has been destroyed?] 1

Sent from my iPhone
Vsmith24@gmail.com

Commenter: Vicki Smith

Date: E-mail received on April 15, 2019, 3:49 p.m. (CL2)

Response:

1. Although the channel is expected to be relatively stable, there may be bank erosion as is currently the case upstream of the basin and typical of natural reaches of creek. Within the District's fiscal constraints, as long as the District is the holder of the flood control easement, it would consider remedial measures if bank erosion threatens loss of structures; however, no routine maintenance of the creek is anticipated. If the District relinquishes its flood control easement in favor of an inundation easement, creek maintenance or bank repair, if deemed necessary, would be decided by and be the responsibility of the underlying fee owners. In either case, whether the District retains the flood control easement or relinquishes it in favor of an inundation easement, the HOA is responsible for the maintenance of its equestrian trail, as it is in areas outside the current flood control easement. The HOA would need to coordinate all repairs/grading within the flood control/inundation easement area and obtain permission from the District.

From: [William Brown](#)
To: [Barns, Tyler](#)
Subject: Santa Rosa Road Number 2 Debris Basin Project
Date: Tuesday, April 16, 2019 7:22:22 AM
Attachments: [10 year flood comparison.pdf](#)

Hi Tyler,

After reviewing the report I have the following questions.

How does the current debris basin design and installation deviate from current District standards? What's the cost estimate to retrofit the basin to meet current standards?

What's the current annual maintenance cost?

What's the estimated project cost?

How many 100 year storm events has the basin experienced in the past 62 years? Has there been any dam failures or downstream flooding?

How many 10 year storm events has the basin experienced in the past 62 years? Has there been any failures or downstream flooding? I assume over the past three years we have experienced at least two or three 10 year storms. Has anyone from the county or consulting firm measured the basin level after one of these events to gather empirical data?

Does the debris basin dam show any signs of potential failure or erosion from past storm events?

Can the County provide a copy of West Consultants 2016 report for review?

Can the County provide the June 2016 Preliminary Design Study with the seven alternatives for review?

Figure 8 shows the hydraulic model based a 10 year storm and dam breach. What is the assumed water volume behind the dam before the breach? What is the assumed dam failure mode? What is the size of the failure and instantaneous downstream flow rate?

Has the County or consultant contacted residents or land owners in the predicted flood area to determine if they have actually experienced the level of flooding shown in the 10 year storm hydraulic model for the current debris basin?

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CL3A

Also, can you let me know when the Board of Supervisors public hearing will be held. A representative from Bridlewood HOA would like to speak at the hearing.

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Thank you.

--
Bill Brown
(818) 486-1467
btbrown52@gmail.com

Commenter: William Brown

Date: E-mail received April 16, 2019 (CL3)

Response:

1. A 2004 study by GEI Consultants concluded the basin is below current District standards. The following is a list of Santa Rosa Road No. 2 Debris Basin deficiencies:

- Lacking an access bridge for the outlet works.
- Less than 3-foot embankment freeboard for a 100-year storm event.
- The dam is predicted to overtop during a 100-year storm event.
- The spillway is predicted to overtop during a 100-year storm event.
- The earthen emergency spillway is unprotected. If activated during a 5- to 10-year event and with sustained flow, can fail from erosion and scour.
- The dam crest width is less than 20 feet.
- Lacking an asphalt concrete access road on dam crest.
- The downstream slope of dam is steeper than 3H:1V.
- Lacking a 12-inch thick cobble layer on the downstream dam slope.

From the West Consultants Preliminary Design Study, the relative costs of the proposed project (dam removal) and four retrofit alternatives are as follows:

	Dam Removal	VCWPD * Design 2A	VCWPD** Design 2B	Re-operate w/ New Emergency Spillway	Re-operate w/ New Concrete Slot
Cost	\$175,000	\$1,044,000	\$1,012,000	\$714,000	\$681,000

*VCWPD Design 2A - 6 x 14 Reinforced Concrete Box (RCB) emergency spillway (low flow to RCB)

**VCWPD Design 2B - 6 X 14 RCB emergency spillway (low flow to open channel then to RCB)

Note that these are preliminary design costs and should be used for comparison purposes only, not as actual final design construction cost estimates.

2. An average of approximately \$10,500 per year. This includes maintenance of both the dam and debris basin.
3. The latest estimated project cost is \$582,400, which includes site replanting and hydroseeding.
4. A 100-year storm event has not been recorded in the past 62 years nor has there been any dam failures or downstream flooding.

5. There is believed to have been three 10-year storms recorded since the dam was constructed (February 1992, December 1997, January 2005). The District does not have records that the dam has been overtopped, however there is also not a stream gage on this sub-watershed, so the peak discharge and hydrograph the dam has experienced can also not be verified.
6. The dam does not currently show signs of potential or past failure from erosion.
7. Yes, the West Consultants Preliminary Design Study has been attached as an appendix to the Final MND.
8. See the response to Comment 7, the West Consultants Preliminary Design Study only analyzes five alternatives.
9. The West Consultants Preliminary Design Study states that a storm in the range of 5- to 10-year (607 cfs) would activate the unprotected earthen emergency spillway, likely resulting in dam failure given sufficient storm duration. The unprotected earthen spillway would fail from erosion and head cutting scour due to overtopping flows. The estimated storage behind the dam at the crest of the spillway is approximately 20,000 cubic yards, and would be a combination of water and sediment/debris.

The downstream flow rate during a breach is dependent on the size of the flood event. The West Consultants Preliminary Design Study indicates a peak discharge during dam failure of approximately 5,000 cfs during a 10-year event, 6,000 cfs in a 50-year event, and 6,500 cfs in a 100-year event. To provide perspective, a 100-year flood event upstream of the basin is estimated to be 1,274 cfs.

10. On November 11, 2017, the District staff met onsite with some of the landowners. One of the property owners reported that back in 2005 the basin was almost full but did not make mention of water spilling over the emergency spillway.
11. Yes, the HOA will be notified of the date of the public hearing once it is scheduled.

From: [Nicole Collazo](#)
To: [Barns, Tyler](#)
Subject: APCD Memo for Debris Basin No. 2 Decommissioning Project
Date: Monday, April 22, 2019 3:00:34 PM
Attachments: [image001.png](#)
[VCWPD Decommissioning of Debris Basin No. 2 \(Santa Rosa Valley\).doc](#)

Hi Tyler,

Here are our comments for project referenced above.

Thank you,

Nicole Collazo

Air Quality Specialist

VCAPCD Planning Division

669 County Square Drive, 2nd Floor

Ventura, CA 93003

Office 805-645-1426

Email nicole@vcapcd.org



**Ventura County
Air Pollution
Control District**

] 1



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669 County Square Dr
Ventura, California 93003

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fax 805/645-1444
www.vcapcd.org

Michael Villegas
Air Pollution Control Officer

CL4B

**VENTURA COUNTY
AIR POLLUTION CONTROL DISTRICT**
Memorandum



TO: Tyler Barns, VC Watershed Protection District
DATE: April 22, 2019
FROM: Nicole Collazo, Planning Division
SUBJECT: Request for Comments on Draft Mitigated Negative Declaration (DMND) for the Proposed Decommissioning of Santa Rosa Road No. 2 Debris Basin

Air Pollution Control District (APCD) staff has reviewed the DMND for the project referenced above. The proposed project is a construction project that would decommission the Santa Rosa Road No. 2 Debris Basin, including removal of the earthen dam, emergency spillway, inlet and outlet piping and related facilities. The re-contoured slopes would be planted with mostly native species to reduce erosion. The project location is in unincorporated Ventura County approximately 350 ft east of the intersection of Vista Arroyo Drive and Santa Rosa Road within the Santa Rosa Valley. The Lead Agency for the project is the Ventura County Watershed Protection District.

GENERAL COMMENTS

As a recommending agency for the CEQA review of the DEIR, APCD concurs with the air quality impact and greenhouse gas emissions determinations, with emphasis on the short duration of construction operations proposed at three and a half months or 70 working days (Page 5 of DMND).

We do recommend that either the OFFROAD-EMFAC2014 model results be attached to the DMND as part of the Appendix or assumptions used in the construction emission calculations (number and type of equipment, construction phases, etc.) be stated on the discussion regarding construction operations on Page 31 of the DMND.

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Thank you for the opportunity to review this project's air quality impacts. If you have any questions, please call me at (805) 645-1426 or email nicole@vcapcd.org.

Commenter: Nicole Collazo, Ventura County Air Pollution Control District

Date: April 22, 2019 (CL4)

Response:

1. The commenter agrees with the findings of the MND (not EIR) that significant air quality impacts would not occur. No response is needed.
2. As quantitative emissions thresholds do not apply to proposed decommissioning activities, emissions calculations are not required. Estimated emissions were included in the MND as a courtesy.

CL5

DEPARTMENT OF TRANSPORTATION
DISTRICT 7- OFFICE OF REGIONAL PLANNING
100 S. MAIN STREET, SUITE 100
LOS ANGELES, CA 90012
PHONE (213) 897-6536
FAX (213) 897-1337
TTY 711
www.dot.ca.gov



Making Conservation
a California Way of Life.

RECEIVED
APR 22 2019
Watershed Protection Dist.

April 18, 2019

Tyler Barns
Ventura County Watershed Protection District
800 South Victoria Avenue
Ventura, CA 93009

RE: Santa Rosa Road No. 2 Debris Basin
Decommissioning Project
SCH# 2019039124
GTS# 07-VEN-2019-00254
Vic. LA-118/ PM 17.364

Dear Mr. Barns:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. The project proposes the Decommission the Santa Rosa Road No. 2 Debris Basin including removal of the earthen dam, emergency spillway, intake and outlet piping and related facilities. Approximately 7,700 cubic yards of earth material would be excavated and re-used on site to create a 14-foot-wide low-flow channel and banks varying from a 2:1 to 2.5:1 (horizontal:vertical) slope. All earth material would remain on site with no export. The project includes extension of the existing box culvert that crosses beneath Santa Rosa Road and re-alignment of the Bridlewood Trail through the project site across the proposed box culvert extension to the east side of the Arroyo Santa Rosa Tributary.

After reviewing the Mitigated Negative Declaration (MND), Caltrans does not expect project approval to result in a direct adverse impact to the existing State transportation facilities.

As a reminder, any transportation of heavy construction equipment and/or materials which requires use of oversized-transport vehicles of State highways will need a Caltrans transportation permit. We recommend large size truck trips be limited to off-peak commute periods.

If you have any questions, please contact project coordinator Mr. Carlo Ramirez, at carlo.ramirez@dot.ca.gov and refer to GTS# 07-VEN-2019-00254.

Sincerely,

MIYA EDMONSON
IGR/CEQA Branch Chief
Cc: Scott Morgan, State Clearinghouse

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Commenter: Miya Edmonson, California Department of Transportation

Date: April 18, 2019 (CL5)

Response:

1. The commenter agrees with the findings of the MND that significant impacts to roads and highways would not occur. No response is needed.
2. Note that the selected construction contractor will obtain permits for over-sized vehicles as necessary, and use of such vehicles will be scheduled for off-peak commute periods to the extent feasible.

APPENDIX A

INITIAL STUDY CHECKLIST

INITIAL STUDY CHECKLIST

The Initial Study Checklist was prepared following the format adopted by the County of Ventura (2011).

ISSUE	PROJECT IMPACT DEGREE OF EFFECT *				CUMULATIVE IMPACT DEGREE OF EFFECT*			
	<u>N</u>	<u>LS</u>	<u>PS-M</u>	<u>PS</u>	<u>N</u>	<u>LS</u>	<u>PS-M</u>	<u>PS</u>
RESOURCES: 1. <u>Air Quality:</u>								
a. Regional	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Local	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. <u>Water Resources:</u>								
a. Groundwater Quantity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Groundwater Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Surface Water Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Surface Water Quality	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. <u>Mineral Resources:</u>								
a. Aggregate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Petroleum	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. <u>Biological Resources:</u>								
a. Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Ecological Communities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Waters and Wetlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Coastal Habitat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Habitat Connectivity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. <u>Agricultural Resources:</u>								
a. Soils	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Land Use Incompatibility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. <u>Scenic Resources:</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. <u>Paleontological Resources:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. <u>Cultural Resources:</u>								
a. Archaeological	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Historical	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. <u>Coastal Beaches & Sand Dunes:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ISSUE	PROJECT IMPACT DEGREE OF EFFECT*				CUMULATIVE IMPACT DEGREE OF EFFECT*			
	<u>N</u>	<u>LS</u>	<u>PS-M</u>	<u>PS</u>	<u>N</u>	<u>LS</u>	<u>PS-M</u>	<u>PS</u>
HAZARDS:								
10. <u>Fault Rupture Hazard:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. <u>Ground-shaking Hazard:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. <u>Liquefaction Hazard:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. <u>Seiche & Tsunami:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. <u>Landslides/Mudflow Hazard:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. <u>Expansive Soils Hazard:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. <u>Subsidence Hazard:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. <u>Hydraulic Hazards:</u>								
a. Non-FEMA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. FEMA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. <u>Fire Hazards:</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. <u>Aviation Hazards:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. <u>Hazardous Materials/Waste:</u>								
a. Hazardous Materials	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Hazardous Waste	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. <u>Noise and Vibration:</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. <u>Daytime Glare:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. <u>Public Health:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. <u>Greenhouse Gases:</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LAND USE:								
25. <u>Community Character:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. <u>Housing:</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PUBLIC FACILITIES:								
27. <u>Transportation/Circulation</u>								
a. Roads and Highways								
(1) Level of Service	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) Safety/Design of Public Roads	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) Safety/Design of Private Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) Tactical Access	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Pedestrian/Bicycle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Bus Transit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Railroads	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Airports	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Harbor Facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Pipelines	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ISSUE	PROJECT IMPACT DEGREE OF EFFECT *				CUMULATIVE IMPACT DEGREE OF EFFECT *			
	<u>N</u>	<u>LS</u>	<u>PS-M</u>	<u>PS</u>	<u>N</u>	<u>LS</u>	<u>PS-M</u>	<u>PS</u>
PUBLIC FACILITIES:								
28. <u>Water Supply</u>								
a. Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Quantity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Fire Flow	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. <u>Waste Treatment/Disposal</u>								
a. Individual Sewage Disposal System	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Sewage Collection/Treatment Facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Solid Waste Management	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Solid Waste Facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. <u>Utilities</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. <u>Flood Control/Watercourses</u>								
a. WPD Facilities/Watercourses	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Other Facilities/Watercourses	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. <u>Law Enforcement/Emergency Svs.</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. <u>Fire Protection</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
a. Distance/Response Time	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Personnel/Equipment/Facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. <u>Education</u>								
a. Schools	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Libraries	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. <u>Recreation</u>								
1. Local Parks/Facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Regional Parks/Facilities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Regional Trails/Corridors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

*Explanation: Degree of Effect

N = No Effect

LS = Less Than Significant Effect

PS-M = Potentially Significant Impact Unless Mitigation is Incorporated

PS = Potentially Significant Impact

MANDATORY FINDINGS OF SIGNIFICANCE

	<u>Yes/Maybe</u>	<u>No</u>
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<u>X</u>	—
2. Does the project have the potential to achieve short-term, to the disadvantage of long-term environmental goals? (A short-term impact on the environment is one that occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future).	—	<u>X</u>
3. Does the project have impacts which are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effect of other current projects, and the effect of probable future projects. (Several projects may have relatively small individual impacts on two or more resources, but the total of those impacts on the environment is significant).	—	<u>X</u>
4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<u>X</u>	—

DETERMINATION OF ENVIRONMENTAL DOCUMENT

On the basis of this evaluation:

- I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION should be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described in Section 5.0 of the Initial Study will be applied to the project. A MITIGATED NEGATIVE DECLARATION should be prepared.
- I find that the proposed project, individually or cumulatively, MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required*.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been adequately addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



 Ventura County Watershed Protection District Director

3/19/19

 Date

APPENDIX B

PRELIMINARY DESIGN STUDY

SANTA ROSA ROAD DEBRIS BASIN No. 2
DEBRIS BASIN MODIFICATION
PRELIMINARY DESIGN STUDY
JUNE 2016



Photo: Santa Rosa Road No. 2 Debris Basin, looking upstream from crest

Prepared for:

**VENTURA COUNTY
WATERSHED PROTECTION DISTRICT**



Prepared by:

WEST CONSULTANTS, INC.



Santa Rosa Road Debris Basin No. 2

Debris Basin Modification

Preliminary Design Study

June 2016

Prepared for:

County of Ventura, Public Works Agency
Ventura County Watershed Protection District
800 South Victoria Ave.
Ventura, CA 93009



Prepared by:



WEST Consultants, Inc.
11440 W. Bernardo Ct, Suite 360
San Diego, CA 92127



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APPENDICES

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Appendix H: HEC-RAS File List
Appendix I: 100-year Event Sediment Transport Analysis Results

EXECUTIVE SUMMARY

Santa Rosa Road No. 2 Debris Basin, located on the Arroyo Santa Rosa Tributary, was constructed by the U.S. Soil Conservation Service (SCS) in 1957. The basin has a watershed area of 1,101 acres and a 100-year peak inflow of 1,274 cubic feet per second. Investigations by Ventura County Watershed Protection District (VCWPD) indicate that the basin was designed solely for the purpose of debris collection. Over the 59 years of operation, the basin has been cleaned out eight times with a total approximate sediment removal of 18,500 cubic yards and an average annual debris production of 314 cubic yards.

A 2004 study by GEI Consultants concluded the basin is below current VCWPD standards and modification or removal was recommended. A 2007 study by WEST Consultants, Inc. (WEST) recommended that removal of the basin could be beneficial. The current study investigates rehabilitation and removal scenarios based on the functionality of the basin considering upstream land use changes, historical precipitation, frequency of emergency spillway overtopping, and debris storage and detention functions.

Hydraulic modeling using HEC-RAS was conducted to evaluate flood inundation extents for the 10-, 50-, and 100-year events as well as the 1997 event when the emergency spillway was briefly overtopped. Each event was modeled for existing conditions, basin rehabilitation conditions, basin removal, and basin breach assuming the basin is full prior to the breach. Sediment transport modeling downstream of the basin was also conducted for the 100-year event for basin removal.

Approximate cost estimates were developed for five alternatives addressing basin deficiencies. To provide a recommended course of action, the five alternatives and two additional alternatives were evaluated using a priorities matrix with five criteria: (1) potential cost, (2) improvements to safety, (3) changes to possible flood extent, (4) downstream effects on debris/sediment, and (5) anticipated public perception.

Study results are summarized as follows:

- ◆ Santa Rosa Debris Basin No. 2 provides minimal or no flood protection to the area downstream for the 10-, 50-, or 100-year events.
- ◆ A basin breach would likely overtop Santa Rosa Road by potentially up to seven feet of water.
- ◆ Downstream channel sediment deposition from a 100-year event without the basin is generally less than a foot in most reaches.
- ◆ Basin outlet works and the earthen spillway need substantial rehabilitation to bring the facility into compliance with current District standards.
- ◆ Basin removal is the most cost effective alternative.

After evaluating basin alternatives using the aforementioned criteria, the recommended course of action for Santa Rosa Debris Basin No. 2 is removal.

1 INTRODUCTION

The Santa Rosa Road Debris Basin No. 2 was constructed approximately six decades ago by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) now known as the USDA Natural Resources Conservation Service (NRCS). The basin was determined to be below current Ventura County Watershed Protection District (VCWPD) standards in 2004 by GEI Consultants (GEI, 2004) and modification or removal was recommended. VCWPD has requested a review of current basin functionality and recommendations for potential modifications to the basin (including possible removal).

1.1 STUDY OVERVIEW

The Santa Rosa Road Debris Basin No. 2 is located in Santa Rosa Valley, an unincorporated area of Ventura County as presented in Figure 1-1. The basin is located approximately 100 feet north of Santa Rosa Road as shown in Figure 1-2.

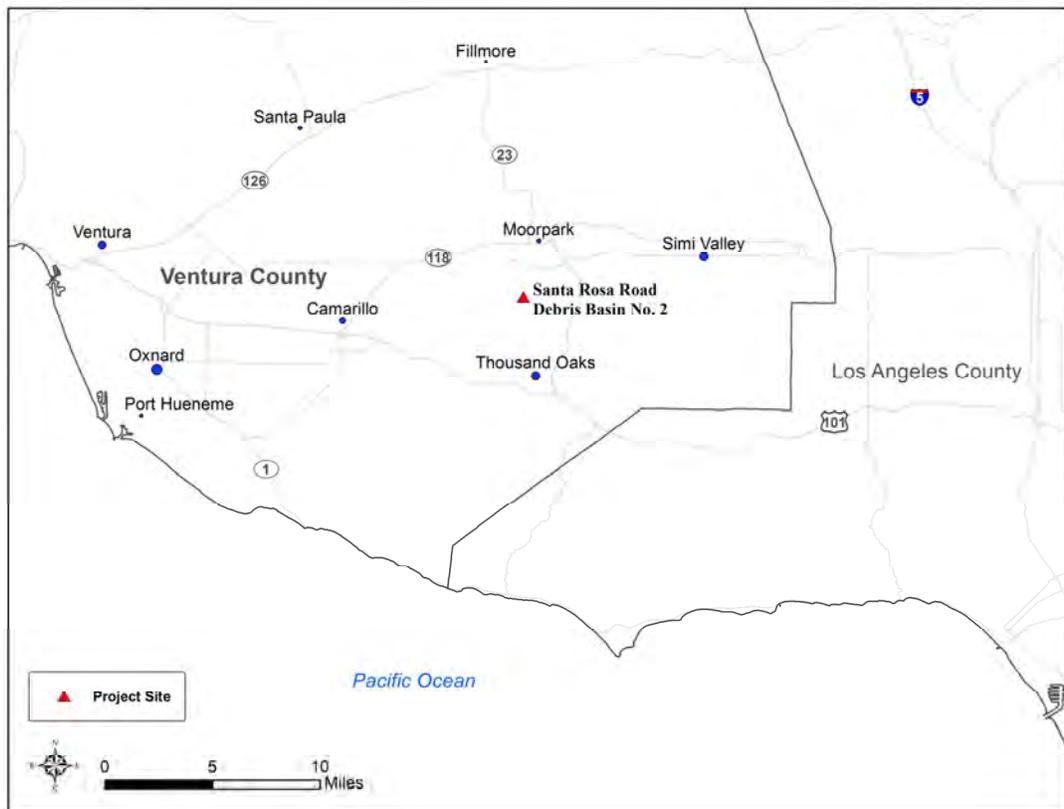


Figure 1-1. Project Vicinity Map



Figure 1-2. Project Location Map

The basin is located in Zone 3 of the VCWPD’s four districts. Zone 3 encompasses the Calleguas Creek watershed and its tributaries. The basin’s approximate location within the VCWPD Zone system is presented in Figure 1-3.

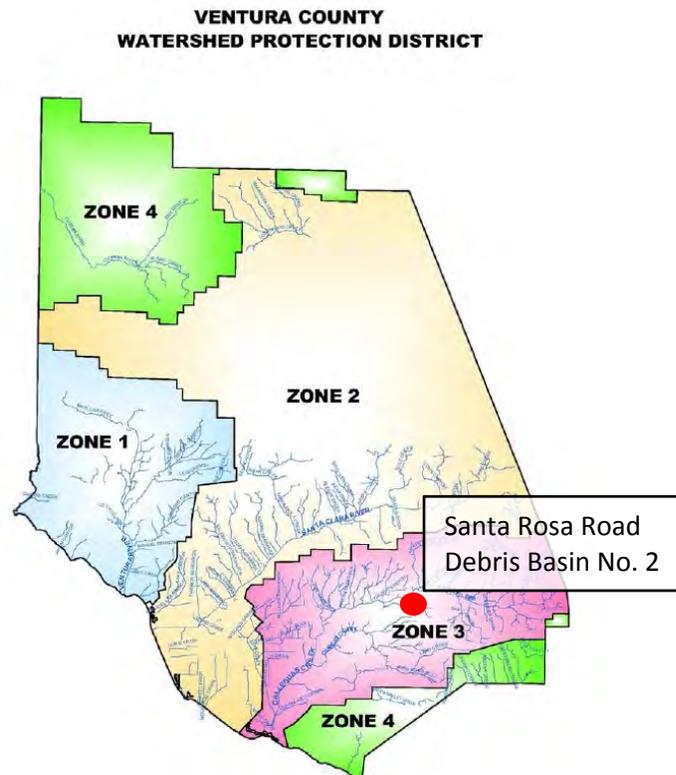


Figure 1-3. Basin VCWPD Zone Location (VCWPD 2005)

1.2 PREVIOUS STUDIES

The Santa Rosa Road Debris Basin No. 2 has been evaluated in multiple previous studies. Two alternative designs were created by VCWPD to update the basin outlet works and vehicle access in 1993. In 2004 GEI Consultants “evaluated the condition and structural integrity, functionality and remaining service life, safety, and [VCWPD] proposed retrofit concepts and cost estimates for each dam and basin” (GEI Consultants 2004). The basin was included in the VCWPD *Debris and Detention Basins* (2005) summary of technical and hydrologic characteristics of detention and debris basins owned and maintained by VCWPD. In 2007, WEST Consultants conducted the Ventura County Debris Basins and Sedimentation Analyses, and in March, 2015, a Design Hydrology Update Draft Report was completed by VCWPD.

1.3 ACKNOWLEDGMENTS

Mr. David S. Smith, P.E., CFM, D.WRE, of WEST Consultants, Inc. was the project manager for this study assisted by Mr. Cameron Jenkins, P.E., who performed the majority of the 1D and 2D hydraulic model development and analysis. Mr. Bryan Scholl, Ph.D., E.I.T., conducted the functionality review, alternatives analysis and cost estimates. Mr. Martin J. Teal, P.E., P.H., D.WRE, provided quality assurance reviews.

Dr. Zia Hosseinipour served as project manager for Ventura County Watershed Protection District.

2 DATA REVIEW AND SYNTHESIS

2.1 DATA REVIEW

Multiple documents were reviewed for information pertinent to the construction and functionality of the basin. The documents reviewed were:

- *Earth Fill Dam – Fle 14.1.: Calleguas Creek W.P.P, “As-Built” Drawings* (USDA SCS, 1956)
- *Design Manual: Detention Basin Criteria* updated 6/28/1991 (Ventura County Flood Control District, 1968)
- *Recording Gage Intensity Report: Lake Bard, Water Year 1998* (VCWPD, 2015)
- *Investigation of Detention Dams and Debris Basins* (GEI Consultants, 2004)
- *Debris and Detention Basins* (VCWPD, 2005)
- *Ventura County Debris Basins Sedimentation Analyses Final Report* (WEST Consultants, 2007)
- *Santa Rosa Road Debris Basin No. 2 – Design Hydrology Update* (VCWPD, 2015).

Key findings are summarized in Table 2-4 and the sections below.

2.2 SITE VISIT

A site visit in April 2015 included observations of the Santa Rosa Road Debris Basin No. 2 as well as culvert locations/sizes in the reach downstream. Accessible culvert dimensions were measured for use in the HEC-RAS model and are presented in Table 2-1. Representative photographs from the 2015 site visit are included in Appendix A.

Table 2-1. Culverts Downstream of Santa Rosa Road Debris Basin No. 2

Street Name	HEC-RAS Station	Culvert Geometry	Culvert Width (ft.)	Culvert Height (ft.)
un-Named Farm Rd.	3520	elliptical, CMP	6	4
un-Named Farm Rd.	3520	circular CMP	3	3
un-Named Farm Rd.	5100	rectangular, concrete	7.5	4
un-Named Farm Rd.	7600	rectangular, concrete	16	6
un-Named Farm Rd.	8000	rectangular, concrete	12	6
un-Named Farm Rd.	8560	rectangular, concrete	12	6
Andalusia Dr.	10600	rectangular, concrete	12	6
Santa Rosa Rd.	10900	rectangular, concrete	12	6

The reach upstream of the debris basin includes heavy vegetation; however, no debris was noted in the basin itself.

2.3 BASIN CAPACITY AND DEBRIS STORAGE

As-built drawings of the debris basin were reviewed (see Appendix B). The drawings provide construction dimensions and quantities but do not provide design parameters, such as design debris storage capacity, anticipated sediment volume, or spillway capacity.

Stage-discharge and stage-storage curves for flood storage and a debris stage-storage curve are located in *Debris and Detention Basins* (VCWPD, 2005) and presented here as Figure 2-1 and Figure 2-2.

In Figure 2-1, "Spillway Elevation - 396.0'" refers to the emergency spillway (Figure 2-3) crest elevation. "Top of Riser - 387.0'" refers to the primary spillway and debris bleeder elevations (all elevations are NGVD29). The spillway and bleeder are shown in Figure 2-4 and Figure 2-5. Discharge is given in cubic feet per second (cfs). The spillway and riser elevations differ by 9 feet in the stage-storage and debris-storage curves. The "as-built" drawings indicate the emergency spillway elevation is 126.0 feet and the spillway and riser elevations are 116.0 feet (local benchmark elevation values), a difference of 10.0 feet. The spillway and riser elevations of 396.0 and 387.0 (NGVD29) from stage-storage and debris-storage curves were used for the hydraulic modeling.

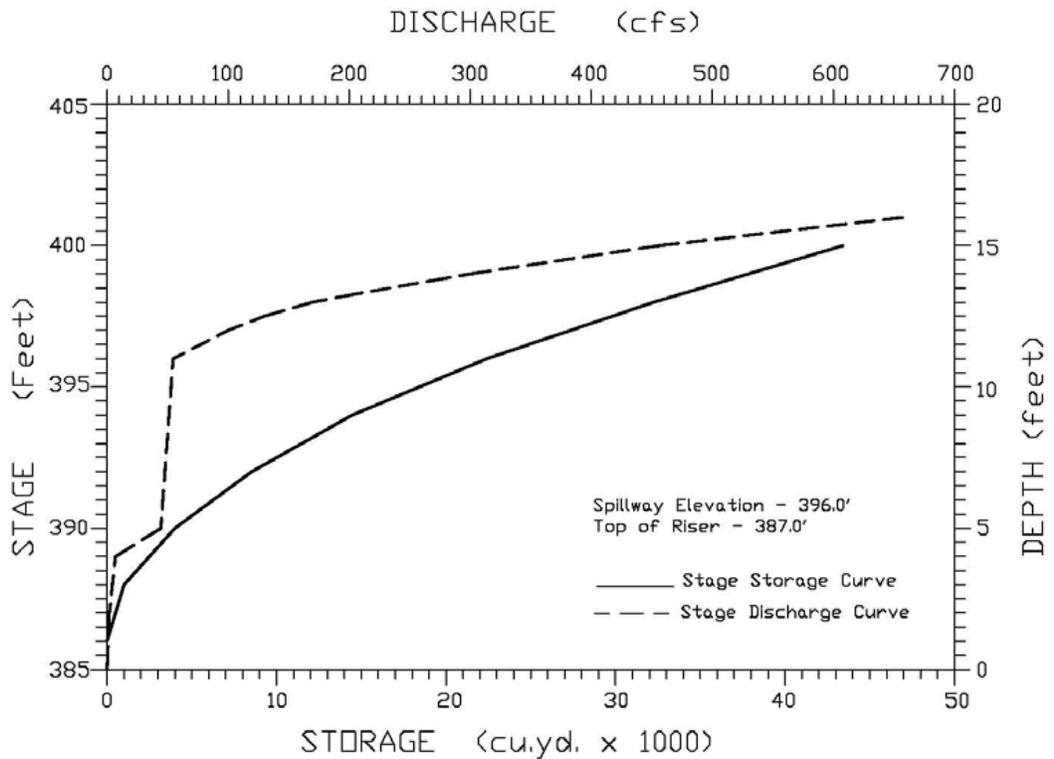


Figure 2-1. Stage-Discharge and Stage-Storage Curve (VCWPD, 2005)

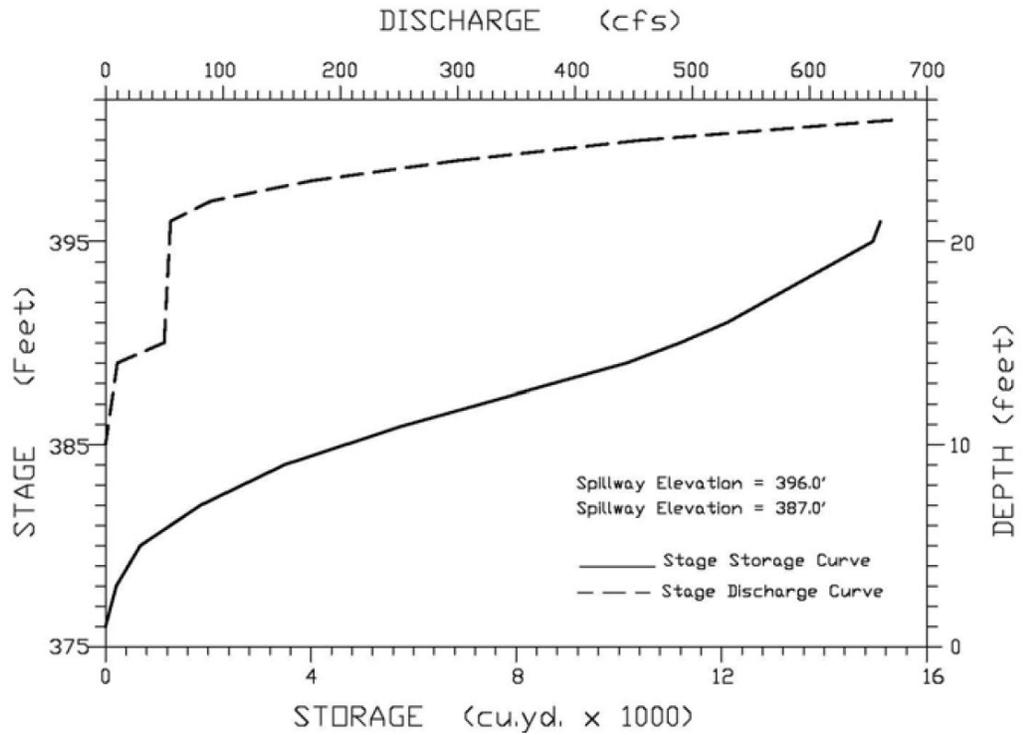


Figure 2-2. Basin Storage Debris Storage Curve, Debris Slope = 0.013 (VCWPD, 2005)



Figure 2-3. Emergency Spillway, Looking Downstream



Figure 2-4. Primary Spillway



Figure 2-5. Debris Bleeder/Riser

Debris and Detention Basins (VCWPD, 2005) states that 1,250 cubic yards (CY) is 10% of the 100-year debris yield indicating 12,500 cubic yards is the anticipated 100-year debris yield in this document. The emergency spillway elevation of 396.0 feet corresponds to a maximum storage volume of 15,000 cubic yards according to Figure 2-2. This is 120% of the 100-year debris volume of 12,500 cubic yards.

Current VCWPD guidelines require 125% of the 100-year debris volume at the spillway crest based on sloped capacity storage. The *Santa Rosa Road Debris Basin No. 2 Design Hydrology Update* (VCWPD, 2015) provides a current estimate of the 100-year debris volume of 5,424 cubic yards, which is less than half of the original design value of 12,500 cubic yards.

Historical basin clean-out and capacity records were obtained from the VCWPD *Debris and Detention Basins* (2005). Basin clean-out records from July 2000 through March 2015, were provided directly from VCWPD. Since construction in 1957, 18,461 cubic yards of documented material has been removed for an average annual debris accumulation of 318 cubic yards. Basin clean-out and capacity history is provided in Table 2-2.

Table 2-2. Santa Rosa Road No. 2 Debris Basin Clean-out and Capacity History

Date	Debris Volume Removed (Cubic Yards)	Basin Capacity (Cubic Yards)
Oct. 1971		6,614
Sep. 1980	2,600	
Sep. 1980		9,200
Nov. 1982		10,914
Aug. 1990	7,700	
Dec. 1990		14,957
Aug. 1991		14,889
May 1992		13,350
Jul. 1992	1,650	

Date	Debris Volume Removed (Cubic Yards)	Basin Capacity (Cubic Yards)
Jul. 1993	2,290	
Jul. 1993		15,000
Jul. 1994	288	
Jul. 1995	1,573	
May 1997		13,900
Jul. 1998		12,500
Mar. 2004	1,560	
Oct. 2004	800	

Debris accumulation rates were determined using VCWPD basin maintenance records. Historical basin clean-out records indicate the basin has been cleaned out eight times since 1957. Basin capacity has been determined by VCWPD using aerial surveying multiple times since construction. Using clean-out and survey records, the average debris accumulation rate between surveys was determined and is presented in Table 2-3.

Table 2-3. Average Annual Debris Accumulation Rate

	Time Period									
	1971- 1980	1980- 1982	1982- 1990	1990- 1991	1991- 1992	1992- 1993	1993- 1997	1997- 1998	1998- 2015	1957- 2015 ⁽¹⁾
Debris Accum. Rate (CY/year)	2	-791 ⁽²⁾	452	102	2,050	1,962	772	1,200	-8 ⁽²⁾	318

(1) 2015 debris basin volume estimated during site visit.

(2) Negative value indicates debris basin gained capacity through means other than documented VCWPD debris removal.

The average debris accumulation rate is 318 cubic yards per year from 1957 to 2015. Incremental average debris accumulation rates between surveys varies from accumulating 2,050 cubic yards per year to *losing debris* at 791 cubic yards per year.

Key findings of the document review are summarized in Table 2-4.

Table 2-4. Document Review Key Findings Summary

Source	Work Completed By	Date	Key Findings
Site visit	WEST	2015	<ul style="list-style-type: none"> channel roughness estimation for hydraulic modeling culvert types and dimensions for hydraulic modeling inadequate emergency spillway erosion protection excessive vegetation on dam face downstream slope of dam is steeper than current standards allow
“as-built” drawings	NRCS	1956	<ul style="list-style-type: none"> initial basin design
Debris and Detention Basins	Ventura County Watershed Protection District	2005	<ul style="list-style-type: none"> drainage area is 1,101 acres (1.72 sq. mi.) required storage volume is 125% of debris from 100-year storm (sloped capacity) historical 100-year anticipated debris is 12,500 CY level capacity is 7,300 CY at emergency spillway elevation sloped debris capacity is 15,000 CY basin clean-out and available debris capacity history emergency spillway capacity w/out sufficient freeboard is 610 cfs highly variable debris accumulation rates
Santa Rosa Road Debris Basin No. 2 – Design Hydrology Update Draft Report	Ventura County Watershed Protection District	2015	<ul style="list-style-type: none"> current 100-yr debris yield is 5,424 CY 100-yr peak storm inflow, 1,274 cfs
Design Manual	Ventura County Flood Control District	1968 (rev. 1991)	<ul style="list-style-type: none"> current basin design criteria
Ventura County Debris Basins Sedimentation Analyses	WEST Consultants	2007	<ul style="list-style-type: none"> basin removal does not require grade control structures removal could result in sediment deposition downstream
Investigation of Detention Dams and Debris Basins	GEI Consultants	2004	<ul style="list-style-type: none"> recommended as High Priority for retrofit or abandonment

2.4 RAINFALL DATA

An evaluation of daily rainfall amounts from 1957 to present was conducted to determine the largest known rainfall event of record affecting the basin and to estimate the inflowing discharge. Rain gage data was obtained from the VCWPD website: <http://www.vcwatershed.net/hydrodata/gmap.php?param =rain>. Gages used for the evaluation are presented in Table 2-5.

Two gages, Moorpark-Everett and Santa Rosa Valley-Worthington Ranch, were evaluated beginning from the debris basin construction in 1957. The remaining five stations were evaluated beginning in 1990 to coincide with a documented debris basin cleanout. 24-hour rainfall events were selected with at least one inch of precipitation. In the case of recorded amounts greater than one inch from two or more gages in the same 24-hour period, the greater rainfall amount was selected. In this manner, multiple values greater than one inch occurring on the same day were eliminated.

The approximate 24-hour rainfall return interval for events greater than one inch near the debris basin was determined using a logarithmic regression of NOAA 14 rainfall return amounts (NOAA 2015) in the vicinity of the Santa Rosa and Moorpark Road intersection, an identifiable landmark relatively close to the watershed center. NOAA 14 return interval precipitation amounts are presented in Table 2-6. Figure 2-6 summarizes rainfall events greater than 1 inch, the approximate return interval of key precipitation depths, and documented cleanouts since basin construction.

The maximum recorded 24-hour rainfall in the area since 1928 when records begin occurred January 26, 1956, when 5.07 inches were recorded. This event was likely the impetus for the construction of Santa Rosa Road Debris Basin No. 2 because the as-built drawings were completed that same year in November 1956. The three highest recorded 24-hour rainfall events since basin construction are:

- 1) 4.85 inches during the 24 hours ending at 8am on December 6, 1997 at Moorpark County Fire Station (Site Id: 141A);
- 2) 4.75 inches during the 24 hours ending at 8am on January 10, 2005 at Moorpark County Fire Station (Site Id: 141A);
- 3) 4.63 inches during the 24 hours ending at 8am on February 11, 1992 at Thousand Oaks County Fire Station (Site Id: 128B).

Table 2-5. Available Rain Gage Information Near Debris Basin

STA No.	STA Name	Latitude	Longitude	Data Start Date	Data End Date
192	Moorpark-Everett	34 15 23.0	118 50 52.0	9/30/1955	10/1/1980
192A	Moorpark-Everett	34 15 02.0	118 50 36.0	9/30/1980	9/30/2008
049	Santa Rosa Valley - Worthington Ranch	34 14 10.0	118 56 01.0	9/30/1928	9/30/1977
049A	Santa Rosa Valley - Worthington Ranch	34 14 54.0	118 56 25.0	9/30/1977	9/30/2008
502	Santa Rosa Valley Basin 2	34 14 35.7	118 53 05.8	9/30/2007	9/30/2014
128B	1000 Oaks - County Fire Station	34 13 06.6	118 52 01.7	10/01/1990	10/1/2009
141A	Moorpark-County Fire Station	34 17 14.0	118 52 52.0	10/01/1990	10/1/2008
227	Lake Bard	34 14 34.7	118 49 43.6	10/01/1990	9/30/2014
128C	Thousand Oaks APCD	34 12 36.5	118 52 13.7	10/1/2008	12/31/2014

Table 2-6. NOAA 14 24-hour Rainfall Near Santa Rosa Rd and Moorpark Rd Intersection

		Return Interval (years)									
		1	2	5	10	25	50	100	200	500	1000
Precipitation (in.)	Lower 90% Bound	1.72	2.31	3.03	3.57	4.15	4.57	4.93	5.25	5.60	5.82
	Expected Value	1.94	2.61	3.44	4.08	4.91	5.51	6.10	6.68	7.42	7.97
	Upper 90% Bound	2.24	3.01	3.98	4.76	5.92	6.79	7.69	8.66	10.00	11.2

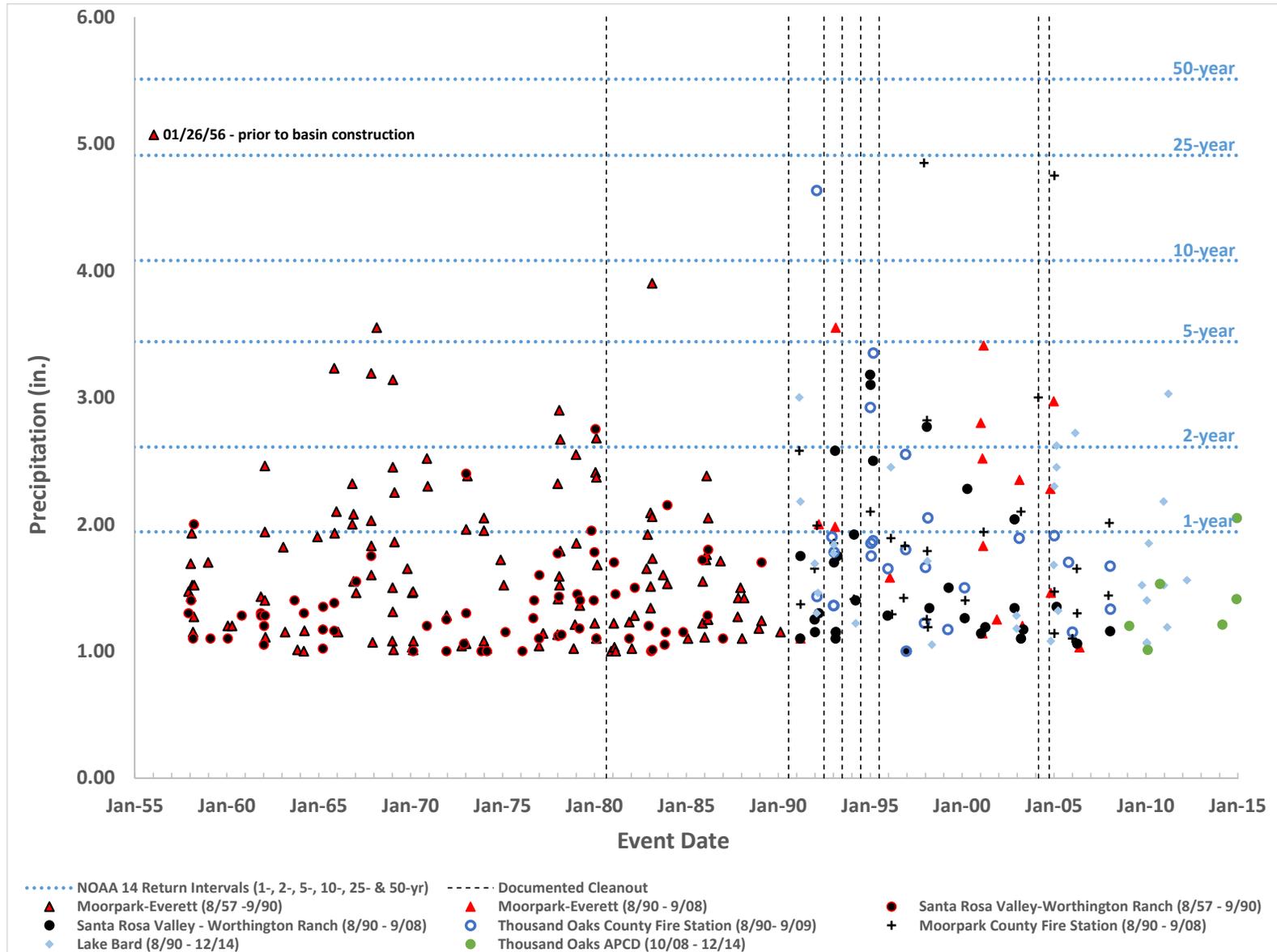


Figure 2-6. 24 hour Rainfall Events Greater Than 1 inch, 1957 – 2014

Hourly rainfall measurements are not recorded at the Moorpark County Fire Station gage. The nearest hourly rainfall data is the Lake Bard gage located approximately 3 miles from the debris basin. The highest three 24-hour rainfall event records were evaluated by VCWPD for cumulative rainfall totals and peak rainfall intensity using the Lake Bard hourly rainfall gage data. Cumulative hourly rainfall totals for the three events are presented in Figure 2-7.

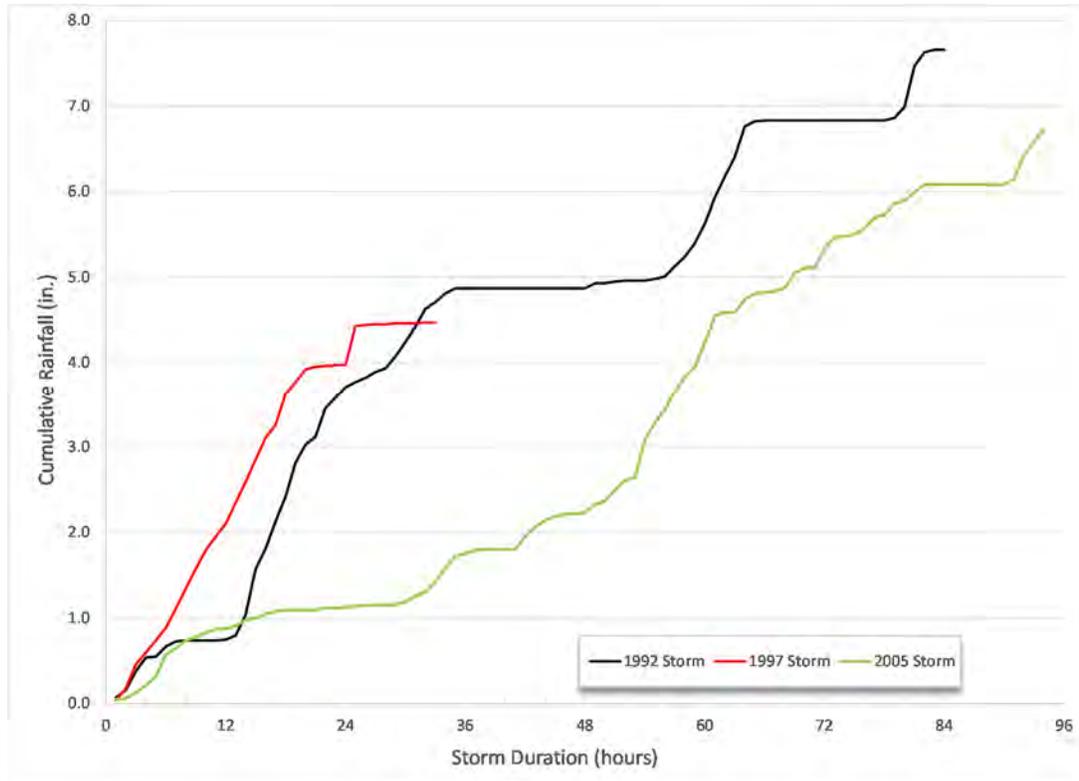


Figure 2-7. Cumulative Hourly Rainfall Totals, Lake Bard Rainfall Gage

Table 2-7 presents the documented debris volume between survey periods in which the three largest recorded rainfall events occurred. The survey periods including the February, 1992, and December, 1997, events measured deposits of 1,539 and 1,400 cubic yards, respectively, with few other events occurring during the same time period. The survey period with the January, 2005, event had negligible amounts of debris in spite of multiple events greater than the 1-year precipitation occurring during this time period. The quantity of debris removed and the time period between necessary clean-outs is heavily dependent on intermittent rainfall events in the watershed.

Table 2-7. Rainfall Events vs. Clean-out Volume

Rainfall Event Date	Rainfall Amount (in.)	Prior Basin Volume Survey Date	Subsequent Basin Volume Survey Date	Rainfall Events >1 year During Survey Period				Documented Debris (CY)
				1-2 yr	2-5 yr	5-10 yr	10+yr	
Feb. 1992	4.63	Aug. 1991	May 1992	2	0	0	1	1,539
Dec. 1997	4.85	May 1997	Jul. 1998	1	2	0	1	1,400
Jan. 2005	4.75	Jul. 1998	Apr. 2015	11	7	0	1	~ 0 ⁽¹⁾

(1) 2015 debris basin volume estimated during site visit.

2.5 UPSTREAM LAND USE CHANGES

The *Santa Rosa Road Debris Basin No. 2 Design Hydrology Update* (VCWPD, 2015) includes a brief discussion of how land use in the basin has changed since construction. At the time of basin construction, there was very little development and most of the watershed was expected to provide sediment to the debris basin. Land use in the watershed has changed, and currently a significant portion of the watershed that was previously undeveloped can now be classified as rural or low density residential. Remaining undeveloped areas are not directly connected to the basin and thus do not contribute sediment to it. The change in land use is documented by the lack of developed structures in the 1971 aerial photo presented in Figure 2-8 compared with the structures in the existing condition aerial photo shown in Figure 2-9. Based on a land use evaluation by VCWPD, usage changes have not been significant enough to appreciably alter hydrologic response. The 100-year debris yield estimate, however, is now much lower (5,424 cubic yards, which is less than half of the original design value of 12,500 cubic yards).

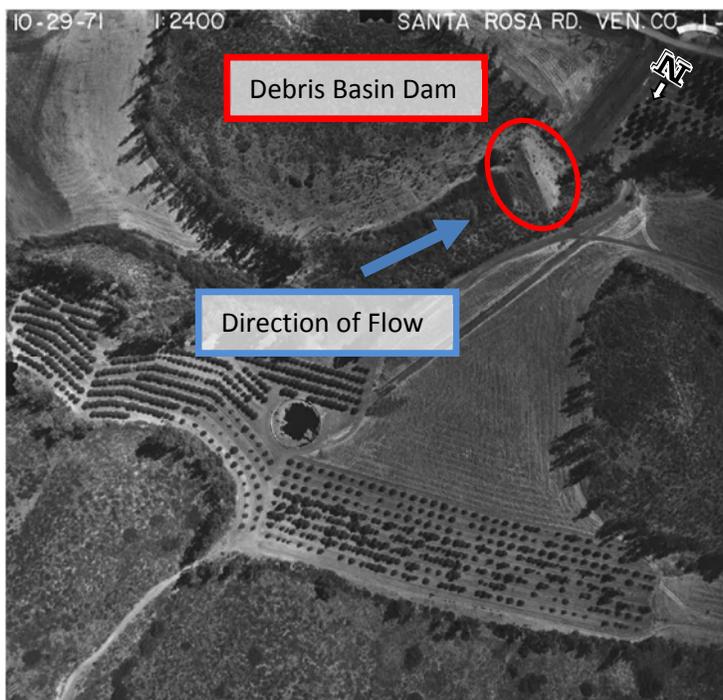


Figure 2-8. Debris Basin Aerial Photo, 1971



Figure 2-9. Debris Basin Aerial Photo, 2015

2.6 FREQUENCY OF EMERGENCY SPILLWAY OVERTOPPING

Based on rainfall records and VCWPD's knowledge of the small amount of emergency spillway flow in 1997, the emergency spillway would likely be activated during a storm in the range of a 5- to 10-year event. The emergency spillway is an unprotected earthen structure and could potentially fail from erosion and scour with virtually any sustained flow. In 1997, the rainfall recorded *approximately 3 miles away at Lake Bard* corresponded to a 20- to 25-year event. Rainfall is highly variable and the precipitation over the watershed in 1997 was likely not equal to that recorded at Lake Bard. Without rainfall data in the watershed during the event, it is impossible to directly correlate the hydrologic response return interval with the rainfall return interval.

3 HYDRAULIC ANALYSIS

3.1 MODEL DISCHARGES

Inflow hydrographs for the 1997 event as well as the 10-, 50- and 100-year events were provided by VCWPD as presented in Table 3-1 and Figure 3-1.

Table 3-1. Event Hydrograph Data Summary

	Design Event			
	1997	10-year	50-year	100-year
Peak Flow (cfs)	213	607	1,000	1,274
Time to Peak (min.)	1,178	1,171	1,170	1,168
Flood Volume (ac-ft)	102	151	248	283

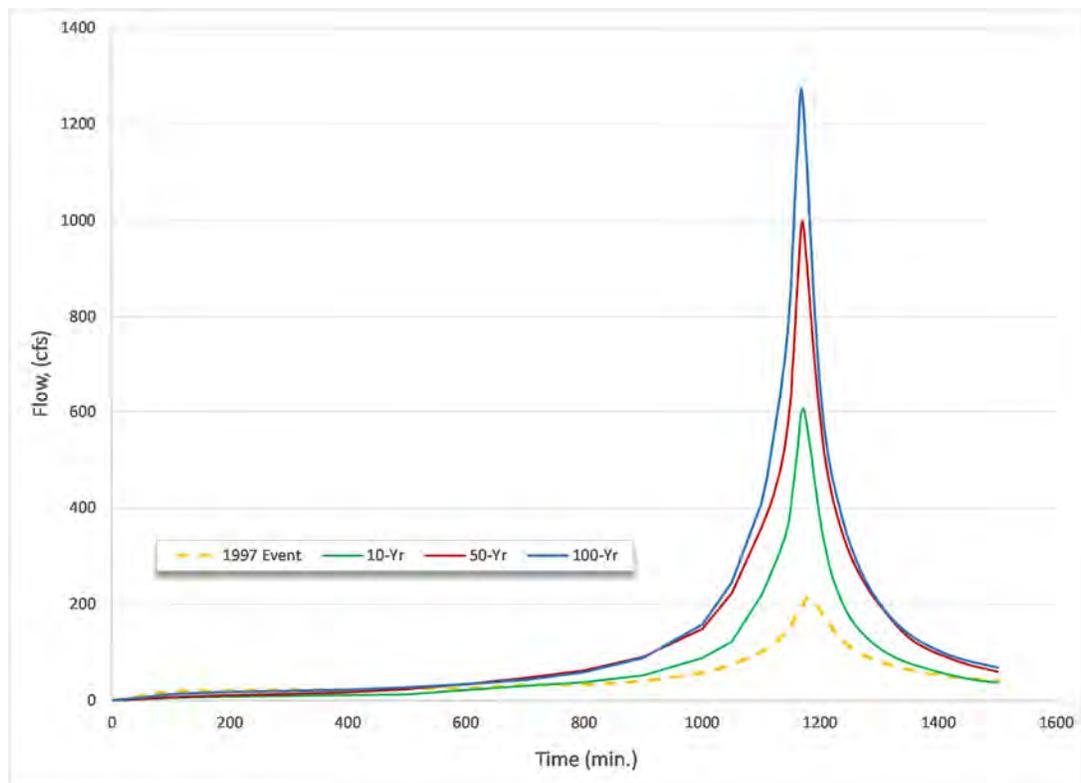


Figure 3-1. Event Hydrographs

Basin routing and dam break discharges were evaluated in HEC-HMS version 4.0 (USACE 2013). A stage-storage curve was generated from LiDAR data provided by VCWPD. A stage-discharge curve for existing conditions was generated from the scanned stage-discharge curve in *Debris and Detention Basins* (VCWPD 2005) and extrapolated for dam crest

overtopping using the broad-crested weir equation. The resulting stage-storage-discharge curves are presented in Figure 3-2.

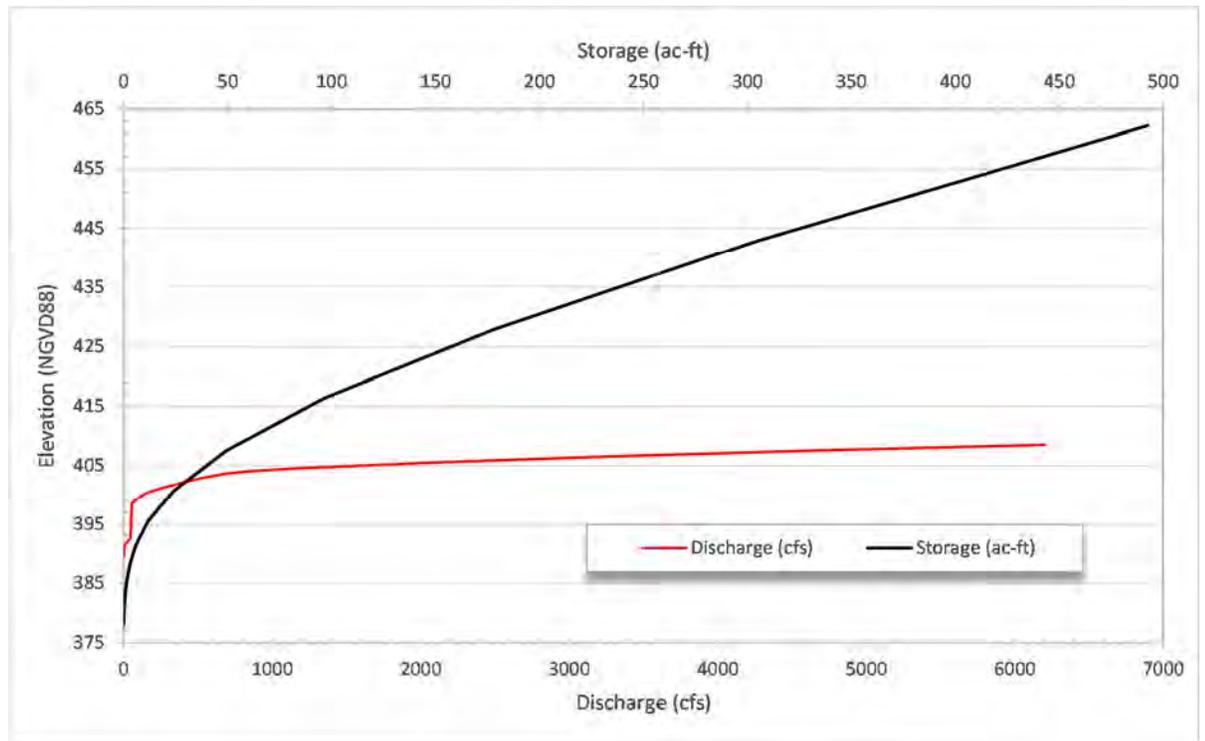


Figure 3-2. Stage-Storage-Discharge Curves

HEC-HMS was used to route event hydrographs through the basin. The resulting outflow hydrographs were input to the HEC-RAS hydraulic model (see Appendix F). All elevations in HEC-HMS are NAVD 88.

Dam breach scenario runs were based on the conservative Froehlich (2008) breach parameters presented in Table 3-2.

Table 3-2. Dam Breach Parameters

	Design Event		
	10-year	50-year	100-year
K_o (failure type)	overtopping	overtopping	overtopping
Breach Side Slope (H:1V)	1.0	1.0	1.0
Average Breach Width (ft.)	37	39	40
Breach Bottom Width (ft.)	6	7	8
Time to Breach (hrs.)	0.1	0.1	0.1

3.2 MODIFICATIONS TO HEC-RAS MODEL

The HEC-RAS model (USACE, 2010a, 2010b) developed by WEST in 2007 was converted to a HEC-RAS 2D model with 1D elements in the channel and 2D elements in the overbanks. The HEC-RAS model was configured for unsteady analysis with added interpolated cross sections for model stability. Overbank area roughness were modeled using previously defined Manning’s *n* values. All elevations in HEC-RAS are NAVD 88.

WEST previously approximated the basin outflow rating curve by modifying the cross section at the Santa Rosa basin. The modification was applicable only to events smaller than a 10-year event. Larger events would overtop the earthen emergency spillway, likely resulting in dam failure. For this reason, the elevation-storage-outflow relationship was modeled in HEC-HMS (instead of taking the cross section approach in HEC-RAS) and the 10-, 50- and 100-year events were modeled assuming that the dam would breach in each case. Table 3-3 presents the HEC-RAS model runs completed for existing conditions—the dam was assumed to breach when the earthen emergency spillway was overtopped by more than 1 foot. The 10-year event overtops the spillway by 4 feet while the 50- and 100-year events overtop the spillway crest by 6 feet.

The reoperation scenario modeled is one of several reoperation alternatives considered in this study (see additional discussion in Section 4). The emergency spillway crest was lowered from 396 to 391.5 feet (NGVD29)—391.5 represents the approximate elevation required to store 100% of the design debris volume (5,424 cubic yards) at a level capacity. The spillway width of 16 feet was determined by trial and error such that 3 feet of freeboard to the dam crest is available for the 100-year event. The primary spillway pipe and bleeder tower capacity were assumed unchanged in this reoperation scenario. The discharge capacity of this low flow outlet is negligible compared to the emergency spillway (which technically functions as a primary spillway for large events).

Table 3-3. HEC-RAS Model Runs Completed

	Design Event			
	1997	10-year	50-year	100-year
Existing Conditions	✓	✓	✓	✓
Dam Breach	n/a	✓	✓	✓
Dam Removed	✓	✓	✓	✓
Reoperation	n/a	✓	✓	✓

3.3 MODELING RESULTS

A listing of HEC-RAS input and output files are included in Appendix H. The inundation limits for each model run were mapped downstream of the dam to the confluence with Conejo Creek. These results are used to compare Santa Rosa Road Debris Basin No. 2 alternatives, and are not intended for establishing floodplain limits or for other purposes. The number

of buildings inundated for each model run was approximated based on georeferenced hydraulic model results (see Table 3-4). Hydraulic model results are presented as the maximum extent and depth of inundation during the event in Appendix D, Figure D-1 through Figure D-14.

Table 3-4. Approximate Number of Inundated Structures

	Design Event			
	1997	10-year	50-year	100-year
Existing Conditions	1	2	9	12
Dam Breach	n/a	17	29	30
Dam Removed	1	2	12	12
Reoperation	n/a	2	9	12

In addition to structure inundation, Santa Rosa Road would be overtopped by greater than 7 feet of water during a dam breach (10-, 50- or 100-year event). This is a significant potential hazard to life.

3.4 DETENTION EFFECT OF BASIN

Model runs comparing downstream flooding with and without the basin are nearly identical for low and high flow scenarios. Comparing a 100-year event with the basin in place to a 100-year event without the basin (Figure D-11 and Figure D-12) shows that there is little change to the extent of inundation. Therefore, the detention function of the basin is negligible. This is easily confirmed without a hydraulic model when comparing the available storage volume of the basin (23,500 cubic yards at emergency spillway elevation capacity) with the volume of the inflow hydrograph (456,000 cubic yards for the 100-year event).

3.5 SEDIMENT TRANSPORT IMPLICATIONS

The WEST Consultants (2007) study included a sediment transport analysis downstream of the basin. There were three assumed sediment loads under existing conditions and under a proposed “Basin Removal” condition. Results indicated basin removal could be beneficial as minor erosion immediately downstream of the basin had been observed. In addition, the downstream receiving stream, Conejo Creek, is erosive downstream of its confluence with Santa Rosa Creek and could benefit from an increased sediment supply. Sediment modeling result profiles are located in Appendix E.

As part of the current study, the District requested an edit to the 2007 sediment transport model to include the 100-year hydrograph following the long term simulation for the dam removal scenario. The purpose of this model run is to evaluate whether deposition is excessive for the 100-year event with dam removal. Several model changes were required to add the 100-year event hydrograph:

- The rating curve was modified to include flows up to 1,234 cfs (the 100-year peak flow),

- The inflowing sediment load was updated for Load A (Scott Method sediment yield, unburned condition minus wash load) and Load B (Scott Method sediment yield, burned condition 4.5 years after a fire minus wash load)
- The initial cross section geometry data were updated to reflect the final geometry results for the long term simulation.

Revised sediment modeling result profiles are located in Appendix I. There is more scour predicted downstream of culverts as would be expected with higher velocities due to the 100-year event. The locations of deposition along the stream are generally the same as for the long term simulation, and the amount of deposition due to the 100-year event is generally less than a foot in most reaches. These results suggest that the 100-year event would not produce areas of excessive deposition.

4 ALTERNATIVES ANALYSIS

4.1 GENERAL DESCRIPTION

Multiple alternatives for debris basin modification (including removal) were considered. Possible alternatives include:

- Continuing the current maintenance program with no major changes to the dam
- Modifying the dam and outlet works to meet current standards (also includes potential multi-purpose functions)
- Removing the dam

Given that the basin provides a negligible detention function and that a dam break could occur with the current basin deficiencies, the reoperation and removal alternatives are the two most reasonable options (the “do nothing” alternative is not recommended). Reoperation and removal options are discussed further below, including the approximate cost of each alternative.

4.2 REOPERATION ALTERNATIVES

VCWPD has previously developed two variations of a design (2A and 2B) for basin reoperation—this design data was provided by VCWPD and is included in Appendix G. The emergency spillway was redesigned to flow directly into a 6'x14' (W x H) reinforced box culvert approximately 415 feet long that connects to the culvert passing beneath Santa Rosa Road. The VCWPD design also includes a new low flow outlet tower (replacing the current primary spillway and bleeder pipe). The two VCWPD designs differ in the location of the low flow outlet point—one connects directly to the emergency spillway culvert, and the other outlets to an open channel reach which then flows into a side opening of the emergency spillway culvert.

One of the alternatives evaluated was previously described in Section 3—lowering the emergency spillway to elevation 391.5 (NGVD29) and widening the spillway to 16 feet to provide adequate freeboard (see Figure 4-1). This alternative would also include paving the spillway with concrete, re-grading the downstream face of the dam to 3H:1V, covering the downstream face with rounded river stone, increasing the basin crest width to 20 feet, adding a 15-foot wide paved asphalt access road on the dam crest, constructing an access bridge for servicing outlet works, removing vegetation/trees from the dam, and constructing a stilling basin approximately 35 feet long with riprap downstream of the end sill. This alternative does not include upgrading the low flow outlet (primary spillway, bleeder, and culvert) but the VCWPD should include this improvement if a condition assessment reveals any deficiencies.

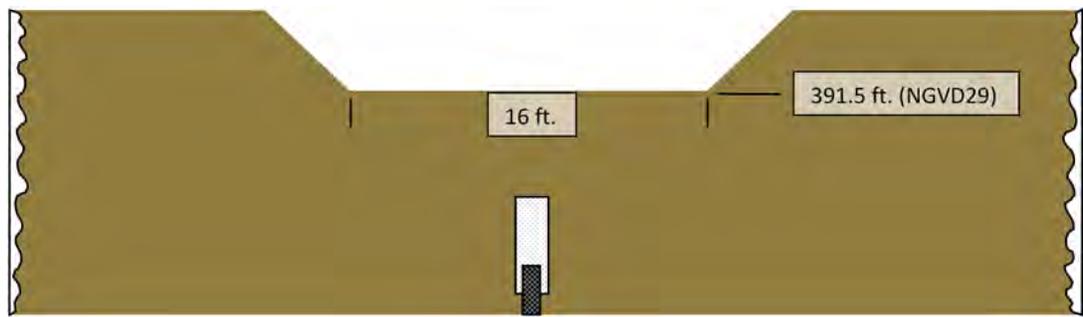


Figure 4-1. Lowered and Widened Spillway Alternative

This alternative would capture the design debris volume and provide for routing of the 100-year discharge through the basin with adequate spillway freeboard, which would significantly reduce the potential for dam breach.

Another similar alternative was considered which replaces the low flow spillway, bleeder and culvert with a 3-foot wide slot to provide open channel flow from the clean out elevation upstream of the embankment to the downstream toe of the embankment (see Figure 4-2). The intent of this “slot” option is to allow sediment to flow through the structure while still trapping larger debris. The slot width cannot be “calculated” and would be somewhat experimental in nature (WEST has assumed the slot width equal to 3 feet). The elevation and width of the spillway above the slot is recommended to have the same dimensions as previously calculated (width of 16 feet at elevation 391.5 (NGVD29)) to provide adequate freeboard for the 100-year event. A rating curve for the slot option was not explicitly calculated because the slot would likely provide more conveyance than the current low flow outlet and the dimensions of the emergency spillway are identical to the previous alternative.

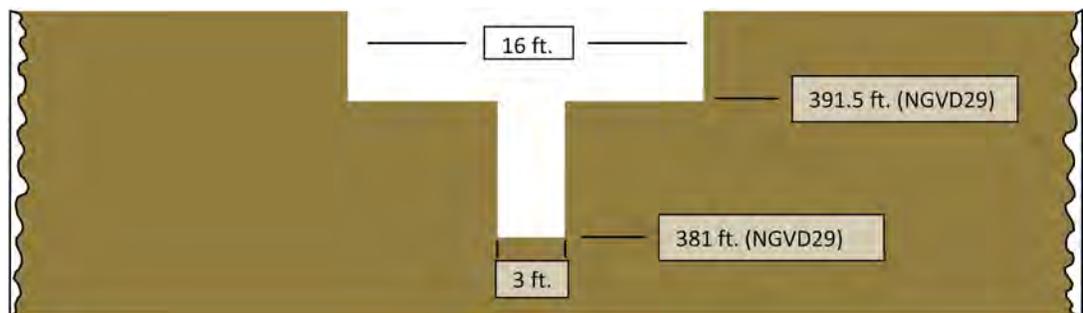


Figure 4-2. Lowered and Widened Spillway Alternative with Slot

4.3 POTENTIAL MULTI-PURPOSE FUNCTIONS

The basin could potentially be modified to provide a multi-purpose function. Potential multi-purpose uses might include environmental enhancement and recreational use, water supply or groundwater recharge. The basin covers over three acres and could be converted

to a park or open space provided adequate measures were taken to accommodate the intermittent flows that would continue to pass through the area during the wet season.

As a water supply reservoir, the basin seems an unlikely candidate. The flows into the basin are highly intermittent resulting in an unreliable water supply. Due to vector control, long term storage would be an additional impediment. A raw water transmission facility would also need to be constructed for pumping and there does not appear to be a nearby end-user when the supply would be available.

Based on MWH Global's report (2013), a groundwater recharge function may be a possibility. The basin lies over the Santa Rosa Groundwater Basin and is located in an area described as "unconsolidated to moderately indurated clay, silt, sand [and] gravel". The site would need to be evaluated in detail by a hydrogeologist and/or geotechnical engineer to determine site suitability.

Any basin modification alternatives implemented would also need to address the dam deficiencies and update the facility to current VCWPD standards. As such, if a modification alternative were preferred, the cost would be in addition to the cost of reoperation.

4.4 REMOVAL ALTERNATIVE

The removal of the basin was evaluated in the WEST 2007 study which included sediment transport modeling. The results indicated that the basin removal may lead to some minor deposition downstream of the concrete channel reach (upstream of the Farm Road culvert). However, the current land use in this area is farming and the potential deposition is not expected to impact any structures.

The WEST 2007 study also addressed whether a drop structure would be required with basin removal. The conclusion was that a drop structure would not be required.

4.5 ESTIMATED ALTERNATIVES COST

An approximate cost for each alternative was developed based on earthwork volumes, debris removal, concrete work, riprap revetment quantities and other major expenses. Most item unit costs were provided by VCWPD. For cost categories not provided by VCWPD, references are provided in Appendix C.

Costs were developed for the following alternatives: (1) dam removal, (2) basin reoperation using VCWPD Design 2A, (3) basin reoperation using VCWPD Design 2B, (4) basin reoperation with a new concrete spillway, and (5) basin reoperation with a concrete slot for passing flow through the dam. For the dam removal alternative, channel stability was considered. In a previous sedimentation study, WEST Consultants, Inc. (2007) concluded that the channel would be relatively stable if the basin were removed. For this reason, grade control structures are not included in the cost of basin removal. Approximate costs are presented in Table 4-1. Cost breakdowns are presented in Appendix C.

Table 4-1. Approximate Cost of Basin Alternatives.

	Dam Removal	VCWPD Design 2A	VCWPD Design 2B	Reoperate w/ New Emergency Spillway	Reoperate w/ New Concrete Slot
Cost	\$175,000	\$1,044,000	\$1,012,000	\$714,000	\$681,000

4.6 PREFERRED ALTERNATIVE

Based on the information reviewed (previous studies, historical records, and data provided by VCWPD), and hydraulic calculations performed in this evaluation, the Santa Rosa Road Debris Basin No. 2 has very limited functionality. The primary benefit of the basin is the ability to capture debris and sediment for a post-fire scenario. However, the Santa Rosa Road crossing itself would likely act as a de facto debris-capturing structure if the Santa Rosa Road basin was removed. As it stands now, the basin is a significant hazard for dam breach due to the potential for earthen spillway erosion.

To evaluate the alternatives, an alternatives analysis matrix was created in Microsoft Excel® to demonstrate how subjective criteria influence the choice of a “preferred alternative”. Multiple alternatives were subjectively evaluated based on the following five decision criteria:

- ◆ Potential cost
- ◆ Improvement to safety
- ◆ Changes to possible flood extent
- ◆ Effect on debris/sediment
- ◆ Anticipated public perception

The seven alternatives evaluated were:

- ◆ Continue the current maintenance program (“do nothing”)
- ◆ Lower and widen the spillway
- ◆ Lower and widen the spillway and incorporate a groundwater recharge aspect
- ◆ Lower and widen the spillway with a new low flow slot through the dam
- ◆ VCWPD designs 2A and 2B
- ◆ VCWPD designs 2A and 2B with a groundwater recharge aspect
- ◆ Basin removal

The alternatives analysis matrix provides a ranking of the alternatives using subjective user input. Initially, the user ranks the importance of each decision criteria (potential cost, improvement to safety, etc.) relative to the other decision criteria resulting in a “Priority Score” from 0 to 4. Based on user input, the most important criteria will have a Priority Score of 4 and the least important a score of 0. Final decision criteria values agreed upon with VCWPD are presented in Table 4-2.

Table 4-2. Subjective Decision Criteria Values.

Relative Importance of Decision Criteria (0 is low, 4 is high importance)	
Cost	1
Safety	4
Flood Damages	3
Debris/Sediment Issues	2
Anticipated Public Perception	0

Once the Priority Scores have been determined, the user must decide how much effect each alternative may have on the decision criteria, relative to other alternatives, and assign a value from 1 to 10. For example, the alternative “lower and widen the spillway” has an anticipated expense roughly in the middle of other alternatives so may be assigned a “Cost” value of 5. Safety is improved more than doing nothing, so this alternative would receive a higher value for effect on safety criteria. Individual decision criteria were ranked for each possible alternative based on the following:

- ◆ Cost - the alternative considered the most expensive (VCWPD Designs w/ Groundwater Recharge) would be assigned the highest value. The alternative considered the least expensive is assigned the lowest value. All other alternatives are ranked in between. If cost is no issue, then a low rating in the decision criteria ranking step would diminish the impact of any cost ranking.
- ◆ Improvement to safety - basin removal most notably improves safety by removing the potential of dam failure, so receives the highest value. Doing nothing leaves the potential of dam failure, so receives the lowest rating. All other alternatives are ranked in between, with groundwater recharge alternatives slightly lower due to standing water after a storm.
- ◆ Changes to possible flood extent – continuing the current maintenance program ranks the lowest since it perpetuates the greatest flood extent in the event of dam failure. Alternatives to “do nothing” were shown to have improved flood extents during the Hydraulic Modeling phase. The different alternatives were also demonstrated to have roughly equivalent flood extents, so were assigned equal values.
- ◆ Effect on debris/sediment - allowing sediment to proceed downstream was considered preferable to continuing basin cleanout activities. For this reason, the two alternatives allowing sediment to pass rank higher and other alternatives are considered equal.
- ◆ Anticipated public perception - it was assumed the public would not like the idea of dam failure and more extensive flooding, so "do nothing" received the lowest score. It was assumed the public would be equally ambivalent regarding other alternatives.

Final relative alternative comparisons in each criteria are presented in Table 4-3.

Table 4-3. Subjective Relative Alternative Comparisons.

Basin Alternative	Cost ⁽¹⁾	Safety ⁽²⁾	Flood Damages/ Extent ⁽³⁾	Debris/ Sediment/ Deposition ⁽⁴⁾	Public Benefit/ Perception ⁽⁵⁾
Continue current maintenance program	3	1	1	3	2
Lower & widen spillway	5	7	5	3	5
Lower & widen spillway w/ groundwater recharge	7	6	5	3	5
Lower & widen spillway w/ new low flow slot	5	7	5	8	5
VCWPD designs 2A & 2B	6	7	5	3	5
VCWPD designs 2A & 2B w/ groundwater recharge	8	6	5	3	5
Basin removal	4	10	5	7	5

(1) Cost 1 = low cost, 10 = high cost

(2) Is safety improved? 1 = no, 10 = yes

(3) Is the flood extent improved? 1 = no, 10 = yes

(4) Is there a positive debris/sediment outcome? 1 = no, 10 = yes

(5) Will the public generally like it? 1 = no, 10 = yes

The alternatives evaluation matrix produces a score (maximum of 100) for each alternative by weighting the effect of the alternative on the decision criteria while taking into consideration the importance of the decision criteria. For example, when comparing alternatives, a safety score of 1 will lower the overall score more than a sediment/debris score of 1 because safety was rated as more important than debris issues in Table 4-2. Final rankings of alternatives are presented in Table 4-4.

Table 4-4. Alternatives Ranking.

Basin Alternative	Raw Score	Score Out of 100
Continue current maintenance program	2.1	28
Lower & widen spillway	5.5	72
Lower & widen spillway w/ groundwater recharge	4.9	64
Lower & widen spillway w/ new low flow slot	6.5	86
VCWPD designs 2A & 2B	5.4	71
VCWPD designs 2A & 2B w/ groundwater recharge	4.8	63
Basin removal	7.6	100

Based on the alternatives evaluation matrix and the decision criteria of cost, safety, flood damages, sediment/debris issues and anticipated public perception, the removal option is the preferred alternative. Therefore, the removal alternative is recommended.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

The evaluation of Santa Rosa Debris Basin No. 2 included rainfall data analysis, hydraulic modeling, cost estimation, and alternatives assessment. Based on available rainfall data in the area, the highest 24-hour rainfall amount since basin construction is 4.85 inches on December 6, 1997. This corresponds to approximately a 25-year rainfall return interval. Based on available records, the debris basin has never been subjected to peak flows as high as the 100-year peak inflow event equal to 1,274 cfs.

Hydraulic models were used to evaluate flood inundation extents for 10-, 50-, and 100-year return interval events as well as the 1997 event when the emergency spillway was briefly overtopped. Inflow hydrographs for each event were supplied by VCWPD and entered into the hydraulic models. Four basin conditions were considered: (1) existing conditions, (2) basin rehabilitation conditions, (3) basin removal, and (4) basin breach assuming the reservoir is full to capacity prior to the breach. The flood inundation differences for each modeled condition were minimal, which means the basin does not provide a significant detention function. Basin breach scenarios indicate the potential to overtop Santa Rosa Road by as much as 7 feet which is a significant safety hazard.

In addition, the potential for sedimentation in the channel downstream of the basin was evaluated for the 100-year event. The purpose of the model run was to evaluate whether deposition could be excessive for the 100-year event with dam removal. Results indicate that the 100-year event does not create any areas of excessive deposition.

Approximate costs were developed for five reoperation and/or removal alternatives. The estimated lowest cost alternative is basin removal. The cost estimation results were used during the alternatives matrix evaluation. The matrix evaluation subjectively prioritized five basin criteria and ranked seven basin alternatives accordingly. Based on criteria including potential cost, safety, changes to flood extent, downstream sedimentation/debris effects and anticipated public perception, the highest ranked alternative is basin removal and the lowest is maintaining the status quo.

5.2 RECOMMENDATIONS

Based on study results, the recommended course of action is to remove Santa Rosa Debris Basin No.2.

6 REFERENCES

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APPENDIX A

SITE VISIT PHOTOGRAPHS

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-1. DEBRIS BASIN AND UPSTREAM DAM FACE



FIGURE A-2. DOWNSTREAM DAM FACE, PRIMARY SPILLWAY OUTLET

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-3. PRIMARY SPILLWAY ENTRANCE W/ TRASH RACK



FIGURE A-4. DEBRIS BLEEDER/RISER PIPE AT BOTTOM OF UPSTREAM DAM FACE

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-5. DEBRIS BASIN, LOOKING UPSTREAM FROM TOP OF DAM



FIGURE A-6. TREE GROWING AT EMERGENCY SPILLWAY ENTRANCE

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-7. EMERGENCY SPILLWAY ENTRANCE, LOOKING DOWNSTREAM



FIGURE A-8. EMERGENCY SPILLWAY, LOOKING DOWNSTREAM AT CHANNEL JUNCTION

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-9. DOWNSTREAM CHANNEL, EMERGENCY SPILLWAY EXIT ON LEFT



FIGURE A-10. DOWNSTREAM CHANNEL, LOOKING UPSTREAM AT DAM

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-11. UPSTREAM FACE OF SANTA ROSA ROAD CULVERT, LOOKING DOWNSTREAM



FIGURE A-12. DOWNSTREAM FACE OF SANTA ROSA ROAD, LOOKING UPSTREAM

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-13. LOOKING DOWNSTREAM TOWARDS VISTA ARROYO DR./ANDALUSIA DR. CROSSING



FIGURE A-14. UN-NAMED FARM ROAD CULVERT CROSSING

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-15. DOWNSTREAM FARM FIELDS



FIGURE A-16. UN-NAMED FARM ROAD CULVERT CROSSING AT 90-DEGREE BEND

SANTA ROSA ROAD DEBRIS BASIN No. 2

APRIL 7, 2015



FIGURE A-17. DOWNSTREAM CONFLUENCE WITH CONEJO CREEK



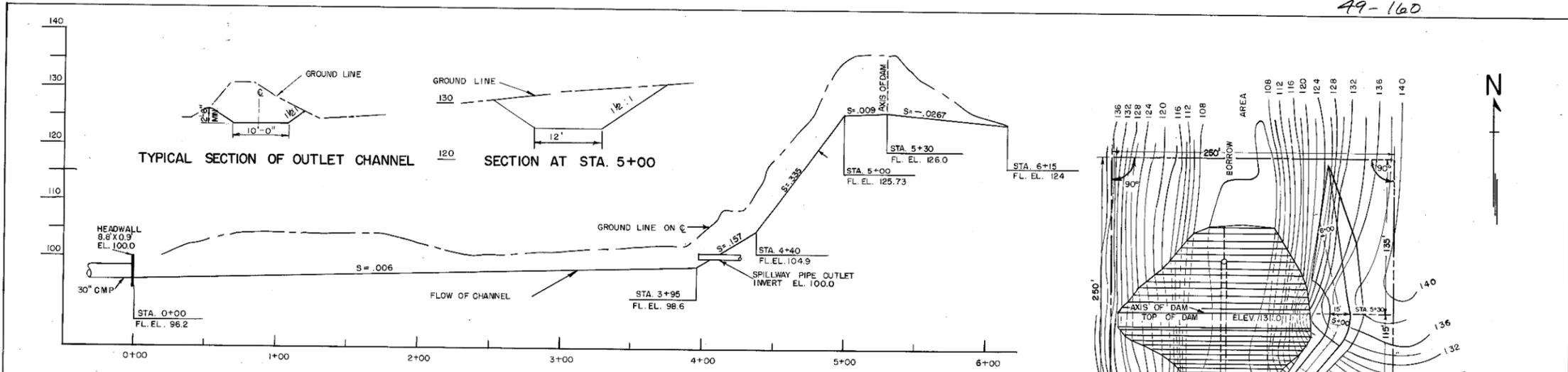
FIGURE A-18. CULVERT AT DOWNSTREAM CONFLUENCE WITH CONEJO CREEK

APPENDIX B

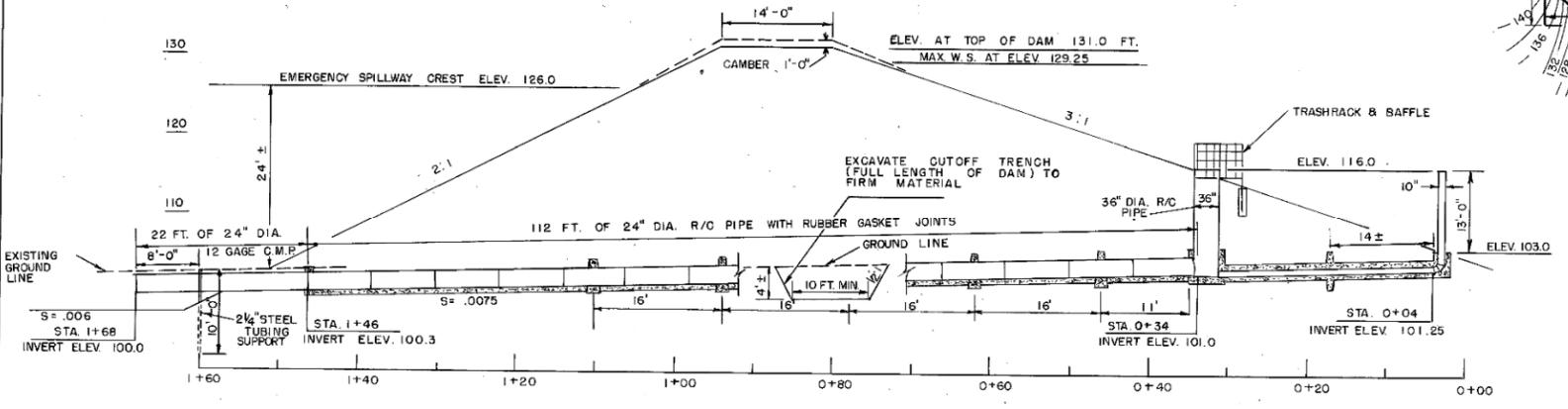
SANTA ROSA ROAD DEBRIS BASIN No. 2

“AS-BUILT” DRAWINGS

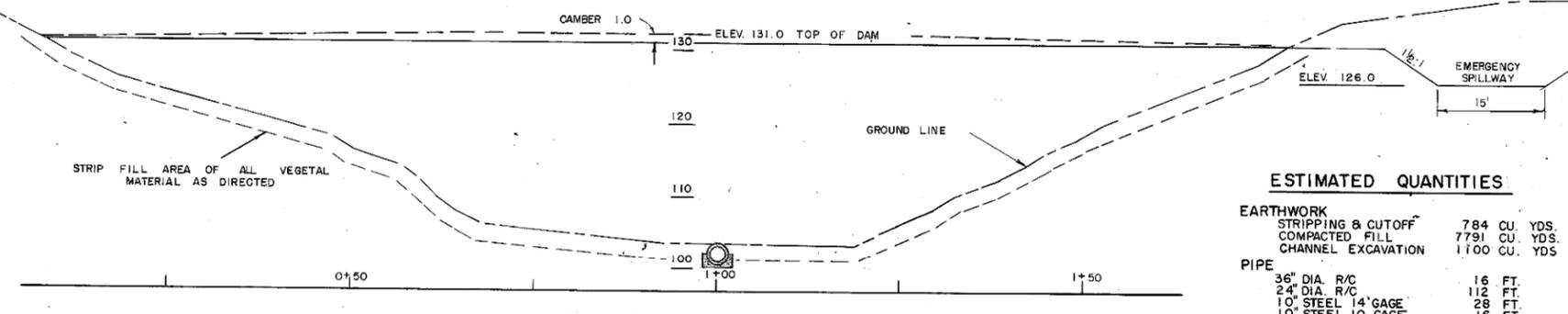
49-160



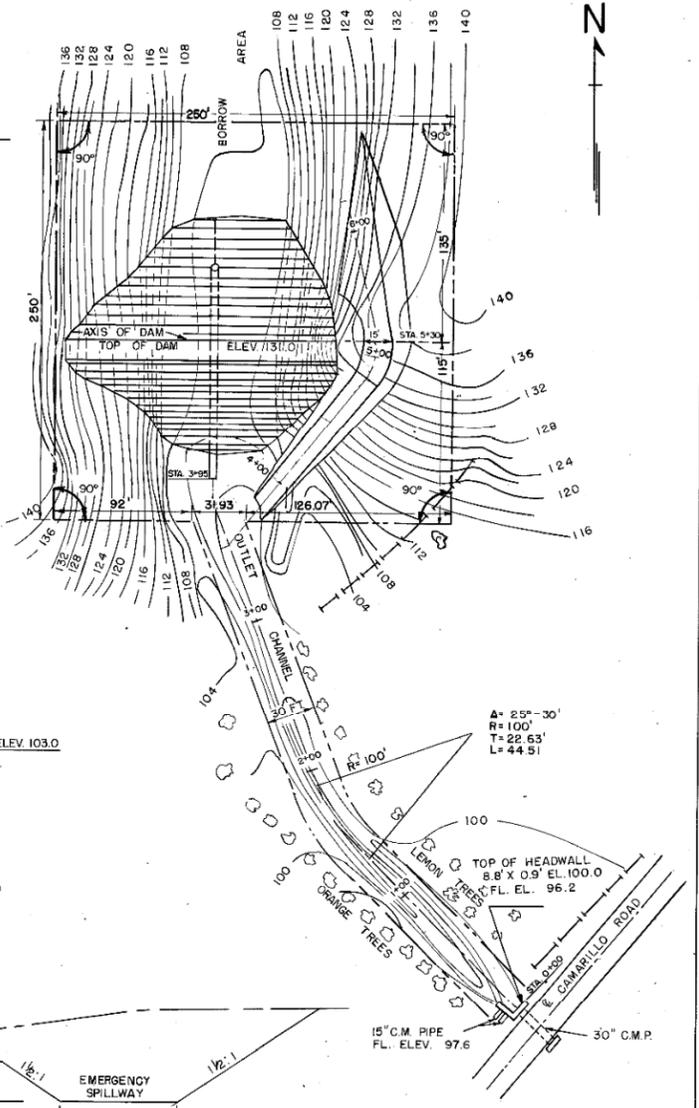
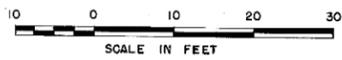
PROFILE ALONG CENTER LINE OF OUTLET CHANNEL & EMERGENCY SPILLWAY



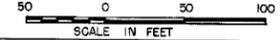
SECTION ALONG CENTER LINE OF OUTLET PIPE



SECTION ALONG AXIS OF DAM



LOCATION LAYOUT



ESTIMATED QUANTITIES

EARTHWORK		
STRIPPING & CUTOFF	784 CU. YDS.	
COMPACTED FILL	7791 CU. YDS.	
CHANNEL EXCAVATION	1100 CU. YDS.	
PIPE		
36" DIA. R/C	16 FT.	
24" DIA. R/C	112 FT.	
10" STEEL 14" GAGE	28 FT.	
10" STEEL 10" GAGE	16 FT.	
24" DIA. C.M.P.	22 FT.	
CONCRETE		
FOR ENCASEMENT, CUTOFF COLLARS & BEDDING	32 CU. YDS.	
STEEL		
REINFORCING STEEL	430 LBS.	

" AS BUILT "

APPROVED: Ventura County Flood Control District
 By *C. White*
 Engineer - Manager

PLAN & SECTIONS
EARTH FILL DAM - File 14.1
CALLEGUAS CREEK W.P.P.
 SIMI VALLEY & CALLEGUAS S.C. DISTRICTS, CALIF.

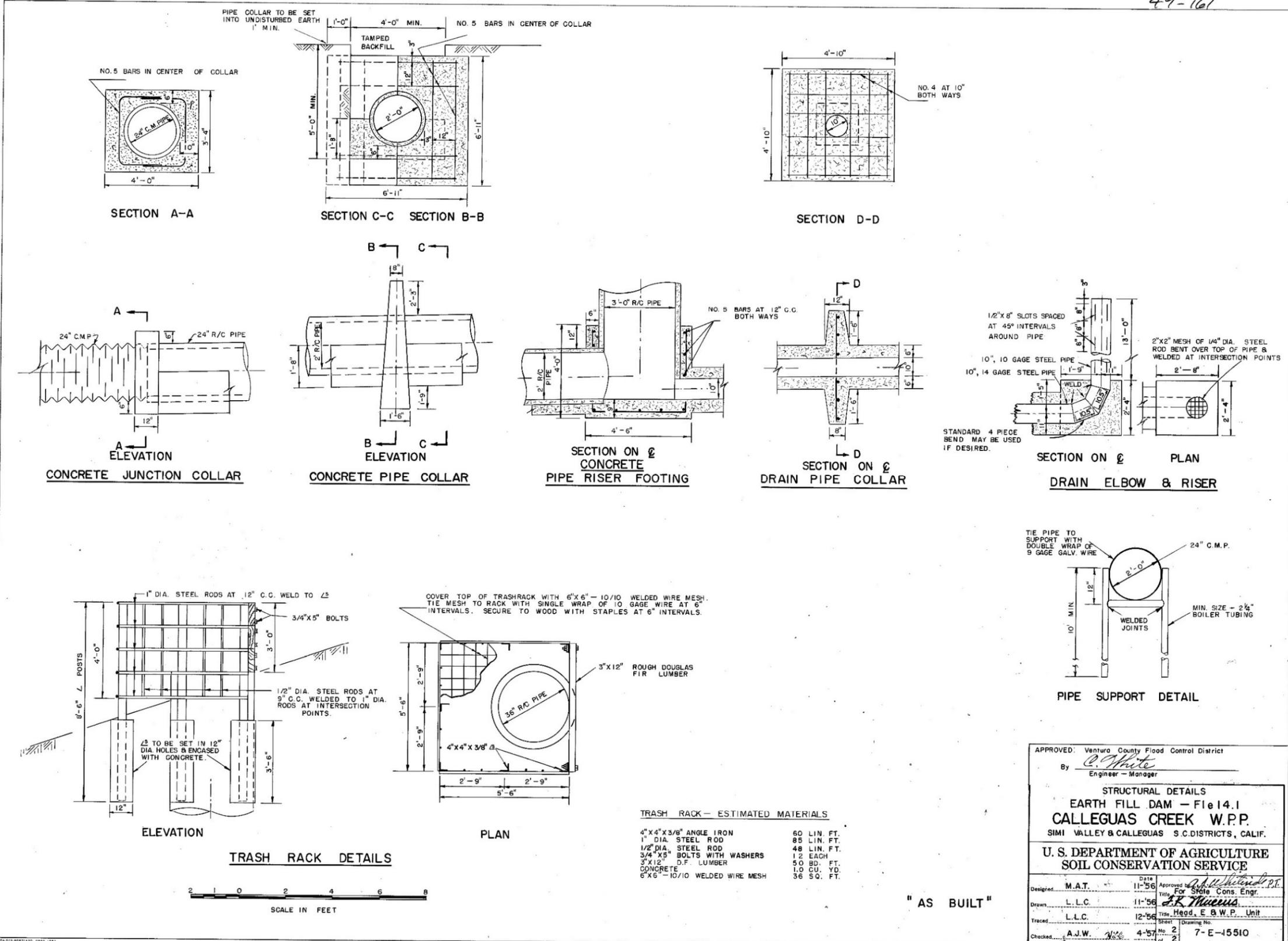
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Date: 11-56
 Designed: M.A.T.-A.J.W.
 Drawn: L.L.C.
 Traced: L.L.C.
 Checked: 4-57

Title: For State Cons. Engr.
 Head, E.B.W.P. Unit
 Drawing No. 7-E-15510

C-13-14
 Y-3-1191

49-161



C-13-1m

C-13-1m

C-13-1m

C-13-1m
Y-3-1192

APPENDIX C

SANTA ROSA ROAD DEBRIS BASIN No. 2

ALTERNATIVES COST APPROXIMATION

Santa Rosa Road No. 2 Debris Basin Modification

Alternatives Matrix Approximate Costs

for

Ventura County Watershed Protection District



Removal

Assumed Design Conditions

- complete dam structure removal

Item	Unit	Unit Cost	Quantity	Extended Cost	Notes
Mobilization	% of total	5.5%		6,688	
Bond	% of total	3%		3,648	
Clear and grub	\$\$ per acre	4,000			
Grading	\$\$ per sq. yd	1			
Excavation	\$\$ per cu. yd	6.5	4,889	31,779	calculated from volume of four tetrahedrons
Fill	\$\$ per cu. yd	7.5			
Reinforced Concrete	\$\$ per cu. yd	425			
Catwalk	\$\$	25,000			
Intake riser	\$\$	8,500			
Cobble stone	\$\$ per cu. yd	100			
Light riprap (200#)	\$\$ per cu. yd	100			
1/4 ton concrete rock riprap	\$\$ per cu. yd	125			
Grouted riprap	\$\$ per cu. yd	165			
18 & 24" RCP jct w/ RC box	\$\$	5,000			
24" D-1500 RCP	\$\$ per LF	90			
Debris Removal	\$\$ per cu. yd	15	5,083	76,245	existing structure and earth disposal
AC Hot Mix + PMB	\$\$ per sq. yd	32			
CMB road base	\$\$ per cu. yd	67.5			
Construction Contingency	% of total	15%		18,241	
Final Design	% of total	20%		24,321	
Demolish Existing Structures	\$\$ per cu. yd	70	194	13,580	194 ft. of 24 in. pipe
25 year cleanout cost	\$\$ per year	8,870			
Total Cost				\$174,501	

(1) Cost Sources: Ventura County Watershed Protection District Advanced Planning Division, Unit Price for APS 2013 projects and USACE Los Angeles River Ecosystem Restoration Feasibility Study, Cost Appendix, August 2013 unless otherwise noted.

Reoperate w/ Ventura County Design 2A, primary spillway closed conduit downstream

Assumed Design Conditions

- Ventura County supplied preliminary drawings

Item	Unit	Unit Cost	Quantity	Extended Cost	Notes
Mobilization	% of total	5.5%		31,515	
Bond	% of total	3%		17,190	
Clear and grub	\$\$ per acre	4,000	3.4	13,600	based on disturbed area from design drawings
Grading	\$\$ per sq. yd	1	16,521	16,521	designated area from design drawings
Excavation	\$\$ per cu. yd	6.5	1,965	12,772	estimated for RC Box construction (used for fill)
Fill	\$\$ per cu. yd	7.5	4,387	32,899	for 3:1 dam face and closed conduit coverage
Reinforced Concrete	\$\$ per cu. yd	425	766	325,686	RC Box, 16" floor, 12" other
Catwalk	\$\$	25,000	1	25,000	\$\$ based on educated guess for custom steel
Intake riser	\$\$	8,500	1	8,500	\$\$ based on educated guess for custom steel
Cobble stone	\$\$ per cu. yd	100	324	32,407	dam face, \$\$ educated guess based on riprap
Light riprap (200#)	\$\$ per cu. yd	100			
1/4 ton concrete rock riprap	\$\$ per cu. yd	125			
Grouted riprap	\$\$ per cu. yd	165	218	35,952	RC Box intake
18 & 24" RCP jct w/ RC box	\$\$	5,000	2	10,000	cost is WAG
24" D-1500 RCP	\$\$ per LF	90	266	23,940	plans call for D-2000 class pipe, cost is D-1500
Debris Removal	\$\$ per cu. yd	15			
AC Hot Mix + PMB	\$\$ per sq. yd	32	448	14,350	area based on drawings
CMB road base	\$\$ per cu. yd	67.5	317	21,374	AC and CMB area, 6 in. placement depth
Construction Contingency	% of total	15%		85,950	
Final Design	% of total	20%		114,600	
Demolish Existing Structures	\$\$ per cu. yd	70			
25 year cleanout cost	\$\$ per year	8,870	25	221,750	CPI adjusted 2004 cost, avg. cleanout rate
Total Cost				\$1,044,008	

(1) Cost Sources: Ventura County Watershed Protection District Advanced Planning Division, Unit Price for APS 2013 projects and USACE Los Angeles River Ecosystem Restoration Feasibility Study, Cost Appendix, August 2013 unless otherwise noted.

Reoperate w/ Ventura County Design 2B, primary spillway open channel downstream

Assumed Design Conditions

- Ventura County supplied preliminary drawings

Item	Unit	Unit Cost	Quantity	Extended Cost	Notes
Mobilization	% of total	5.5%		30,280	
Bond	% of total	3%		16,516	
Clear and grub	\$\$ per acre	4,000	2.0	8,112	based on disturbed area from design drawings
Grading	\$\$ per sq. yd	1	9,816	9,816	designated area from design drawings
Excavation	\$\$ per cu. yd	6.5	1,965	12,772	estimated for RC Box construction (used for fill)
Fill	\$\$ per cu. yd	7.5	1,238	9,288	3:1 dam face
Reinforced Concrete	\$\$ per cu. yd	425	766	325,686	RC Box, 16" floor, 12" other
Catwalk	\$\$	25,000	1	25,000	\$\$ based on educated guess for custom steel
Intake riser	\$\$	8,500	1	8,500	\$\$ based on educated guess for custom steel
Cobble stone	\$\$ per cu. yd	100	503	50,333	dam face, \$\$ educated guess based on riprap
Light riprap (200#)	\$\$ per cu. yd	100			
1/4 ton concrete rock riprap	\$\$ per cu. yd	125			
Grouted riprap	\$\$ per cu. yd	165	305	50,243	RC Box intake
18 & 24" RCP jct w/ RC box	\$\$	5,000	2	10,000	cost is WAG
24" D-1500 RCP	\$\$ per LF	90			
Debris Removal	\$\$ per cu. yd	15			
AC Hot Mix + PMB	\$\$ per sq. yd	32	754	24,117	area based on drawings
CMB road base	\$\$ per cu. yd	67.5	247	16,678	AC and CMB area, 6 in. placement depth
Construction Contingency	% of total	15%		82,582	
Final Design	% of total	20%		110,109	
Demolish Existing Structures	\$\$ per cu. yd	70			
25 year cleanout cost	\$\$ per year	8,870		221,750	CPI adjusted 2004 cost, avg. cleanout rate
Total Cost				\$1,011,783	

(1) Cost Sources: Ventura County Watershed Protection District Advanced Planning Division, Unit Price for APS 2013 projects and USACE Los Angeles River Ecosystem Restoration Feasibility Study, Cost Appendix, August 2013 unless otherwise noted.

Reoperate w/ Concrete Emergency Spillway

Assumed Design Conditions

- 100-year debris volume is 5,424 yd³ (Santa Rosa Road Debris Basin #2 - Design Hydrology Update Draft Report, March 2015)
- riprap at intake and outfall
- entrance condition: 27 ft., broad rectangular weir
- weir contracts to 15 ft. wide spillway before dam face

Item	Unit	Unit Cost	Quantity	Extended Cost	Notes
Mobilization	% of total	5.5%		18,866	
Bond	% of total	3%		10,291	
Clear and grub	\$\$ per acre	4,000	0.3	1,174	area from design drawings
Grading	\$\$ per sq. yd	1	9,816	9,816	area from design drawings
Excavation	\$\$ per cu. yd	6.5	457	2,968	cut notch in dam at lower debris elevation
Fill	\$\$ per cu. yd	7.5	2,747	20,600	for dam face
Reinforced Concrete	\$\$ per cu. yd	425	245	104,190	spillway 15x6 ft. (WxH), + 35 ft. stilling basin
Catwalk	\$\$	25,000	1	25,000	\$\$ based on educated guess for custom steel
Intake riser	\$\$	8,500	1	8,500	\$\$ based on educated guess for custom steel
Cobble stone	\$\$ per cu. yd	100	284	28,385	dam face, \$\$ educated guess based on riprap
Light riprap (200#)	\$\$ per cu. yd	100	820	82,000	channel lining downstream
1/4 ton concrete rock riprap	\$\$ per cu. yd	125			
Grouted riprap	\$\$ per cu. yd	165	218	35,952	spillway entrance, similar to Ventura 2A
18 & 24" RCP jct w/ RC box	\$\$	5,000			
24" D-1500 RCP	\$\$ per LF	90			
Debris Removal	\$\$ per cu. yd	15			
AC Hot Mix + PMB	\$\$ per sq. yd	32	448	14,350	based on Ventura design drawings
CMB road base	\$\$ per cu. yd	67.5	149	10,090	AC and CMB area, 6 in. placement depth
Construction Contingency	% of total	15%		51,454	
Final Design	% of total	20%		68,605	
Demolish Existing Structures	\$\$ per cu. yd	70			
25 year cleanout cost	\$\$ per year	8,870	25	221,750	CPI adjusted 2004 cost, avg. cleanout rate
Total Cost				\$713,991	

(1) Cost Sources: Ventura County Watershed Protection District Advanced Planning Division, Unit Price for APS 2013 projects and USACE Los Angeles River Ecosystem Restoration Feasibility Study, Cost Appendix, August 2013 unless otherwise noted.

Reoperate w/ Concrete Slot

Assumed Design Conditions

- 100-year debris volume is 5,424 yd³ (Santa Rosa Road Debris Basin #2 - Design Hydrology Update Draft Report, March 2015)
- keyhole slot cut through dam
- bottom is 3 ft. wide, slot top portion is 16 ft. wide, variable heights
- riprap lining downstream
- stilling basin necessary

Item	Unit	Unit Cost	Quantity	Extended Cost	Notes
Mobilization	% of total	5.5%		17,606	
Bond	% of total	3%		9,603	
Clear and grub	\$\$ per acre	4,000	0.3	1,174	area from design drawings
Grading	\$\$ per sq. yd	1	9,816	9,816	area from design drawings
Excavation	\$\$ per cu. yd	6.5	509	2,402	cut notch in dam at riser elevation
Fill	\$\$ per cu. yd	7.5	2,694	21,253	for dam face
Reinforced Concrete	\$\$ per cu. yd	425	199	114,692	keyhole slot and stilling basin as described
Catwalk	\$\$	25,000			
Intake riser	\$\$	8,500			
Cobble stone	\$\$ per cu. yd	100	284	28,385	dam face, \$\$ educated guess based on riprap
Light riprap (200#)	\$\$ per cu. yd	100	820	82,000	channel lining downstream
1/4 ton concrete rock riprap	\$\$ per cu. yd	125			
Grouted riprap	\$\$ per cu. yd	165	218	35,952	slot entrance, similar to Ventura 2A
18 & 24" RCP jct w/ RC box	\$\$	5,000			
24" D-1500 RCP	\$\$ per LF	90			
Debris Removal	\$\$ per cu. yd	15			
AC Hot Mix + PMB	\$\$ per sq. yd	32	448	14,350	based on Ventura design drawings
CMB road base	\$\$ per cu. yd	67.5	149	10,090	6 in. placement depth
Construction Contingency	% of total	15%		48,017	
Final Design	% of total	20%		64,023	
Demolish Existing Structures	\$\$ per cu. yd	70			
25 year cleanout cost	\$\$ per year	8,870	25	221,750	CPI adjusted 2004 cost, avg. cleanout rate
Total Cost				\$681,114	

(1) Cost Sources: Ventura County Watershed Protection District Advanced Planning Division, Unit Price for APS 2013 projects and USACE Los Angeles River Ecosystem Restoration Feasibility Study, Cost Appendix, August 2013 unless otherwise noted.

APPENDIX D

HYDRAULIC MODEL INUNDATION EXTENTS



Figure D-1. 1997 Event Inundation Extent.



Figure D-2. 1997 Event Inundation Extent, Dam Removed.

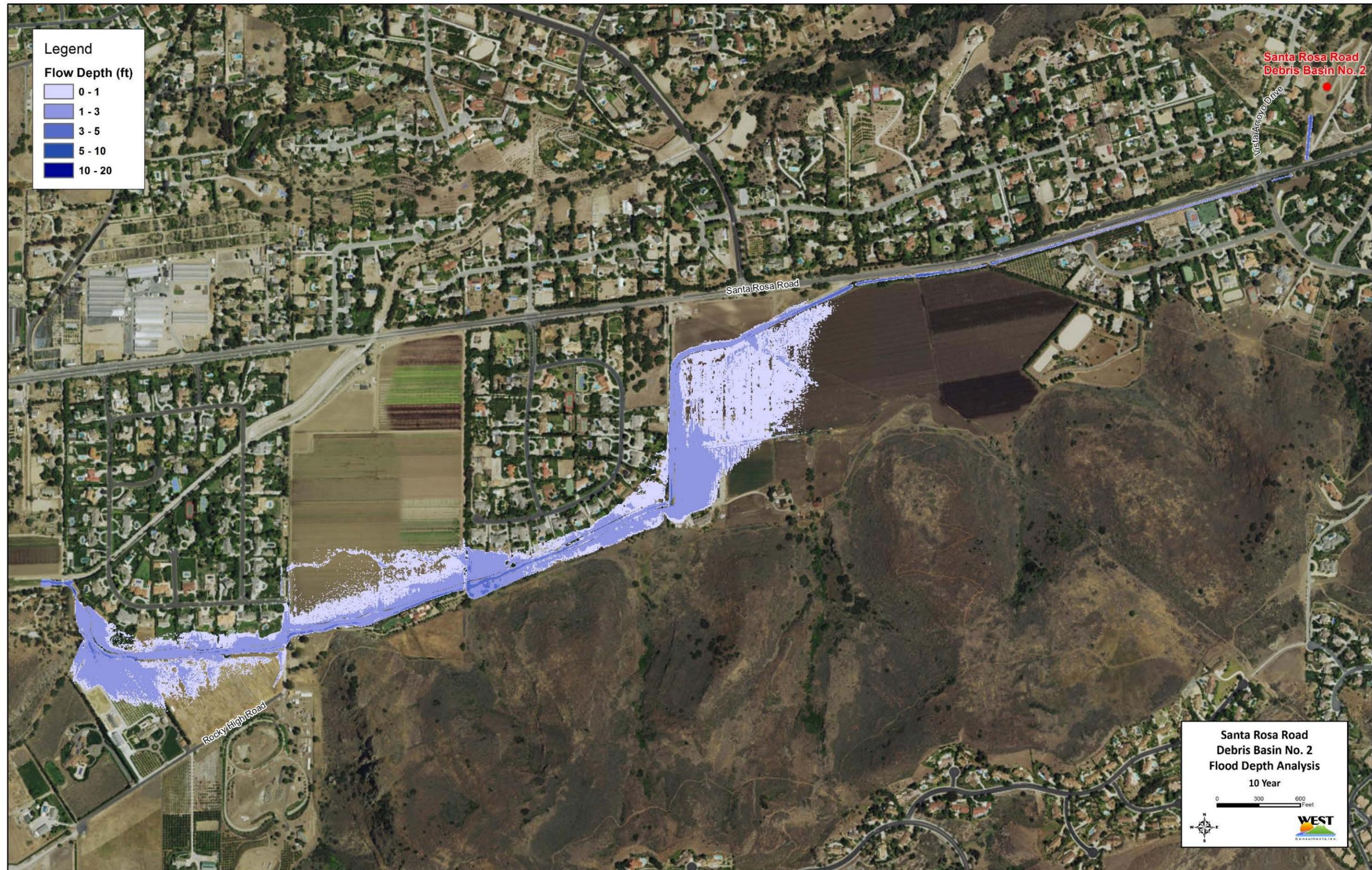


Figure D-3. 10-year Event Inundation Extent.

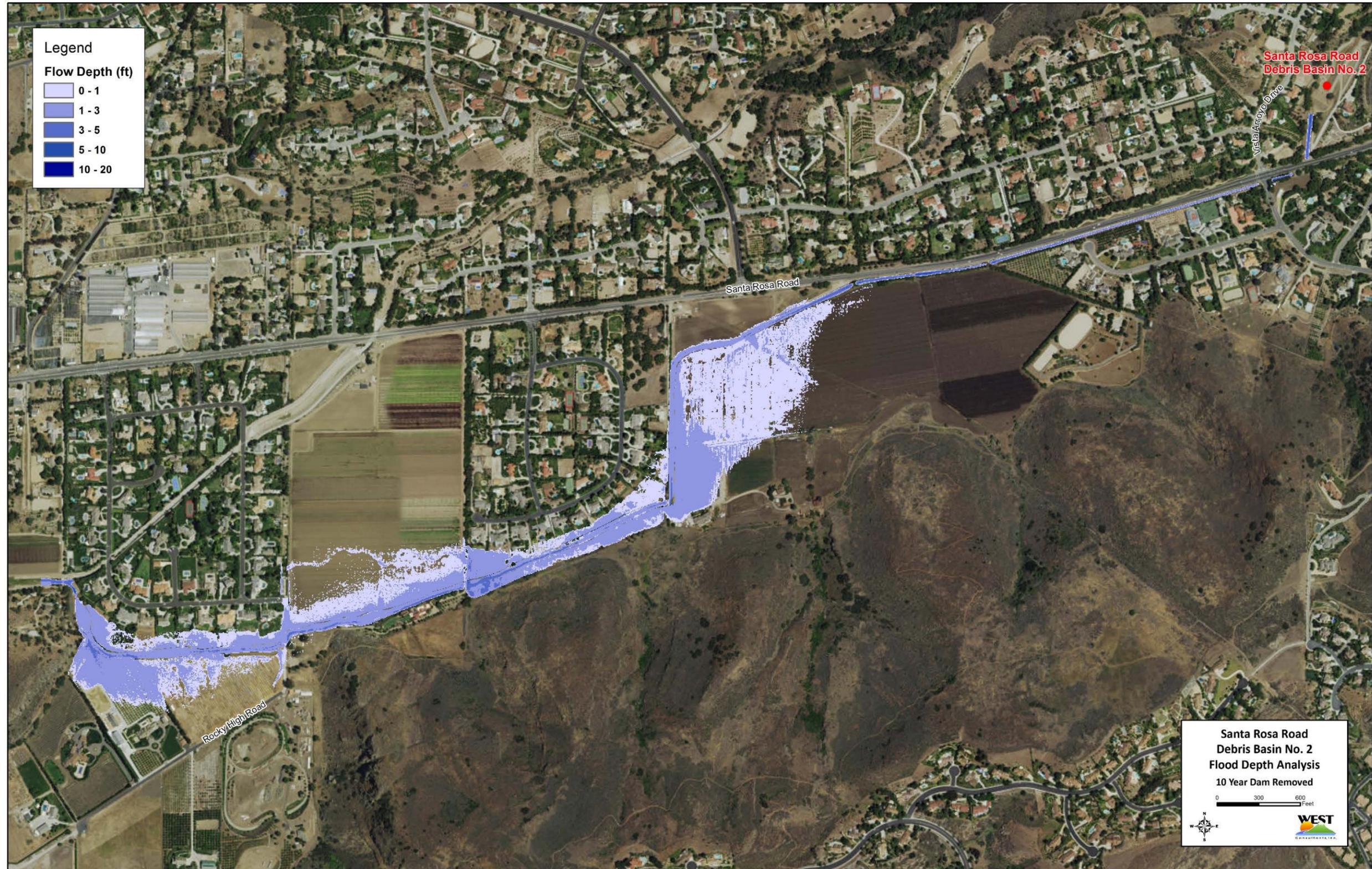


Figure D-4. 10-year Event Inundation Extent, Dam Removed.



Figure D-5. 10-year Event Inundation Extent, Dam Breach.

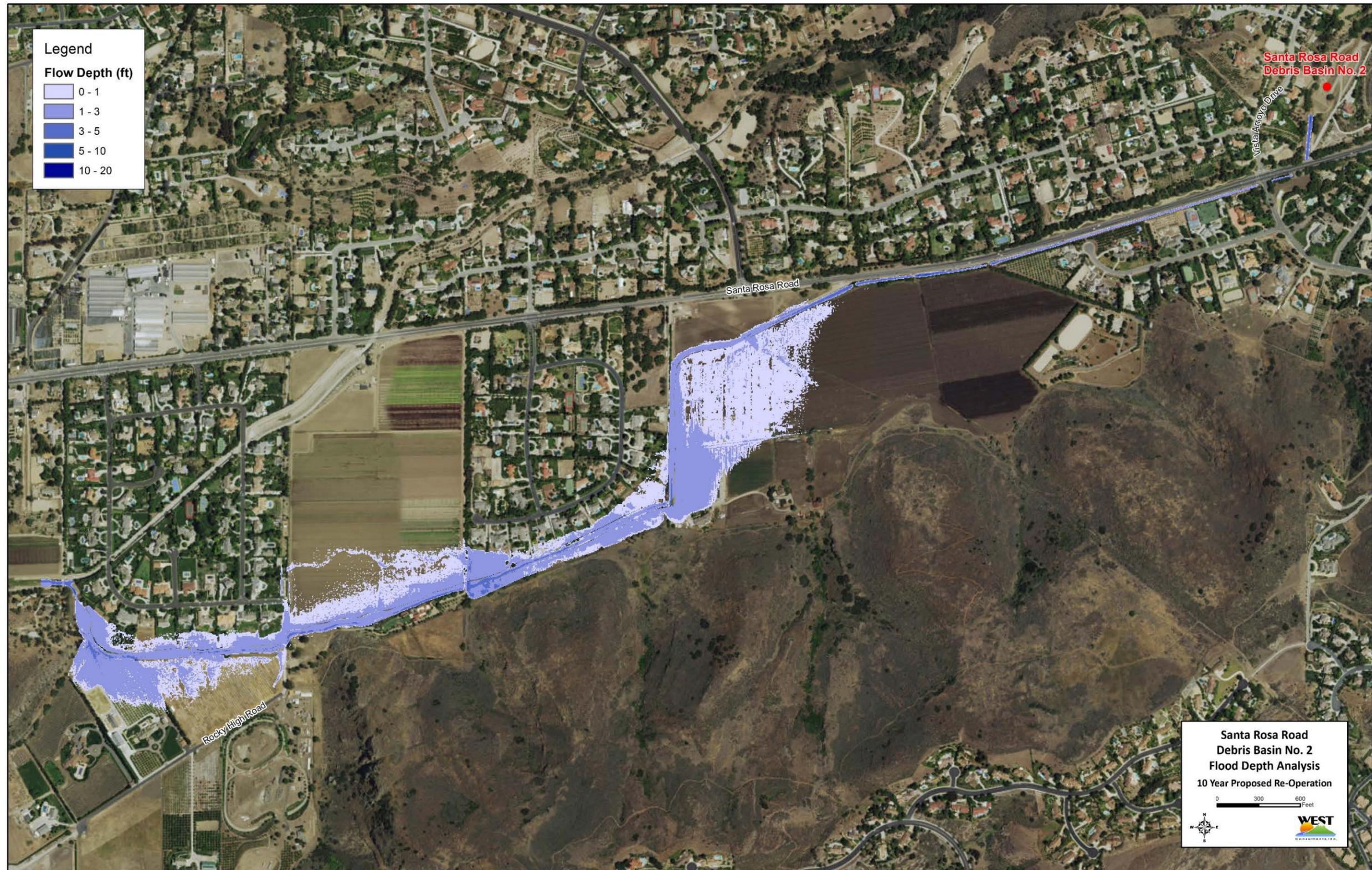


Figure D-6. 10-year Event Inundation Extent, Reoperation.

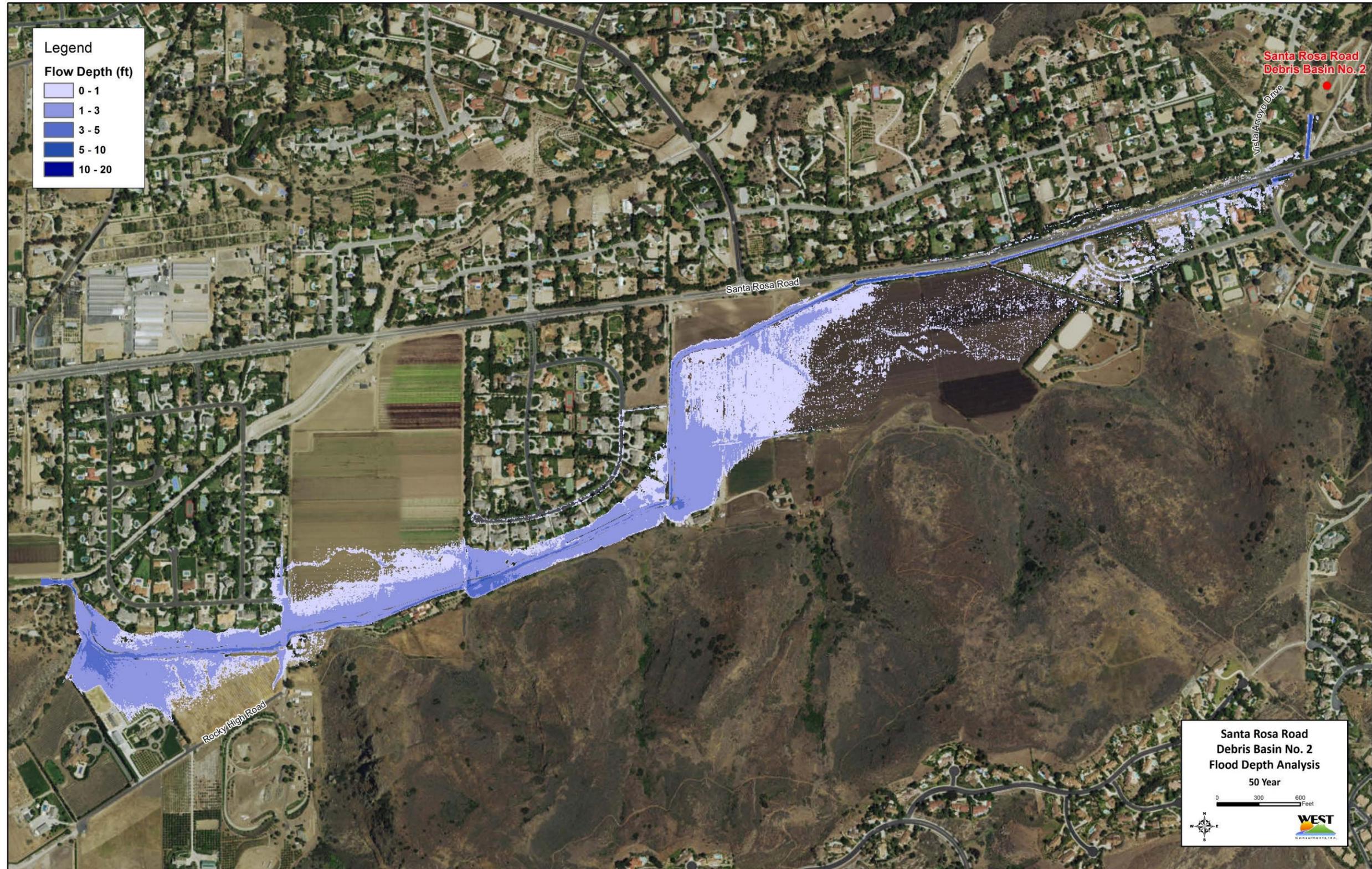


Figure D-7. 50-year Event Inundation Extent.

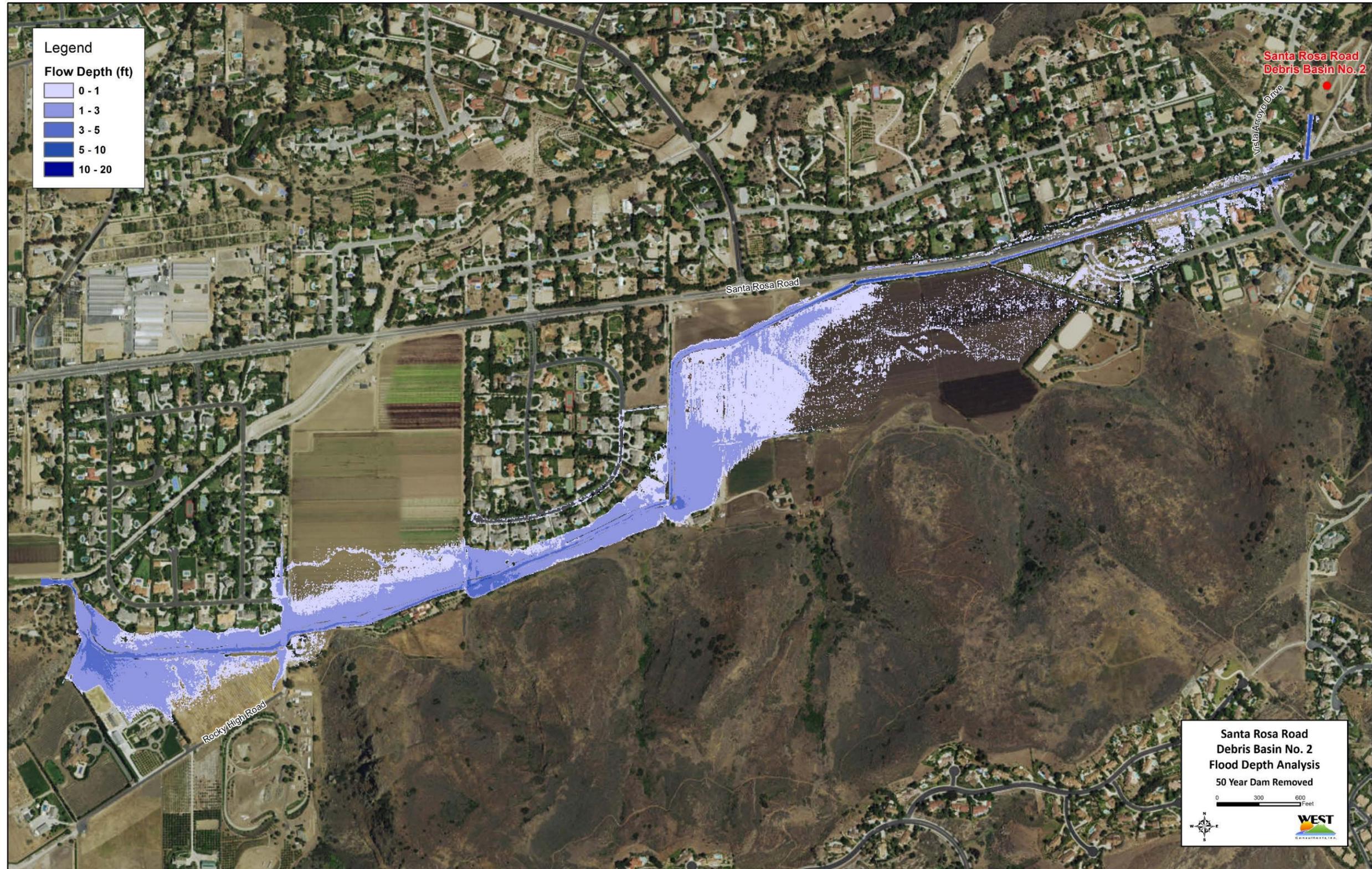


Figure D-8. 50-year Event Inundation Extent, Dam Removed.

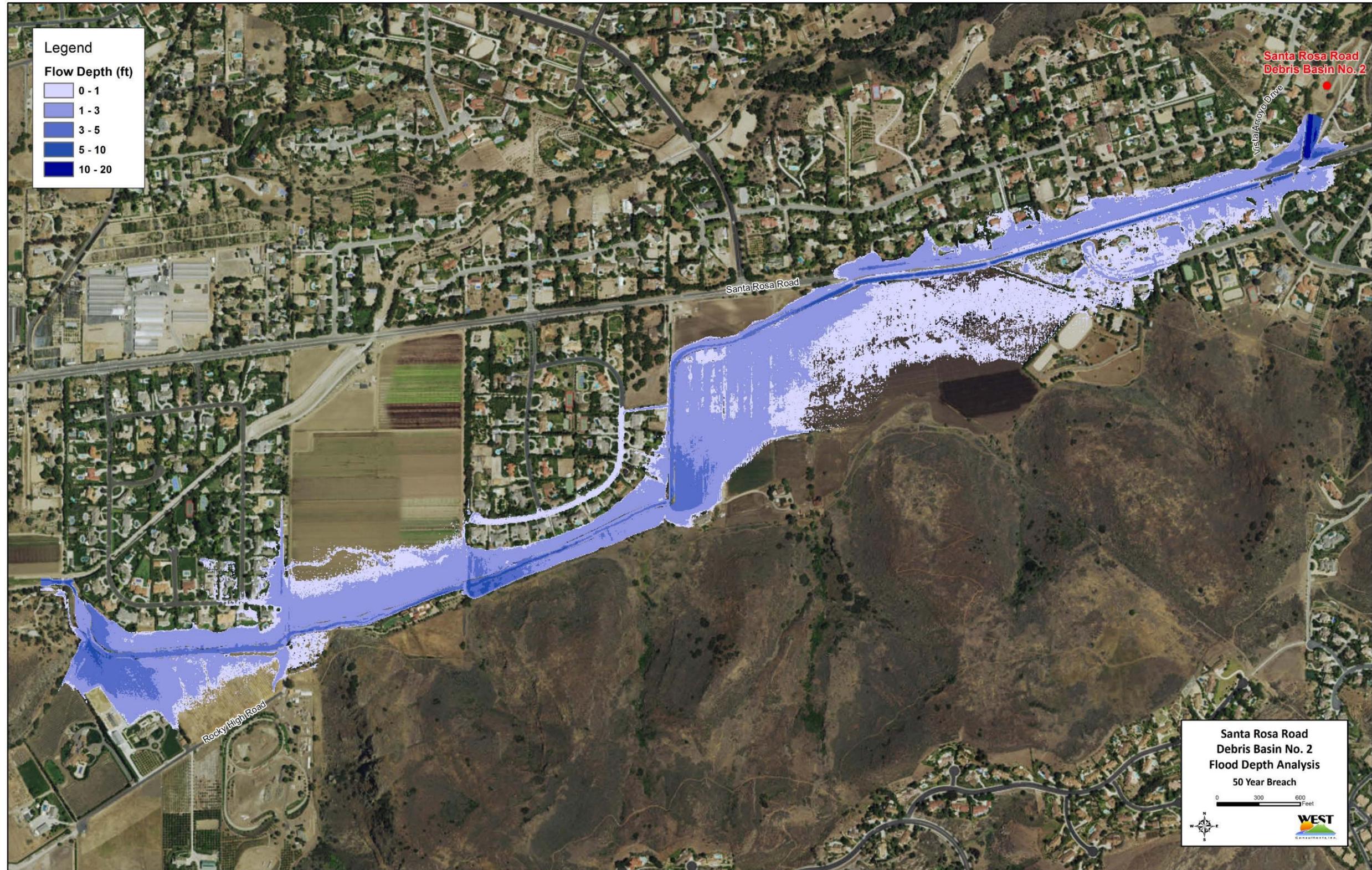


Figure D-9. 50-year Event Inundation Extent, Dam Breach.

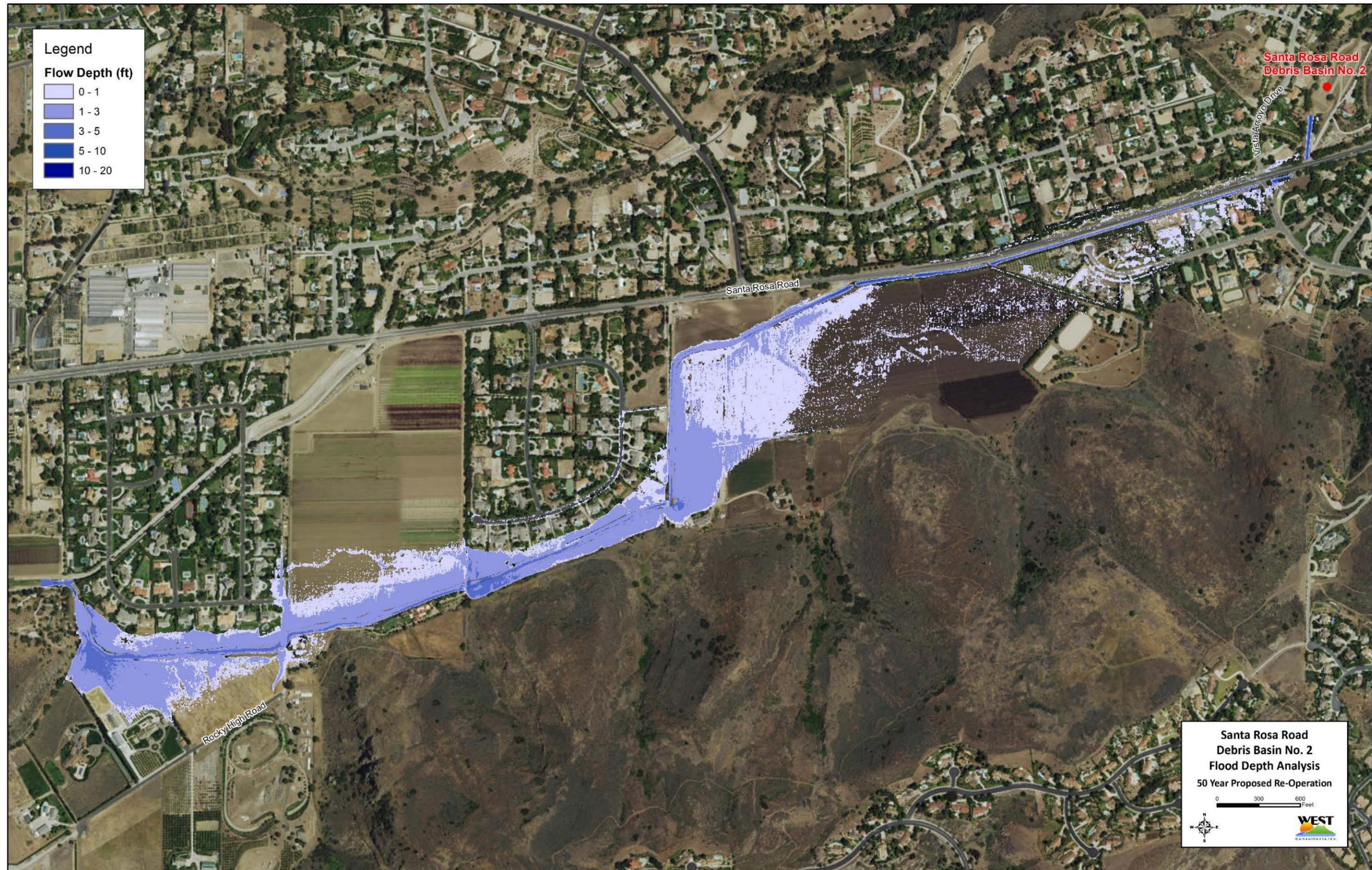


Figure D-10. 50-year Event Inundation Extent, Reoperation.

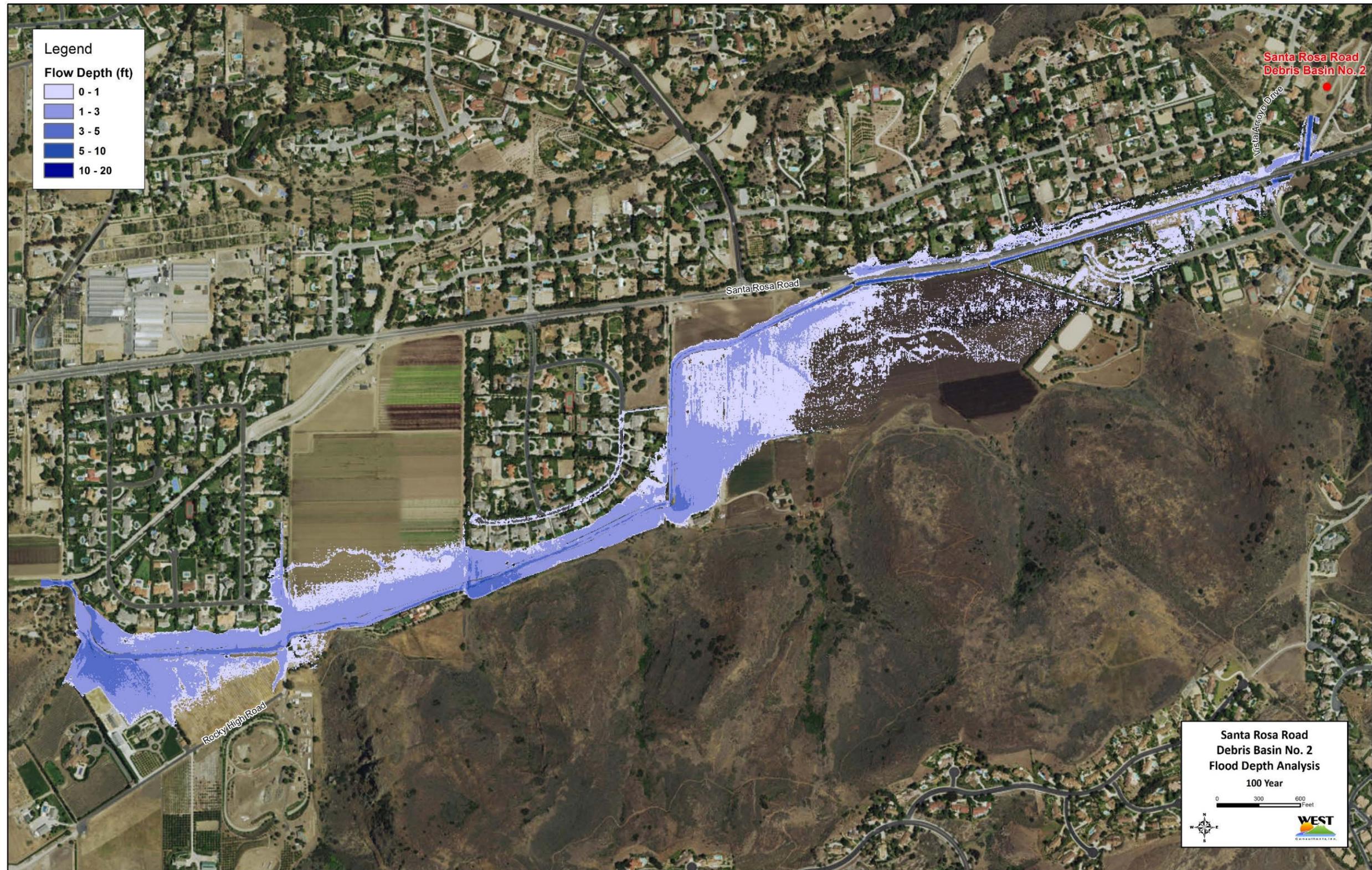


Figure D-11. 100-year Event Inundation Extent.

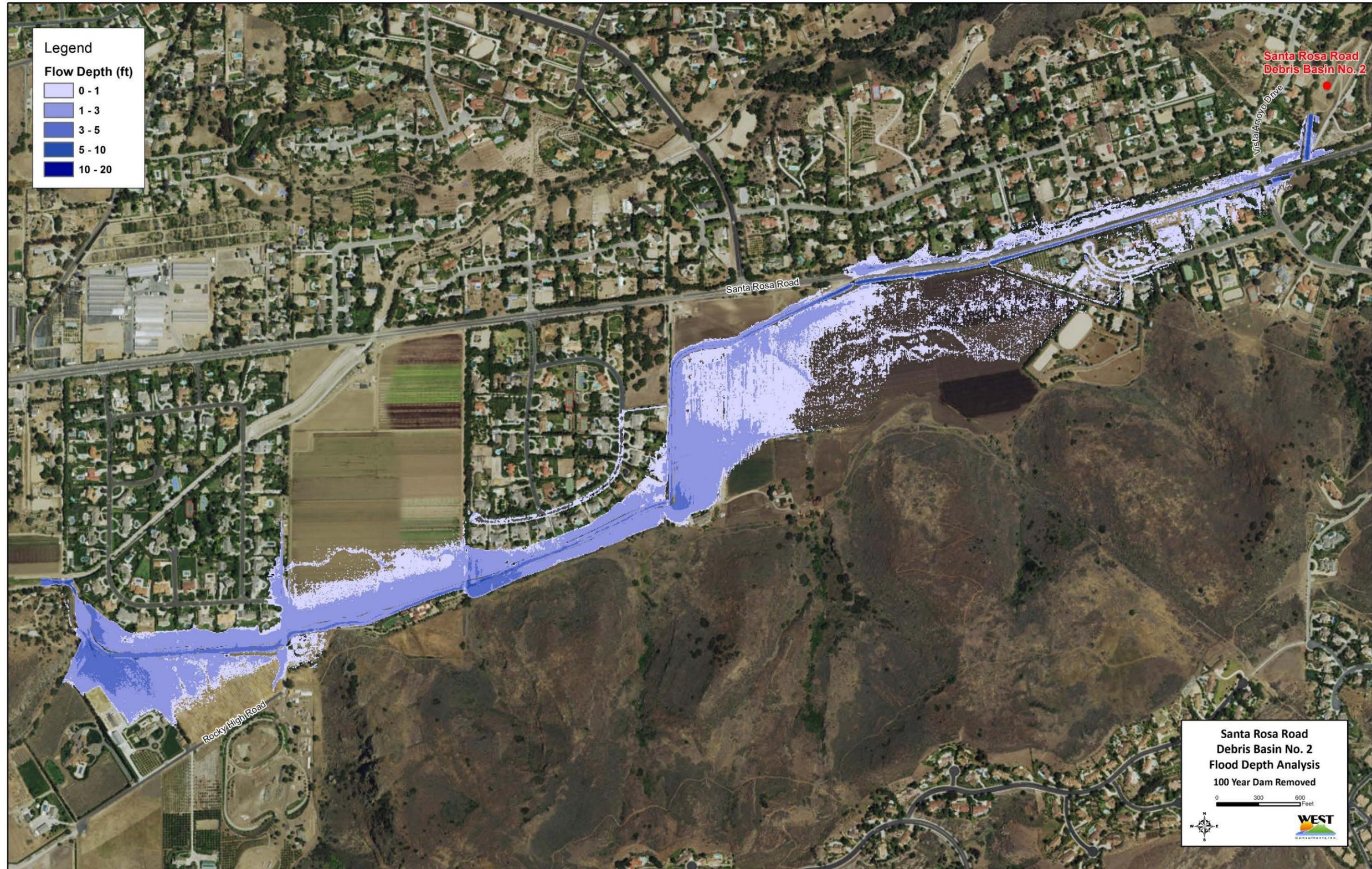


Figure D-12. 100-year Event Inundation Extent, Dam Removed.

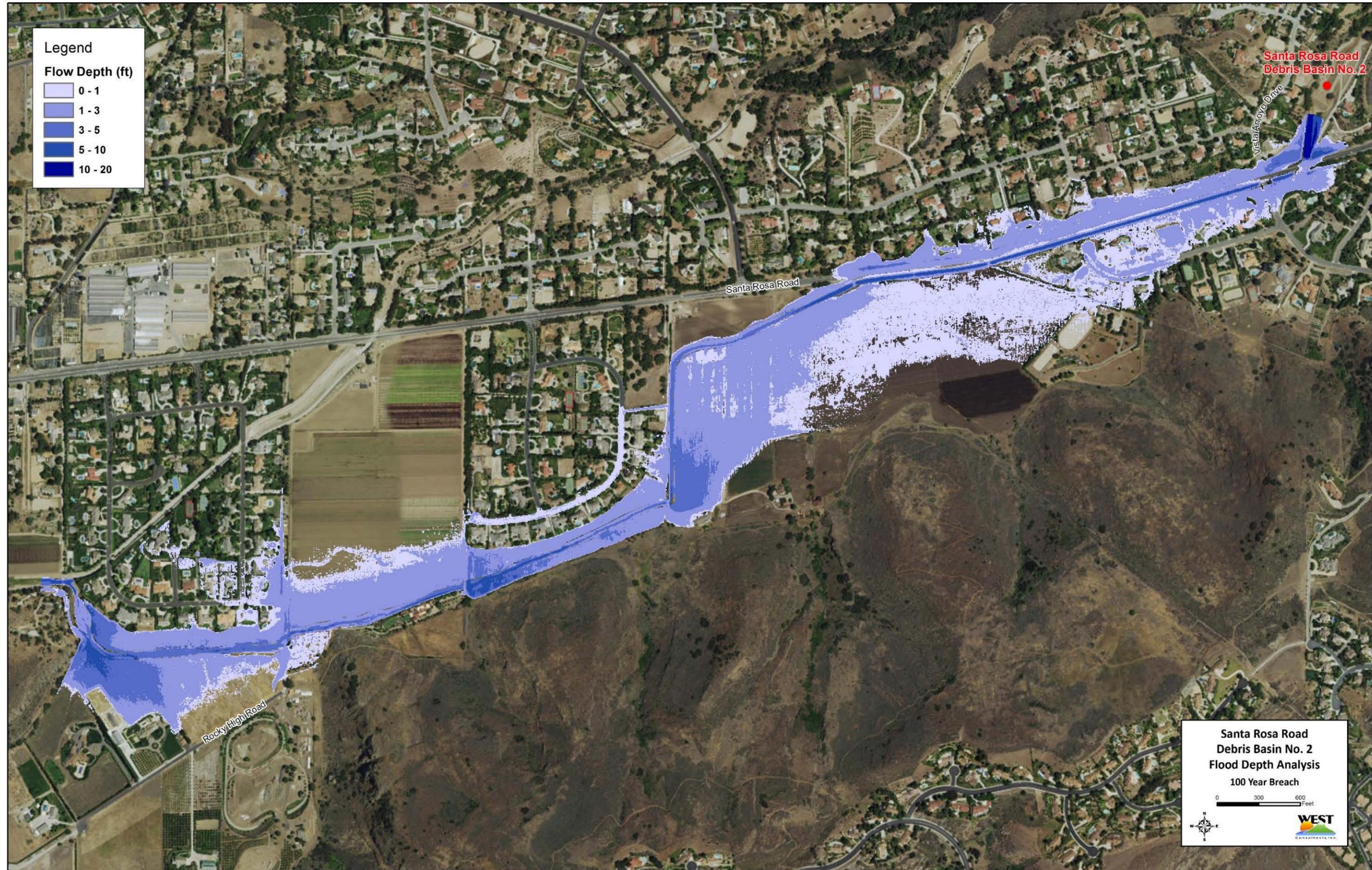


Figure D-13. 100-year Event Inundation Extent, Dam Breach.

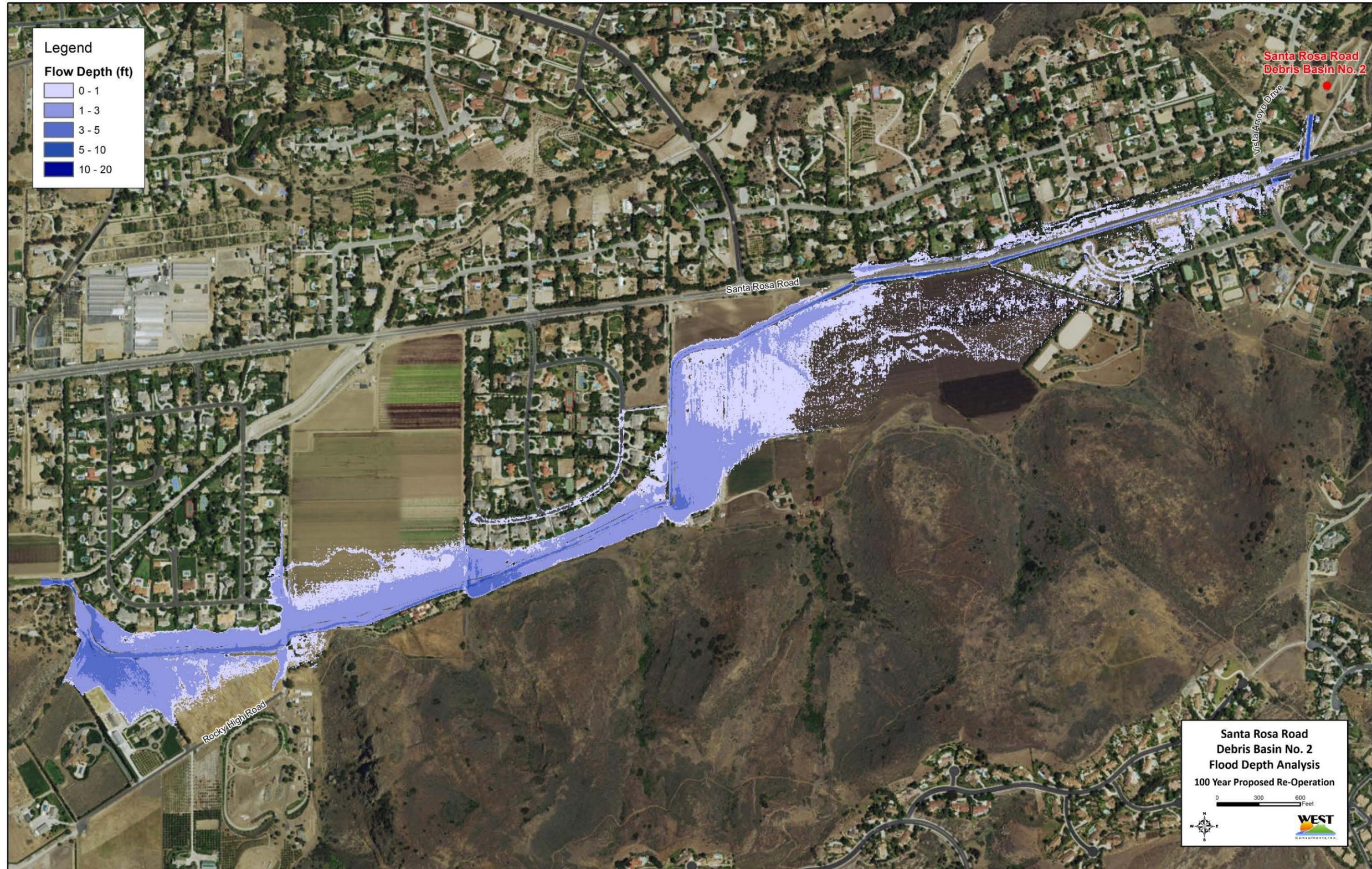


Figure D-14. 100-year Event Inundation Extent, Reoperation.

APPENDIX E

SEDIMENT TRANSPORT ANALYSIS RESULTS 2007 REPORT

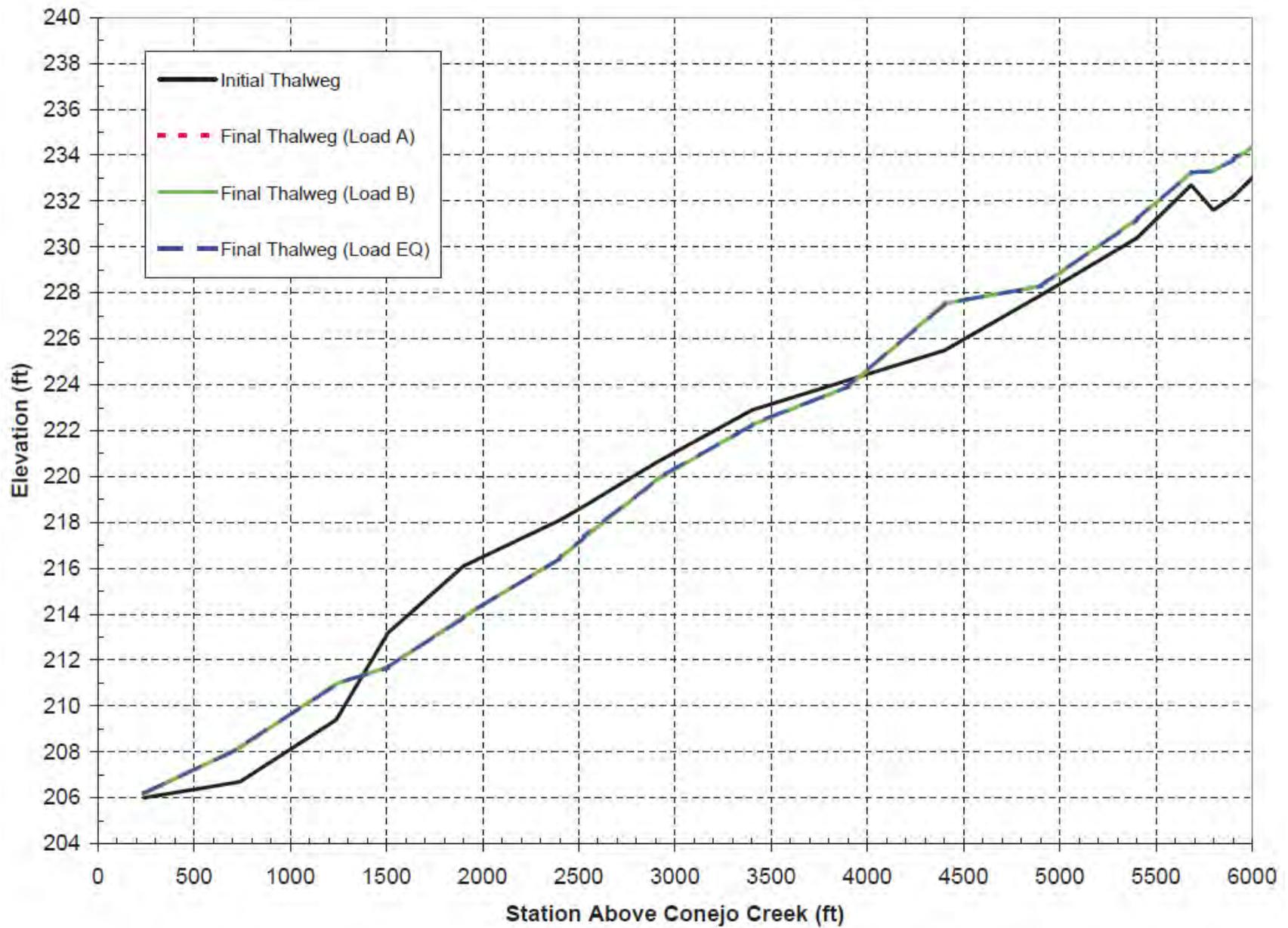


Figure E-1A. Santa Rosa Basin Existing Conditions Invert Profile – Initial and Final Conditions.

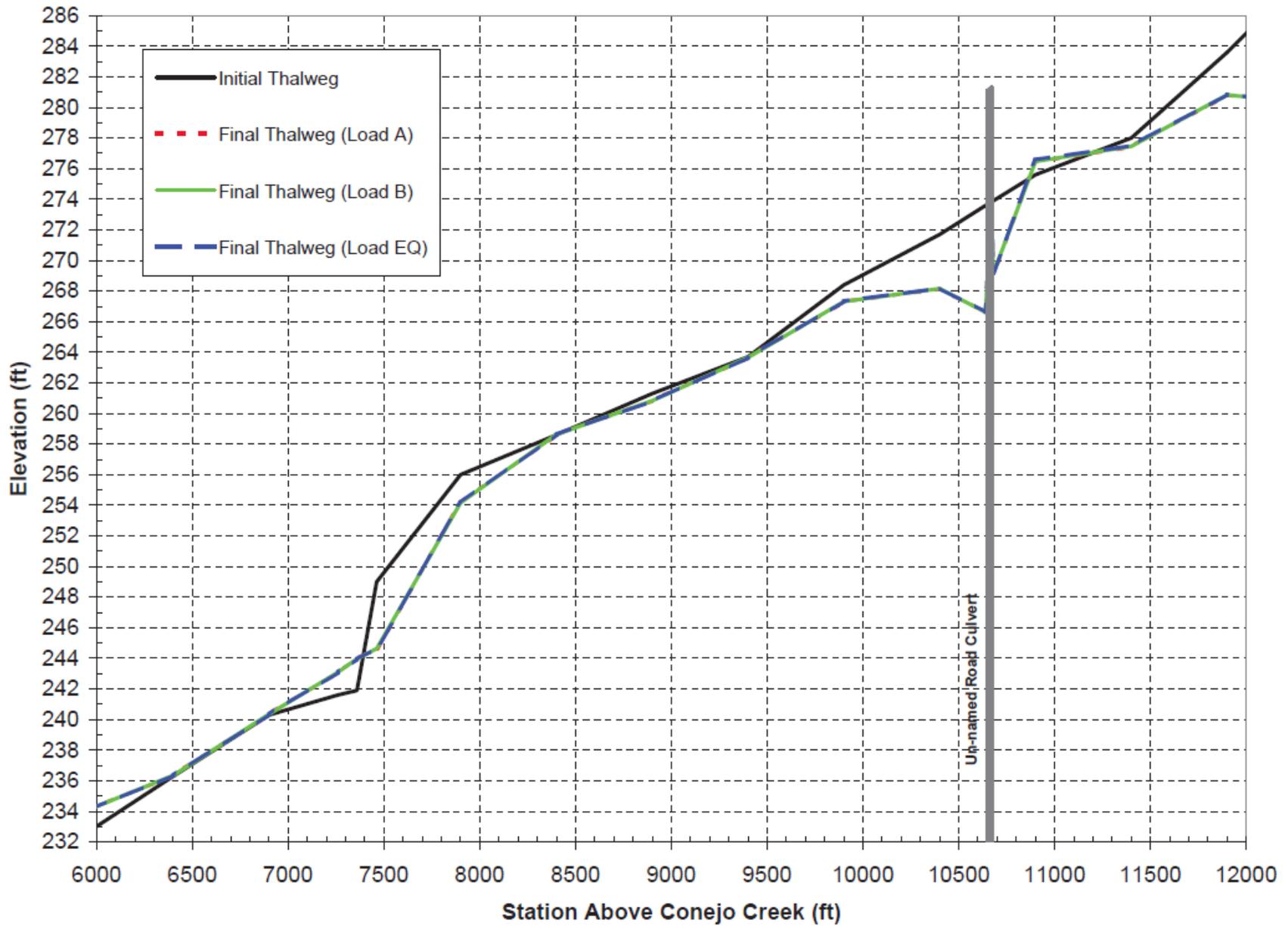


Figure E-1B. Santa Rosa Basin Existing Conditions Invert Profile – Initial and Final Conditions.

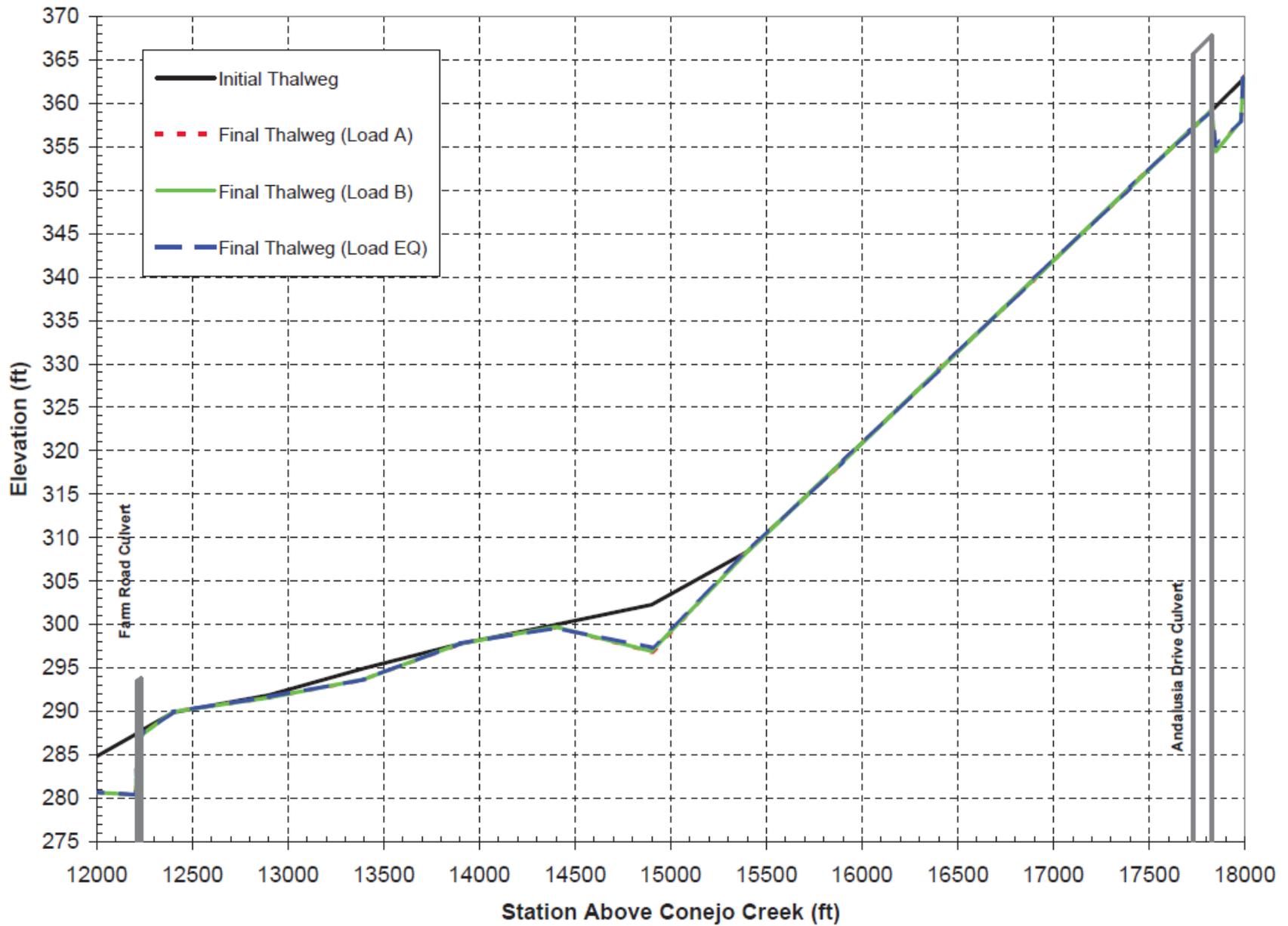


Figure E-1C. Santa Rosa Basin Existing Conditions Invert Profile – Initial and Final Conditions.

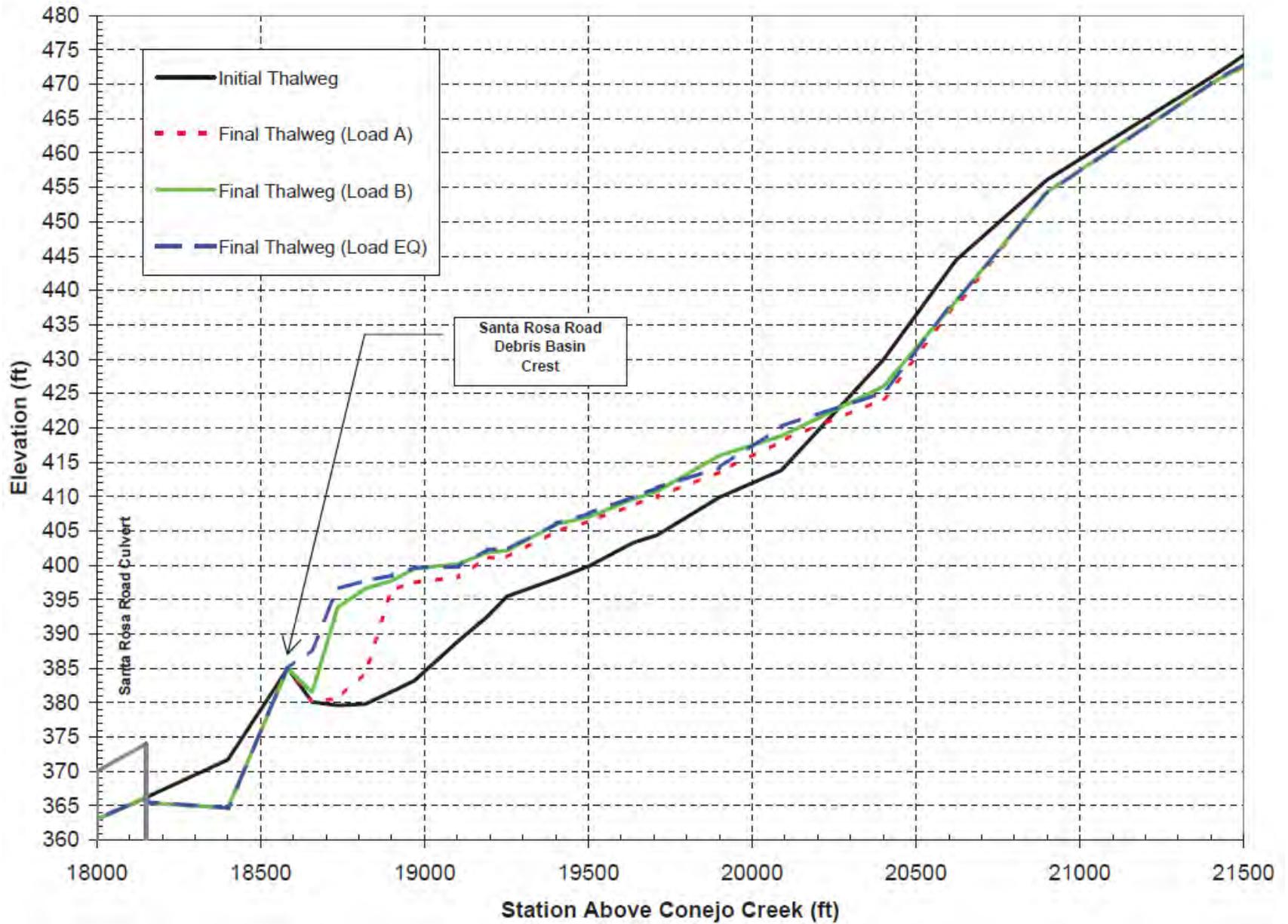


Figure E-1D. Santa Rosa Basin Existing Conditions Invert Profile – Initial and Final Conditions.

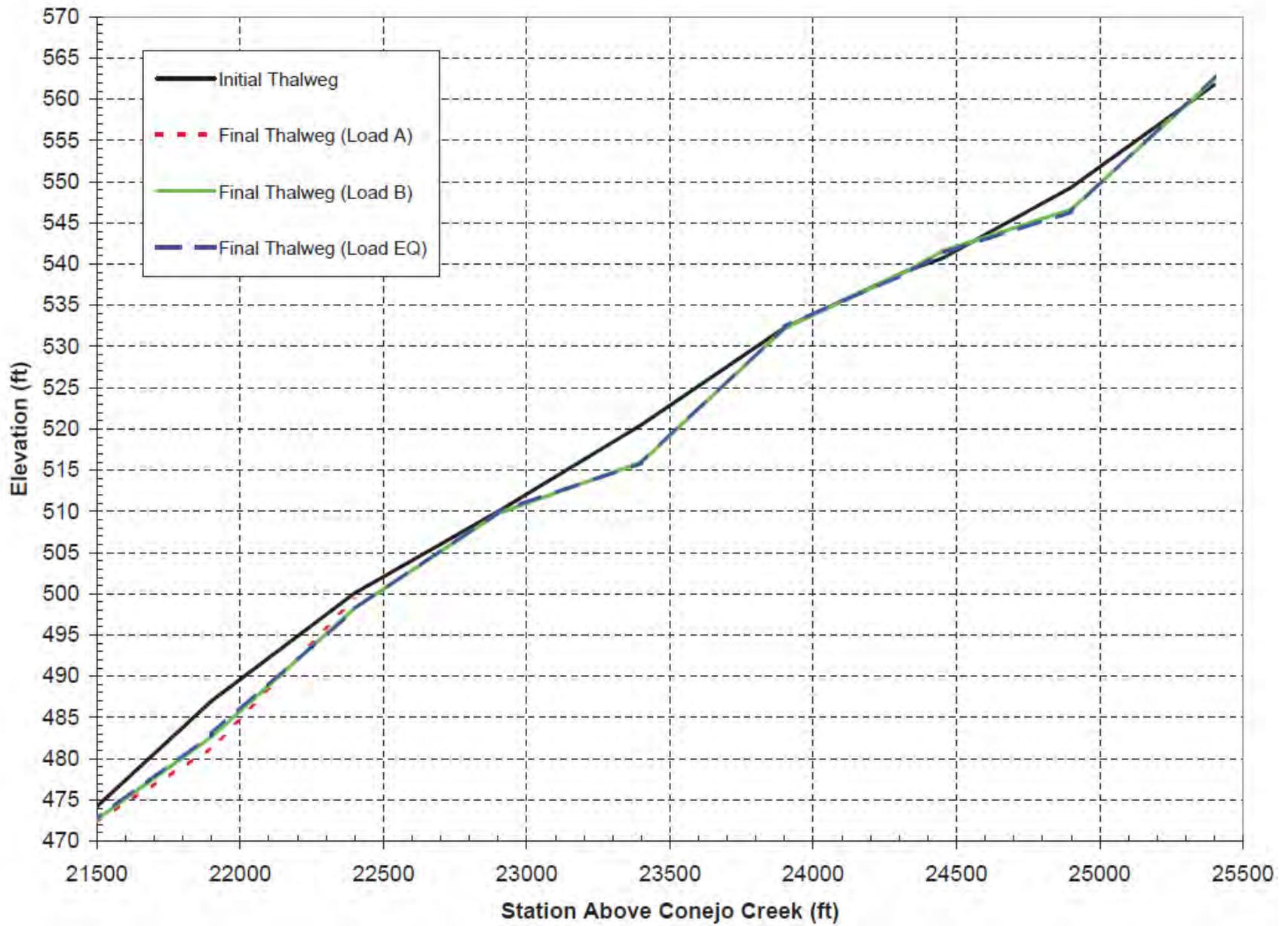


Figure E-1E. Santa Rosa Basin Existing Conditions Invert Profile – Initial and Final Conditions.

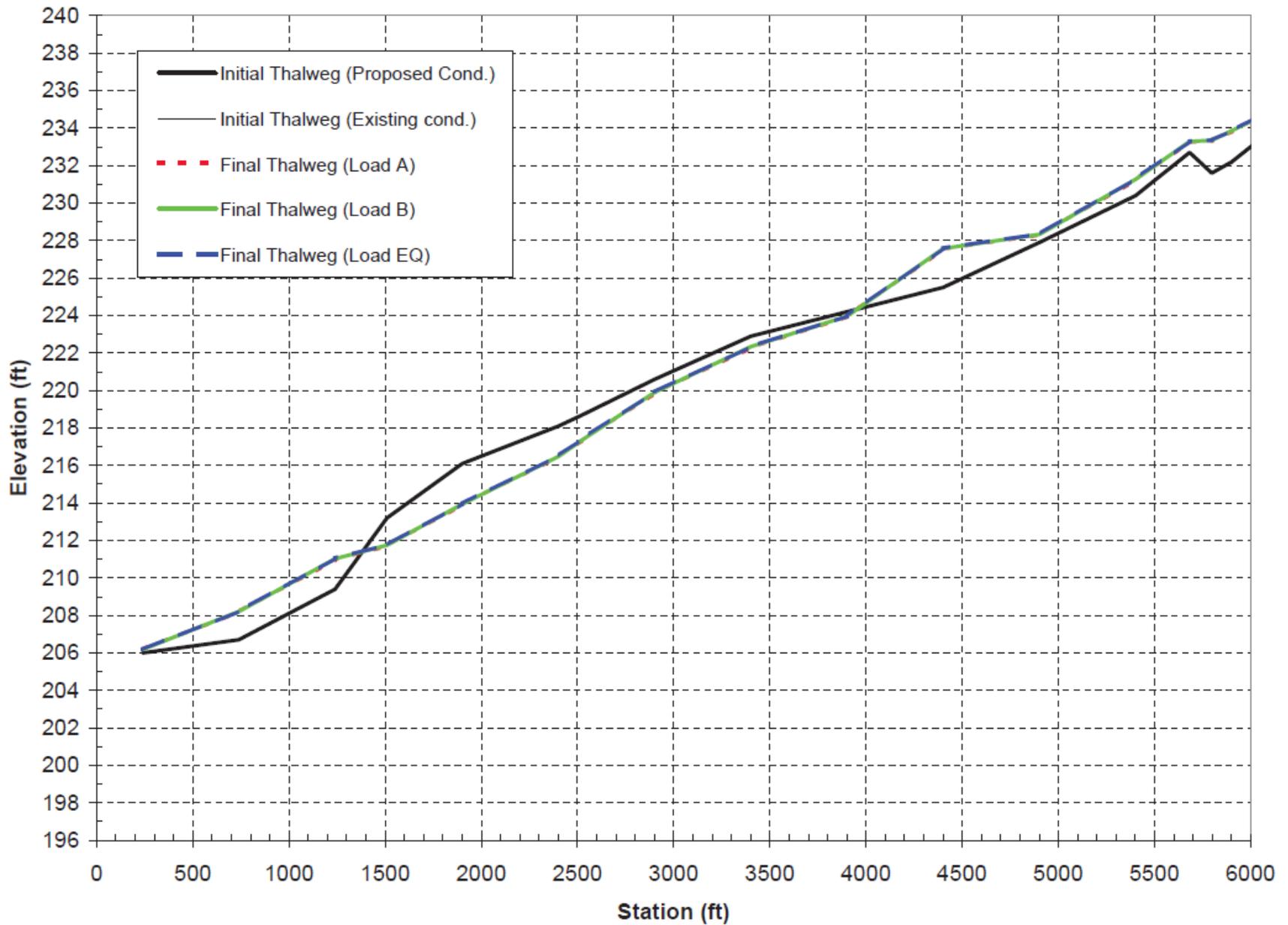


Figure E-2A. Santa Rosa Basin Proposed Conditions (Removal) Invert Profile – Initial and Final Conditions.

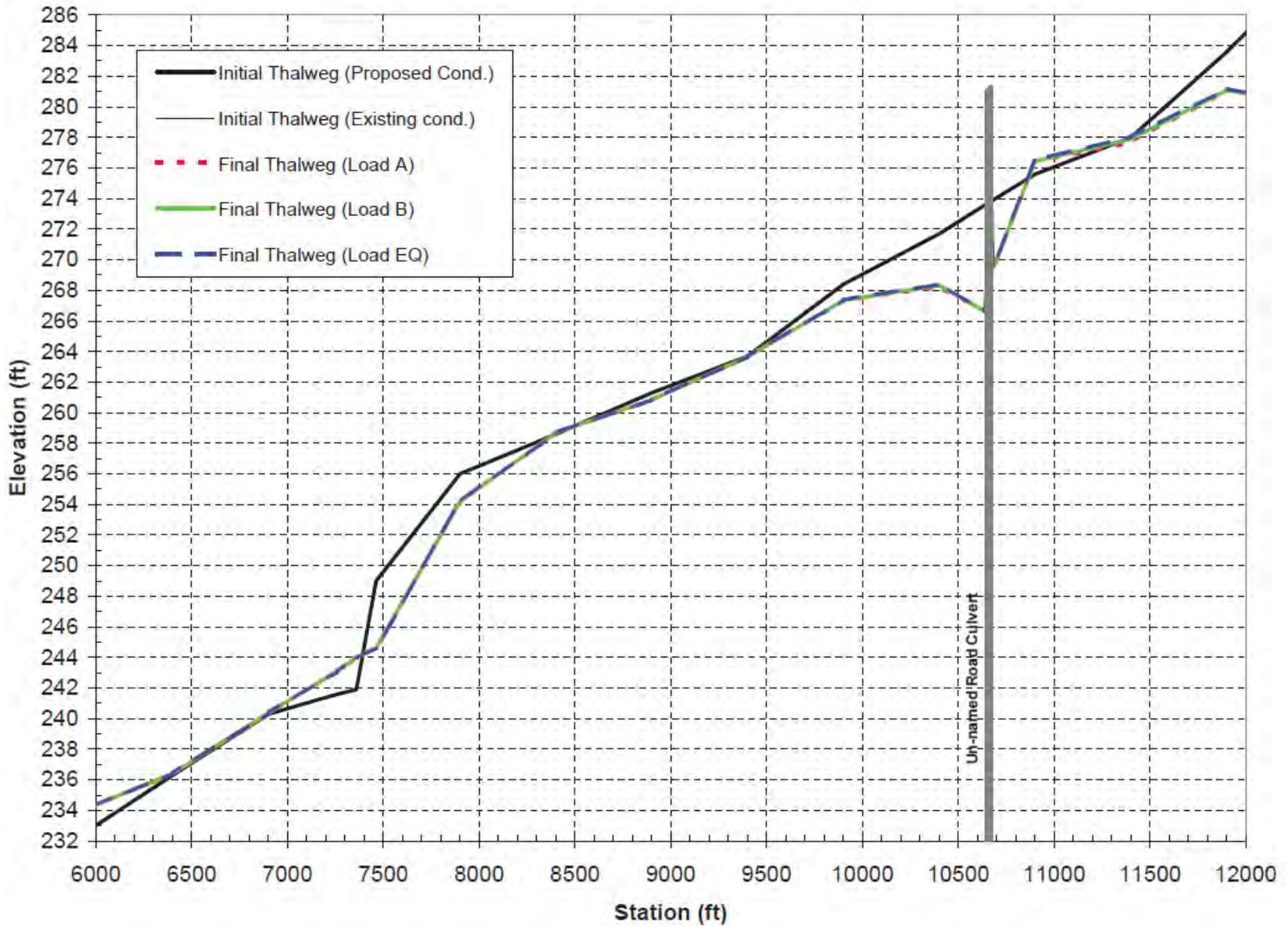


Figure E-2B. Santa Rosa Basin Proposed Conditions (Removal) Invert Profile – Initial and Final Conditions.

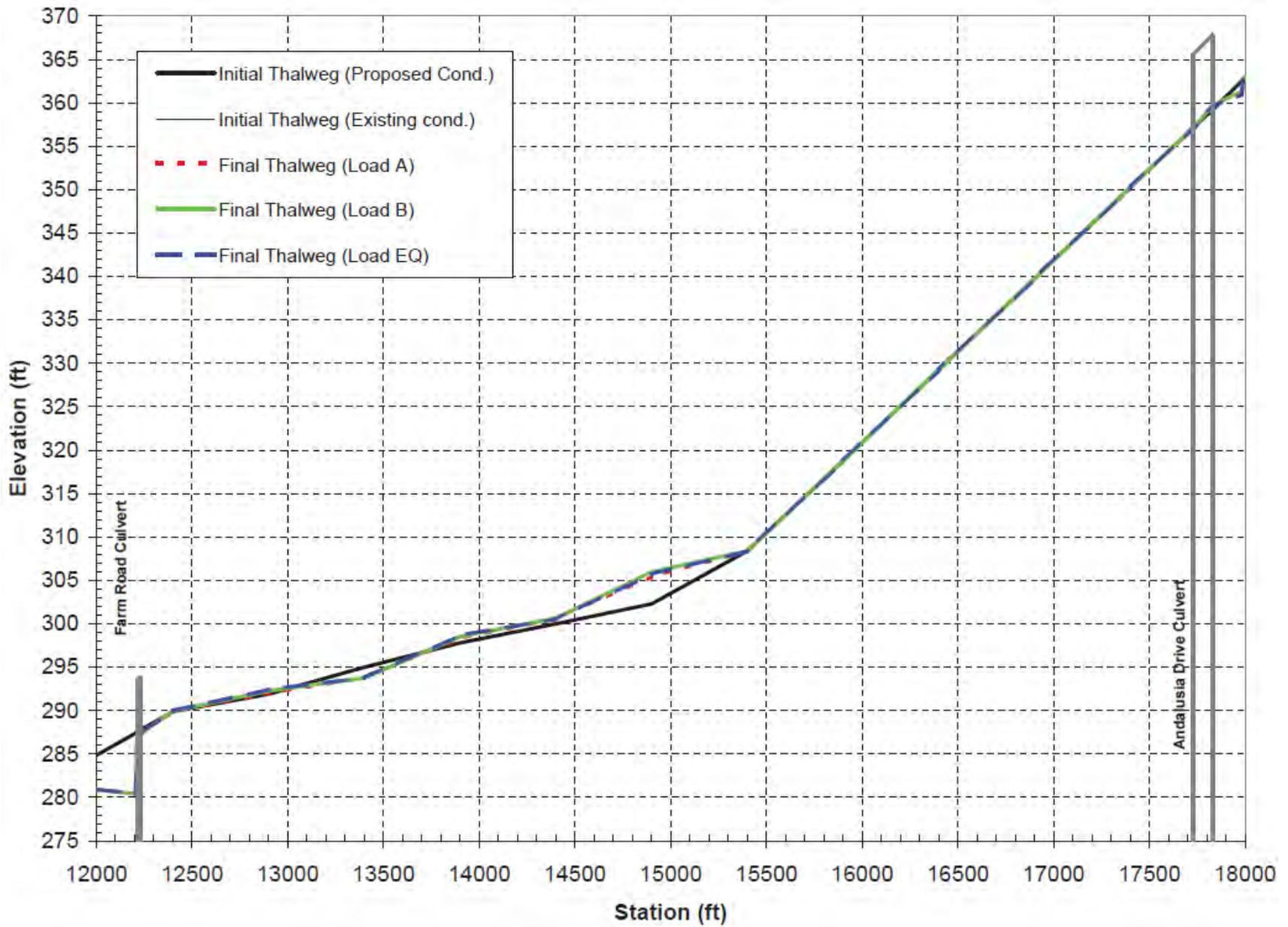


Figure E-2C. Santa Rosa Basin Proposed Conditions (Removal) Invert Profile – Initial and Final Conditions.

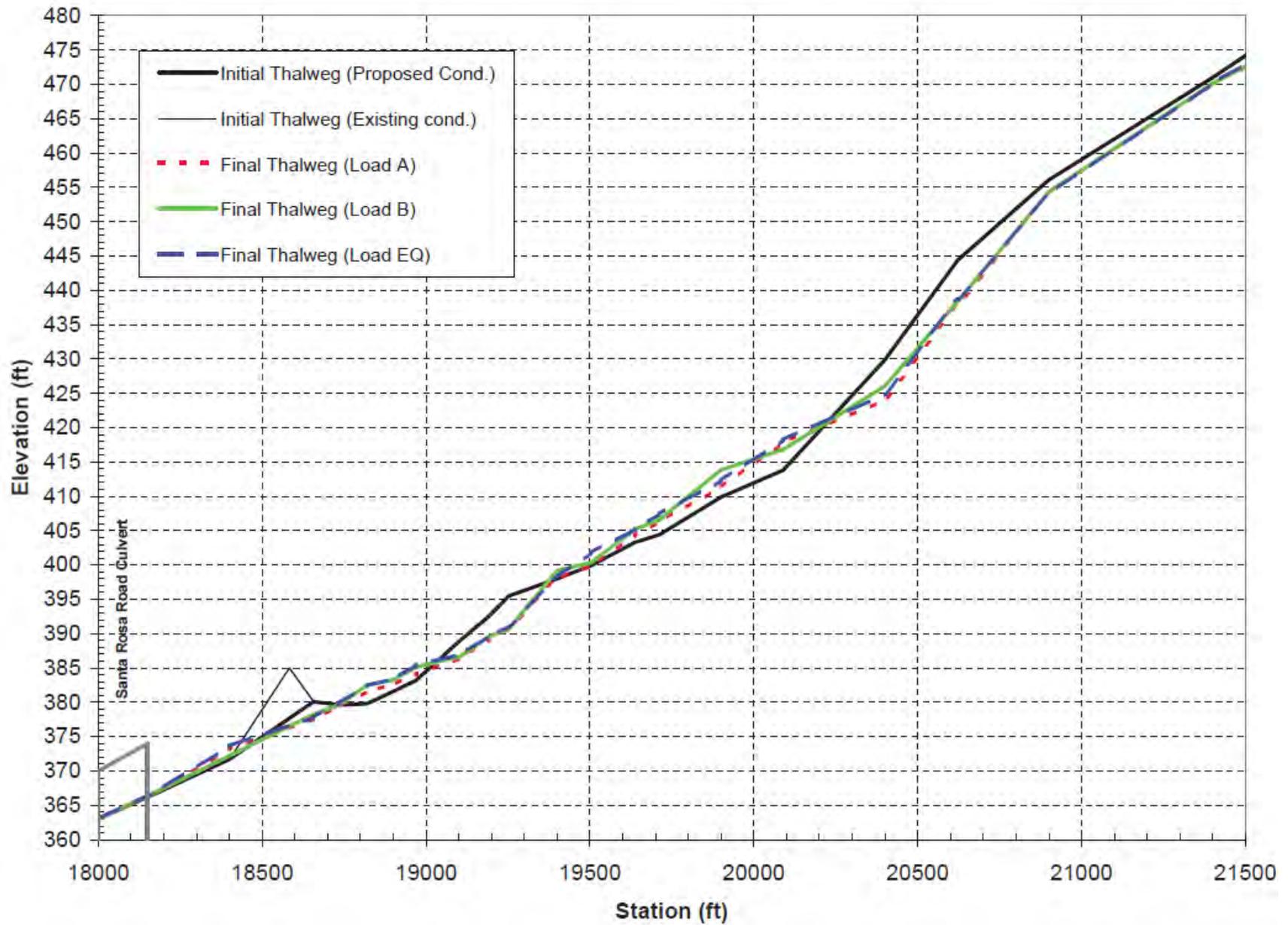


Figure E-2D. Santa Rosa Basin Proposed Conditions (Removal) Invert Profile – Initial and Final Conditions.

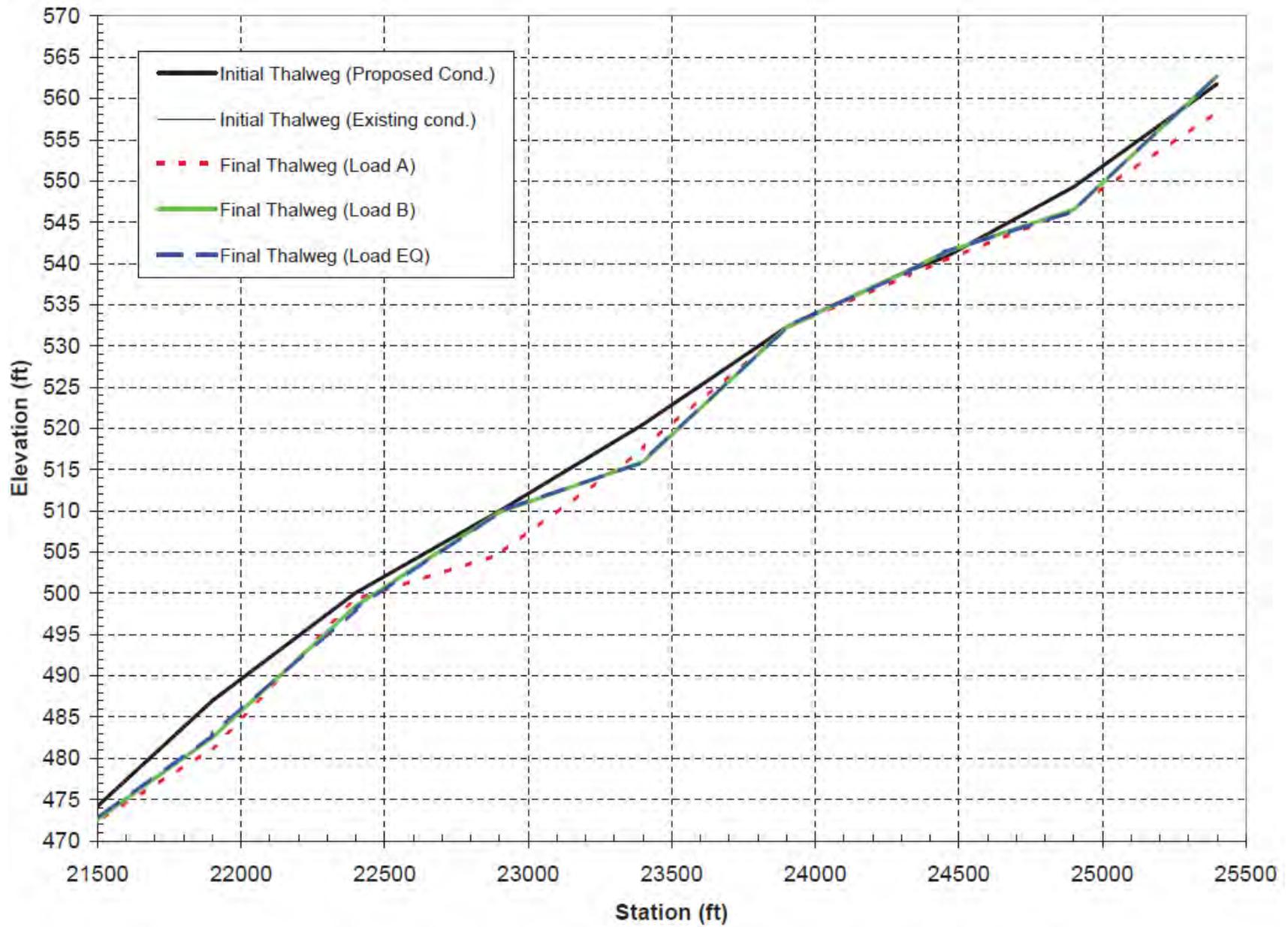


Figure E-2F. Santa Rosa Basin Proposed Conditions (Removal) Invert Profile – Initial and Final Conditions.

APPENDIX F

HEC-HMS OUTPUT HYDROGRAPHS /

HEC-RAS INPUT HYDROGRAPHS

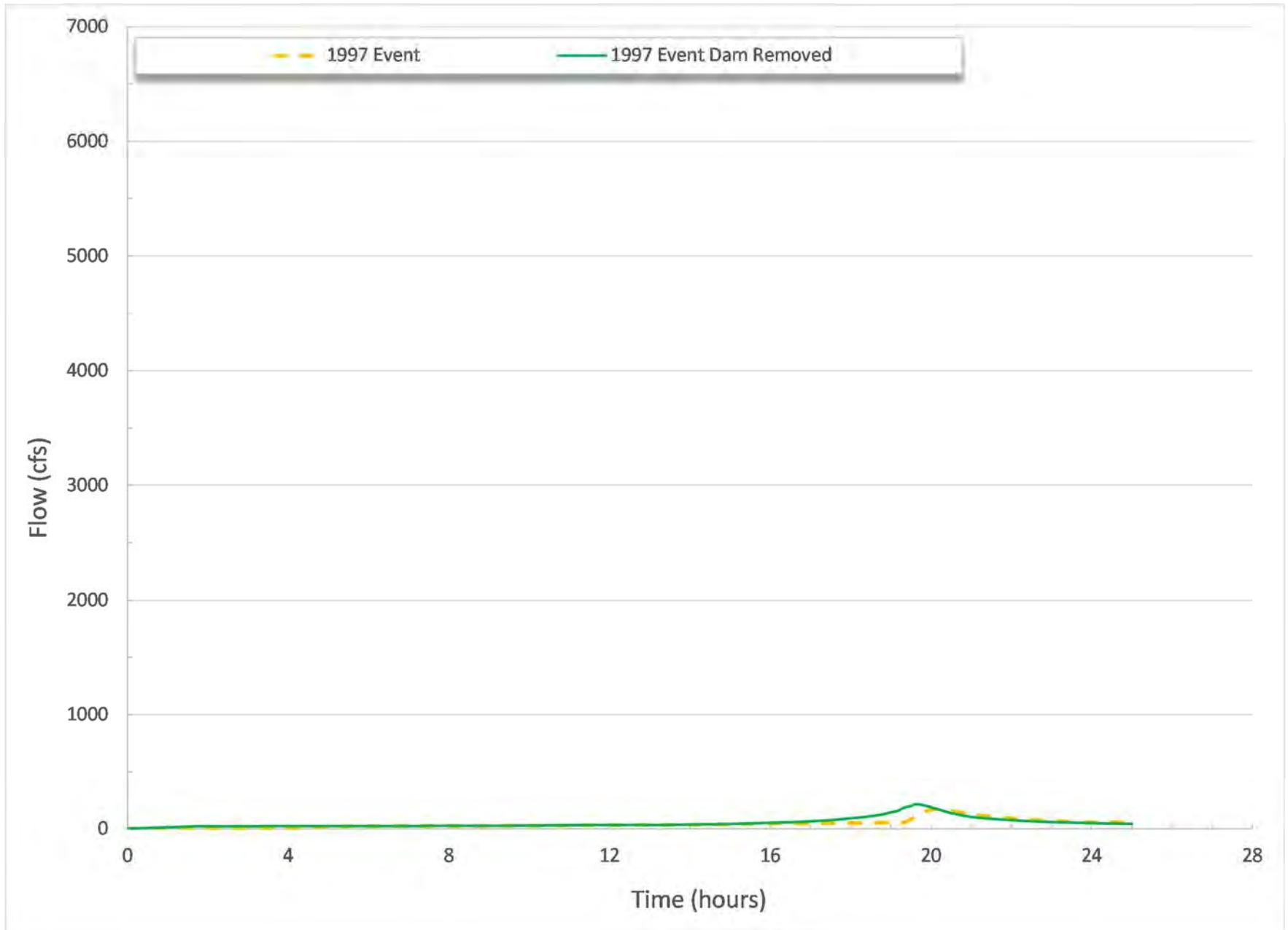


Figure F-1. 1997 Event HEC-HMS Output Hydrographs

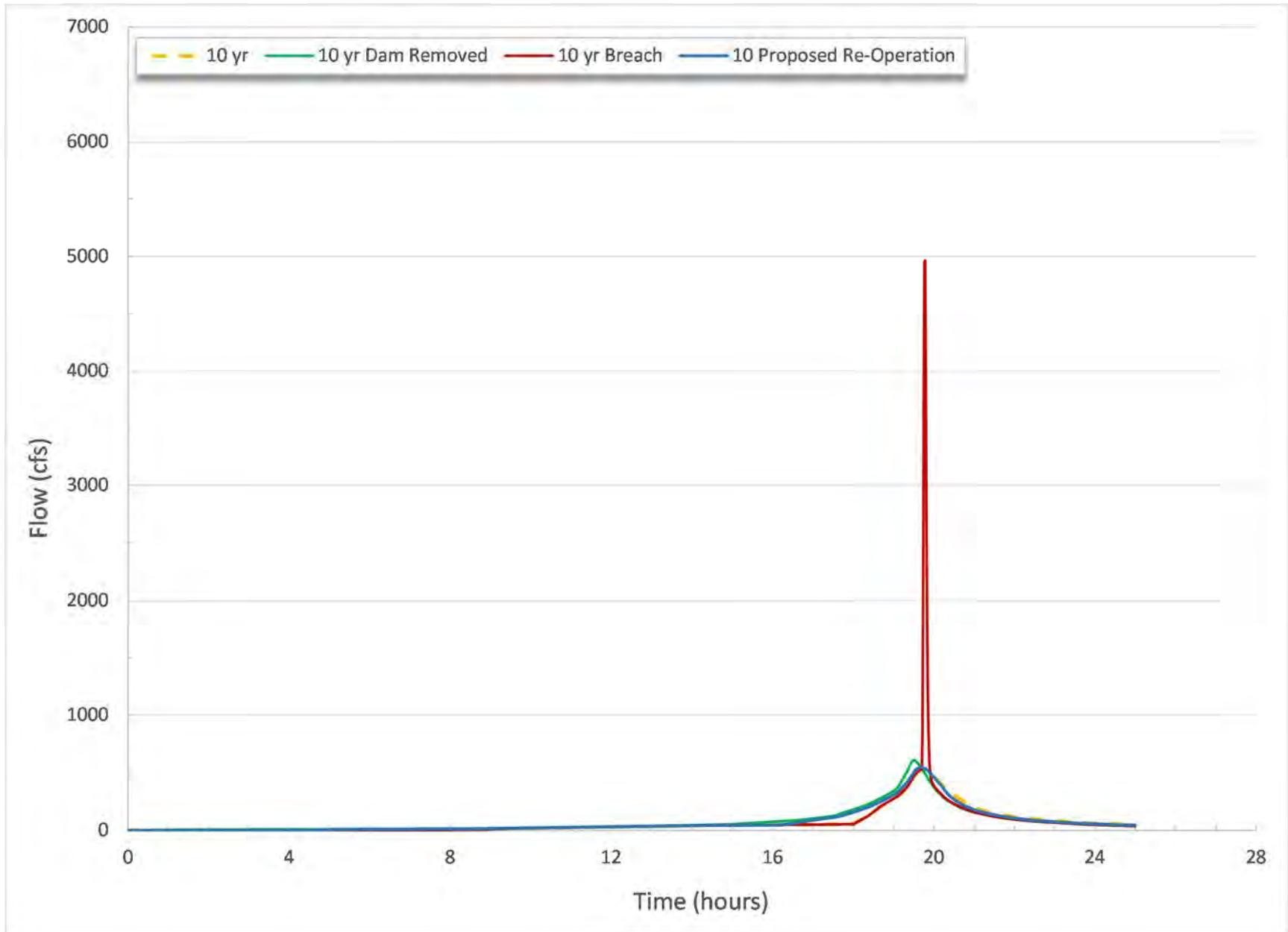


Figure F-2. 10 Year HEC-HMS Output Hydrograph.

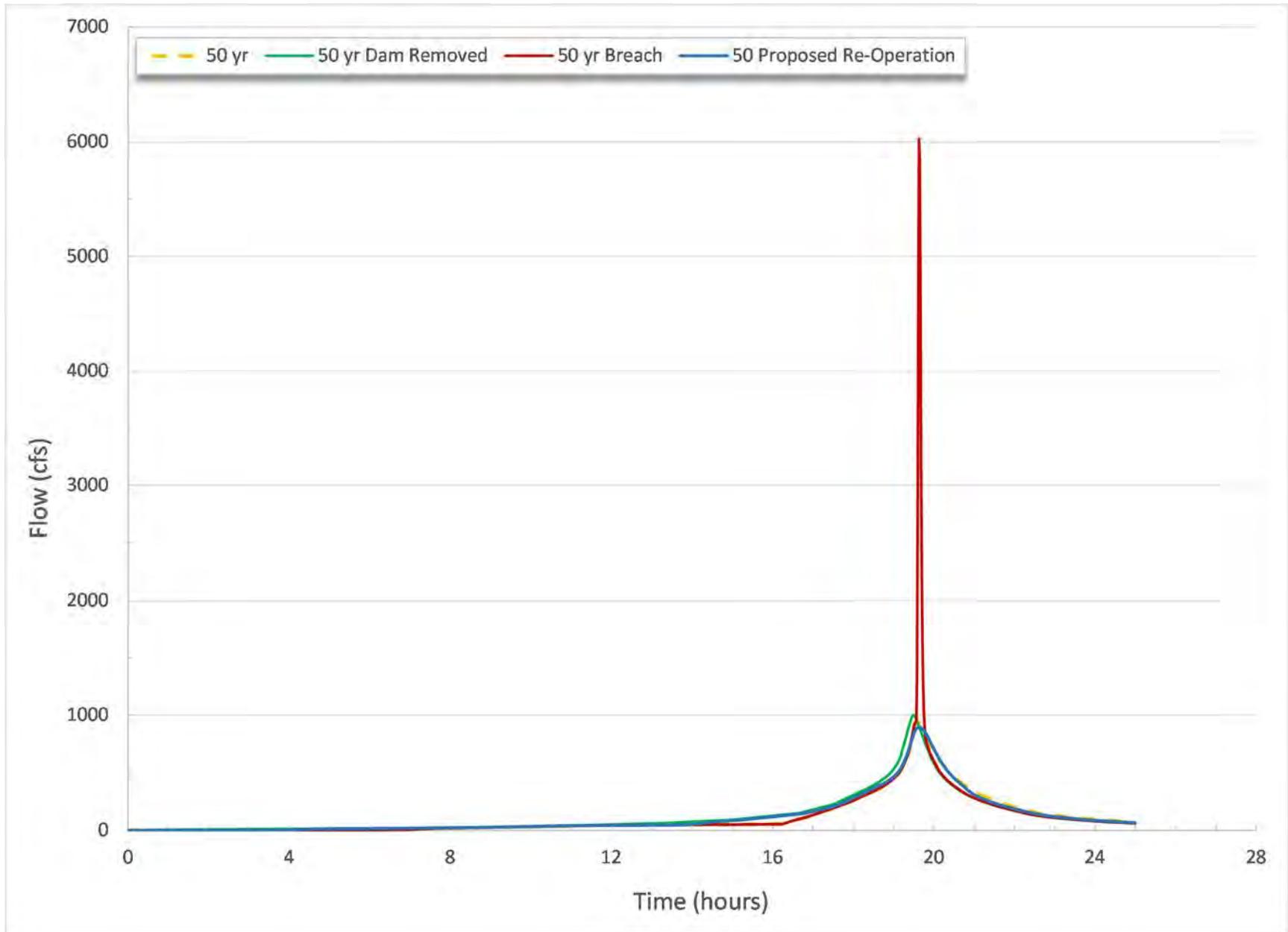


Figure F-3. 50 Year HEC-HMS Output Hydrograph.

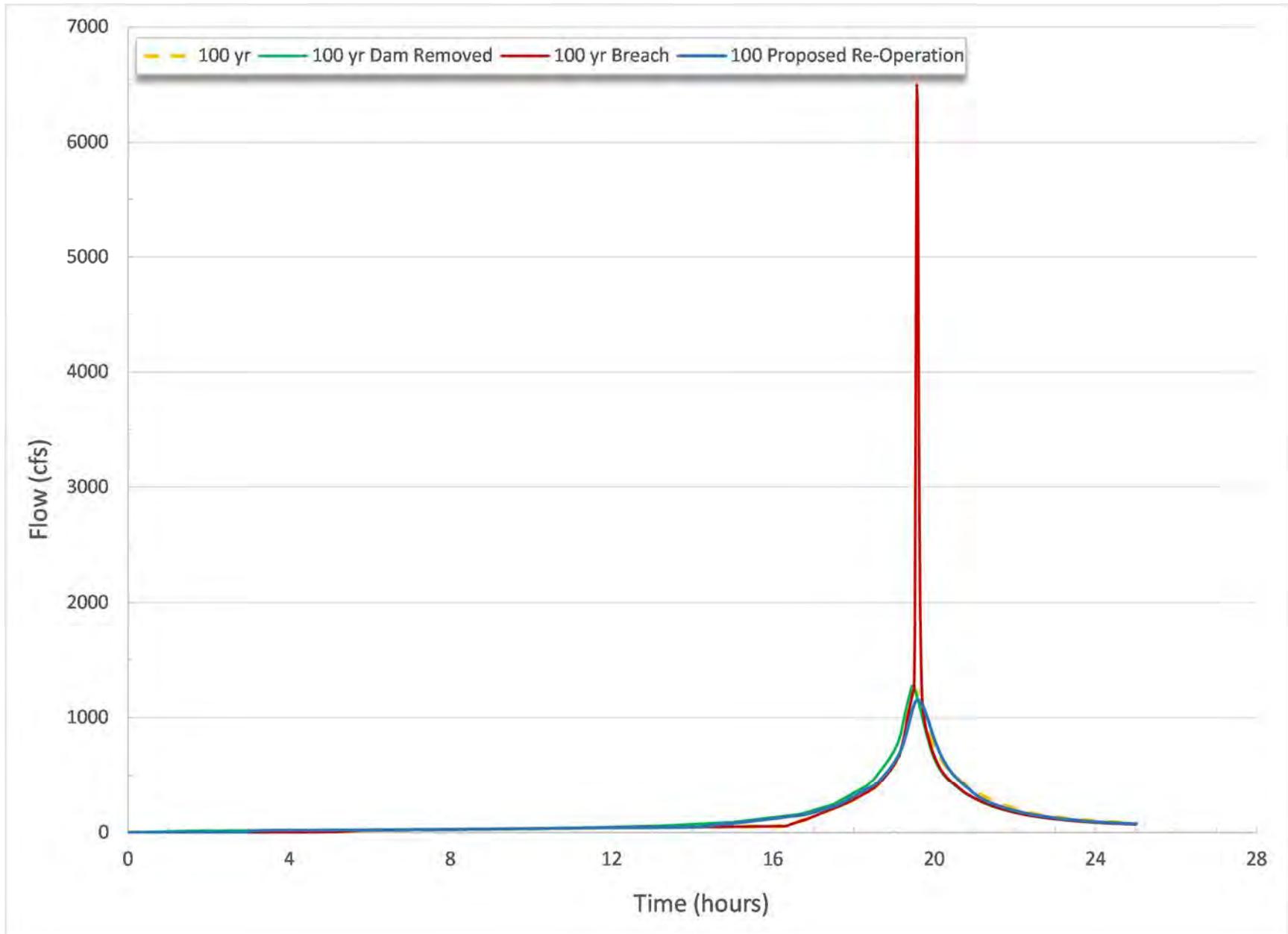
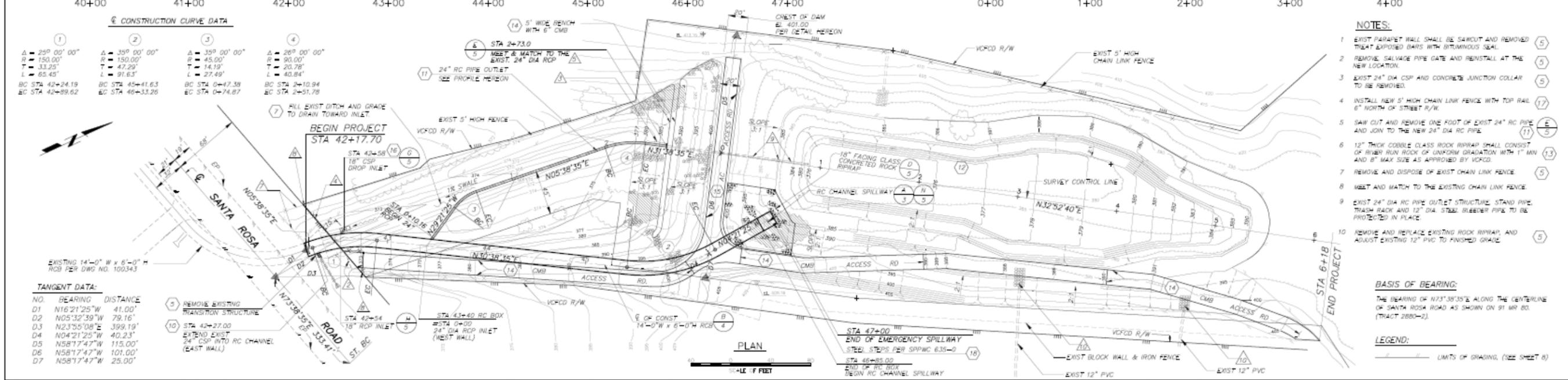
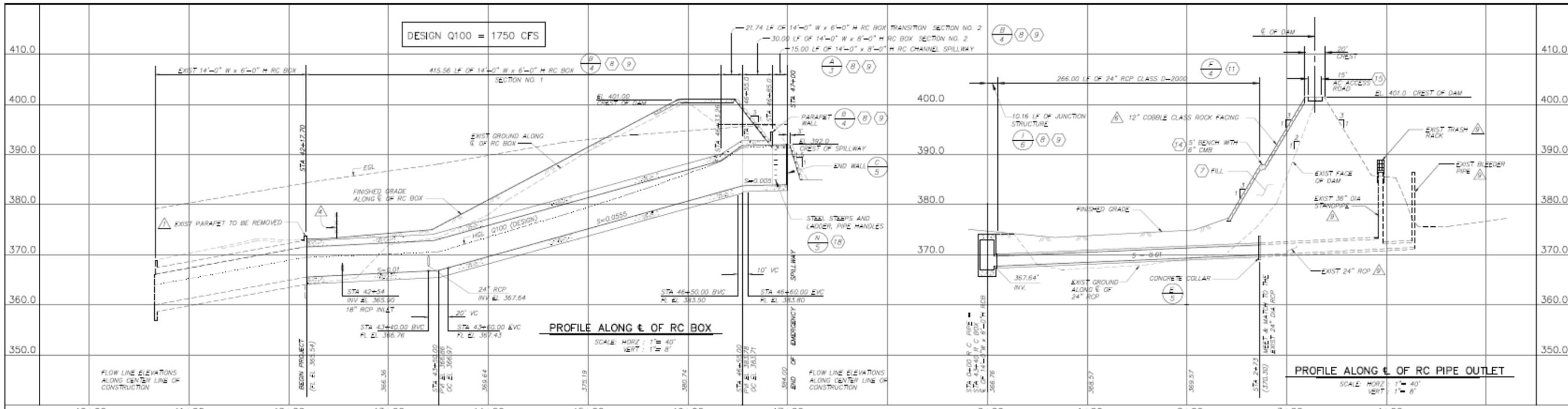


Figure F-4. 100 Year HEC-HMS Output Hydrograph.

APPENDIX G

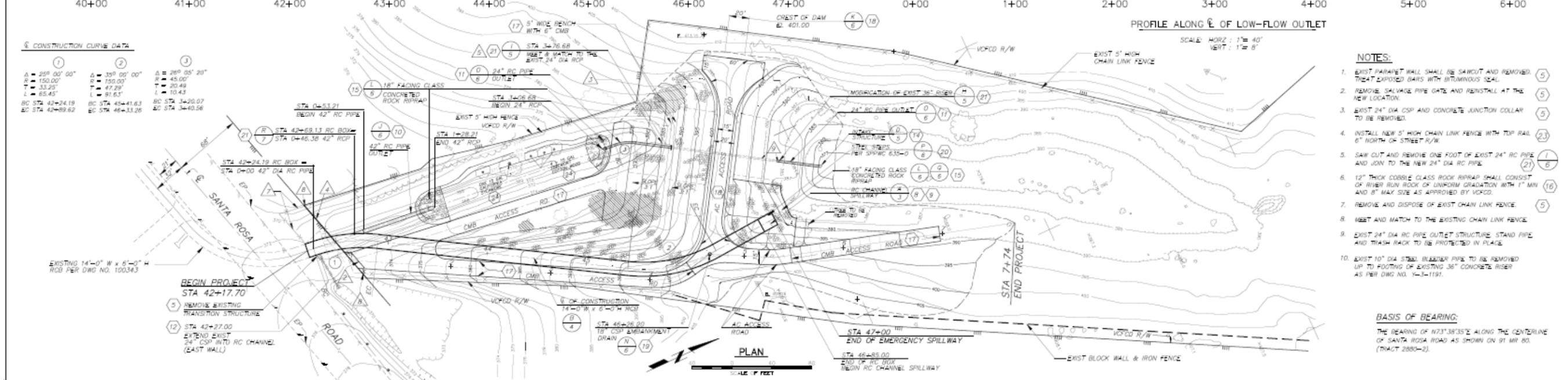
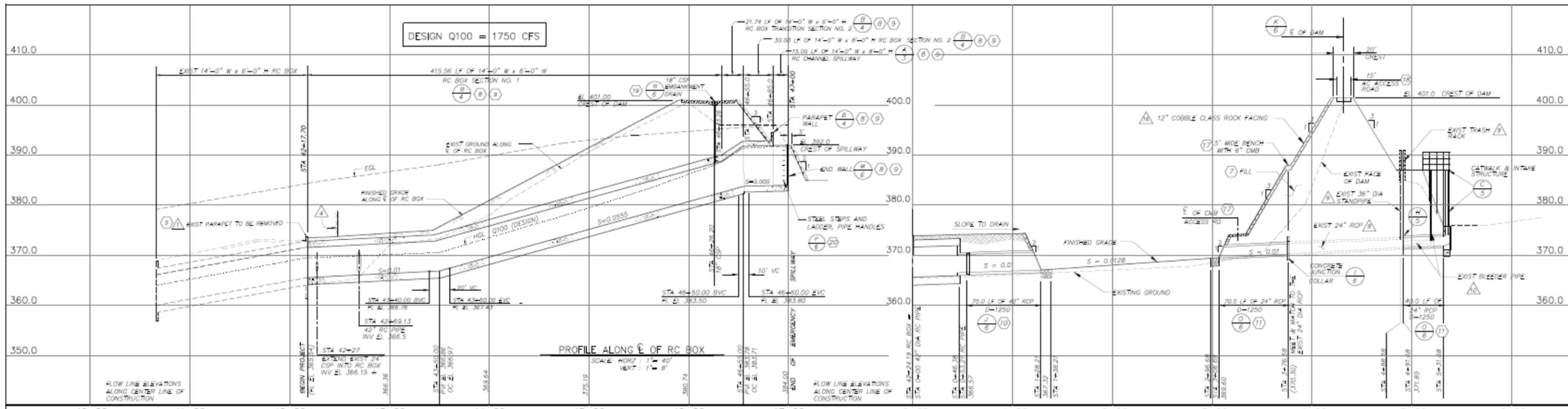
SANTA ROSA ROAD DEBRIS BASIN No. 2

VCWPD 1993 DESIGN DRAWINGS



- NOTES:**
- EXIST PARAPET WALL SHALL BE SAWCUT AND REMOVED. TREAT EXPOSED BARS WITH BITUMINOUS SEAL.
 - REMOVE SALVAGE PIPE GATE AND REINSTALL AT THE NEW LOCATION.
 - EXIST 24" DIA CSP AND CONCRETE JUNCTION COLLAR TO BE REMOVED.
 - INSTALL NEW 5' HIGH CHAIN LINK FENCE WITH TOP RAIL 6" NORTH OF STREET R/W.
 - SAW CUT AND REMOVE ONE FOOT OF EXIST 24" RC PIPE AND JOIN TO THE NEW 24" DIA RC PIPE.
 - 12" THICK COBBLE CLASS ROCK RIPRAP SHALL CONSIST OF RIVER RUN ROCK OF UNIFORM GRADATION WITH 1" MIN AND 8" MAX SIZE AS APPROVED BY VCFCD.
 - REMOVE AND DISPOSE OF EXIST CHAIN LINK FENCE.
 - MEET AND MATCH TO THE EXISTING CHAIN LINK FENCE.
 - EXIST 24" DIA RC PIPE OUTLET STRUCTURE, STAND PIPE, TRASH RACK AND 12" DIA STEEL BLEEDER PIPE TO BE PROTECTED IN PLACE.
 - REMOVE AND REPLACE EXISTING ROCK RIPRAP, AND ADJUST EXISTING 12" PVC TO FINISHED GRADE.
- BASIS OF BEARING:**
THE BEARING OF N137°38'35"E ALONG THE CENTERLINE OF SANTA ROSA ROAD AS SHOWN ON 91 MR 80 (TRACT 2880-2).
- LEGEND:**
LIMITS OF GRADING (SEE SHEET 8)

COUNTY OF VENTURA - PUBLIC WORKS AGENCY VENTURA COUNTY FLOOD CONTROL DISTRICT		PROJECT NO. FC 93-20	SHEET NO. 2
DATE: 11/11/20		DRAWN BY: M.J. / FL	CHECKED BY: PE MERRICK
PROJECT TITLE: SANTA ROSA DEBRIS BASIN NO. 2		SCALE: 1" = 40'	SHEET NO. 2



CONSTRUCTION CURVE DATA

1	2	3
$\Delta = 269^{\circ} 00' 00''$	$\Delta = 159^{\circ} 00' 00''$	$\Delta = 269^{\circ} 05' 20''$
$R = 150.00'$	$R = 150.00'$	$R = 45.00'$
$T = 33.25'$	$T = 47.29'$	$T = 30.49'$
$L = 65.45'$	$L = 91.63'$	$L = 10.45'$
BC STA 42+24.19	BC STA 45+41.63	BC STA 34+20.07
EC STA 42+24.19	EC STA 46+33.26	EC STA 34+40.56

NOTES:

- EXIST PARAPET WALL SHALL BE SAWCUT AND REMOVED. TREAT EXPOSED BARS WITH BITUMINOUS SEAL.
- REMOVE SALVAGE PIPE GATE AND REINSTALL AT THE NEW LOCATION.
- EXIST 24" DIA CSP AND CONCRETE JUNCTION COLLAR TO BE REMOVED.
- INSTALL NEW 5' HIGH CHAIN LINK FENCE WITH TOP RAIL 6" NORTH OF STREET R/W.
- SAW CUT AND REMOVE ONE FOOT OF EXIST 24" RC PIPE AND JOIN TO THE NEW 24" DIA RC PIPE.
- 12" THICK COBBLE CLASS ROCK RIPRAP SHALL CONSIST OF RIVER RUN ROCK OF UNIFORM GRADATION WITH 1" MIN AND 8" MAX SIZE AS APPROVED BY VOFCD.
- REMOVE AND DISPOSE OF EXIST CHAIN LINK FENCE.
- MEET AND MATCH TO THE EXISTING CHAIN LINK FENCE.
- EXIST 24" DIA RC PIPE OUTLET STRUCTURE, STAND PIPE AND TRASH RACK TO BE PROTECTED IN PLACE.
- EXIST 10" DIA STEEL BLEEDER PIPE TO BE REMOVED UP TO FOOTING OF EXISTING 36" CONCRETE RISER AS PER Dwg NO. V-3-1191.

BASIS OF BEARING:

THE BEARING OF $N73^{\circ}38'35''E$ ALONG THE CENTERLINE OF SANTA ROSA ROAD AS SHOWN ON 91 MI 80. (TRACT 2880-2).

DESIGNED BY	DATE	SCALE	PROJECT NO.	PROJECT NAME	DATE	PROJECT NO.	PROJECT NAME
BY: M. ILANI	DATE: M/JL/BC/AD	SCALE: P. MRR/VEH	FC 93-20	SANTA ROSA DEBRIS BASIN NO. 2	DATE: 11/20	BB421	SANTA ROSA DEBRIS BASIN NO. 2
CHECKED BY	DATE	SCALE	PROJECT NO.	PROJECT NAME	DATE	PROJECT NO.	PROJECT NAME
BY: P. MRR/VEH	DATE: 11/20	SCALE: 1" = 40'	BB421	SANTA ROSA DEBRIS BASIN NO. 2	DATE: 11/20	BB421	SANTA ROSA DEBRIS BASIN NO. 2

APPENDIX H

HEC-RAS File List

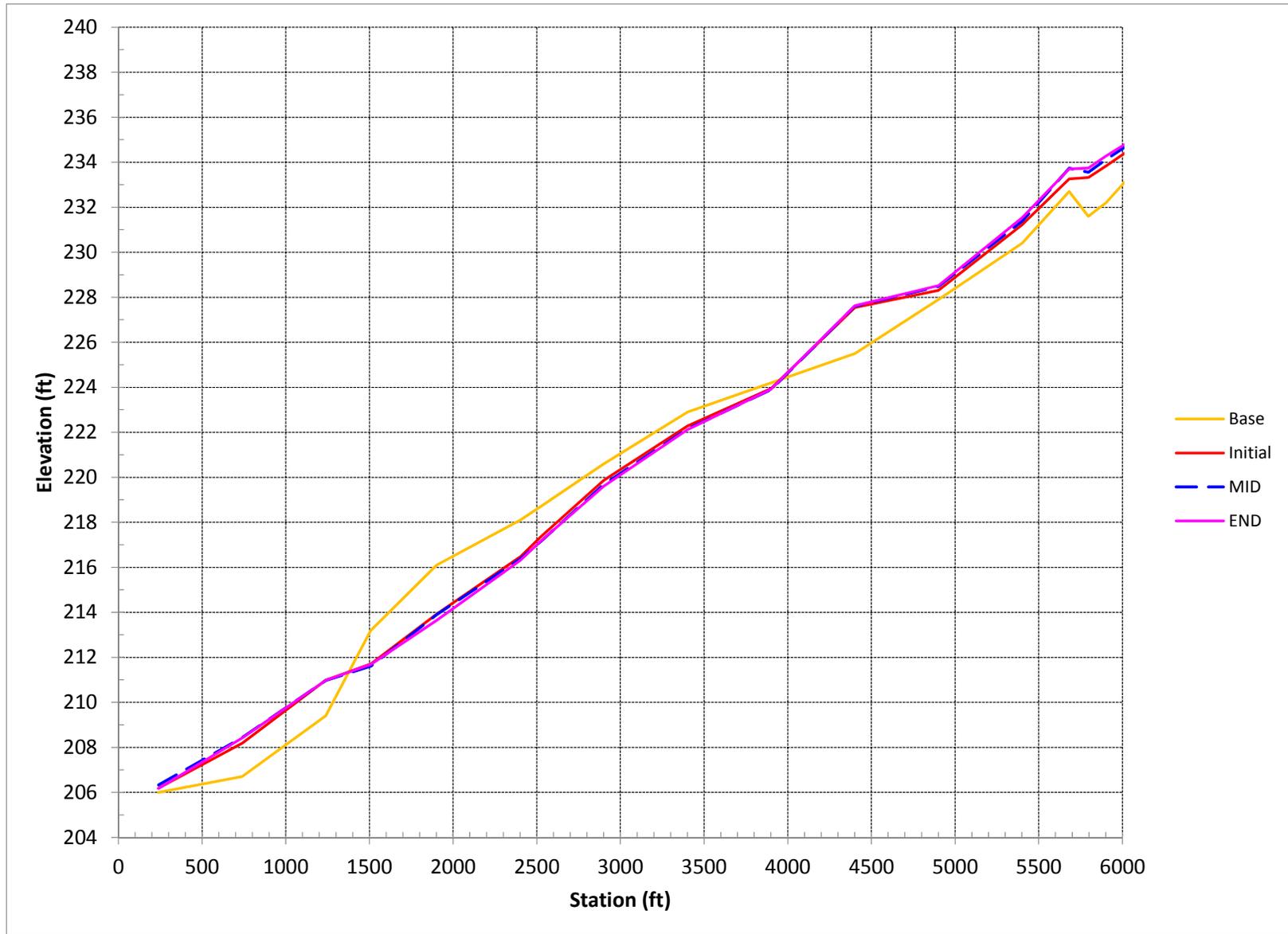
HEC-RAS Project Name: Existing 2D Model

Plan Name	Plan Filename Extension	Geometry Filename	Geometry Filename Extension	Unsteady Flow Filename	Unsteady Flow Filename Extension
10yr	.p01	1D Channel 2D Overbanks	.g01	10yr	.u01
10yr Breach	.p02	1D Channel 2D Overbanks_1 lid	.g04	10yr Breach	.u02
50 yr	.p03	1D Channel 2D Overbanks	.g01	50yr	.u03
50yr Breach	.p04	1D Channel 2D Overbanks_1 lid	.g04	50yr Breach	.u04
100yr Breach	.p05	1D Channel 2D Overbanks_1 lid	.g04	100yr Breach	.u06
100yr	.p06	1D Channel 2D Overbanks	.g01	100yr	.u05
1997 Event	.p07	1D Channel 2D Overbanks	.g01	1997 Event	.u07
10yr with Dam Removed	.p09	1D Channel 2D Overbanks	.g01	10yr with Dam Removed	.u09
50yr with Dam Removed	.p10	1D Channel 2D Overbanks	.g01	50yr with Dam Removed	.u10
100yr with Dam Removed	.p11	1D Channel 2D Overbanks	.g01	100yr with Dam Removed	.u11
1997 Event with Dam Removed	.p12	1D Channel 2D Overbanks	.g01	1997 Event with Dam Removed	.u12
100yr Proposed ReOp	.p13	1D Channel 2D Overbanks	.g01	100yr Proposed ReOp	.u13
50yr Proposed ReOp	.p16	1D Channel 2D Overbanks	.g01	50yr Proposed ReOp	.u15
10yr Proposed ReOp	.p17	1D Channel 2D Overbanks	.g01	10yr Proposed ReOp	.u16
100yr Breach_1 sec	.p18	1D Channel 2D Overbanks	.g01	100yr Breach	.u06

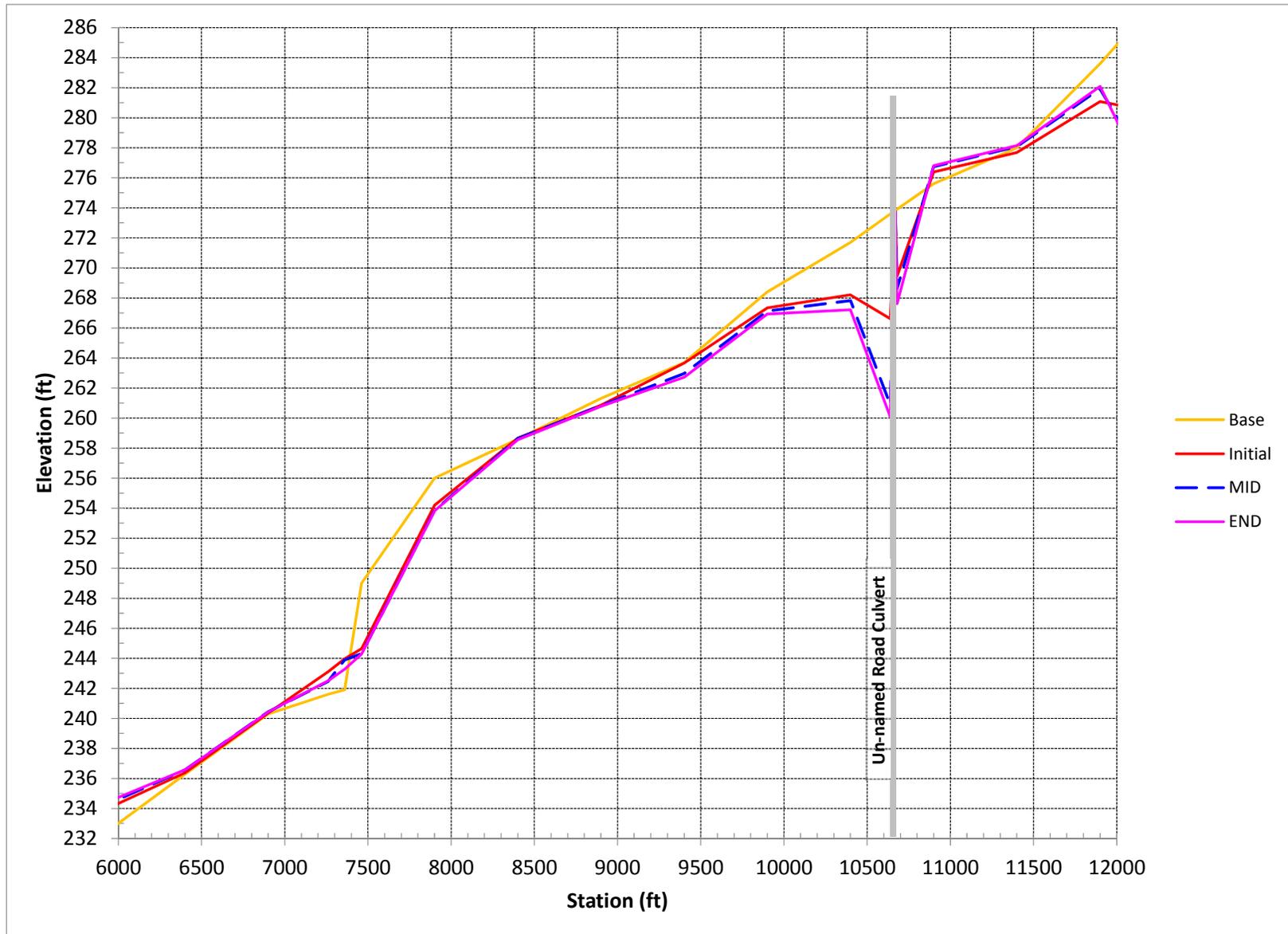
*The "100yr Breach_1 sec" plan is identical to the "100yr Breach" plan except a 1 second time step was used during the model run instead of a 5 second time step to evaluate the effect on results. The difference was deemed inconsequential.

APPENDIX I

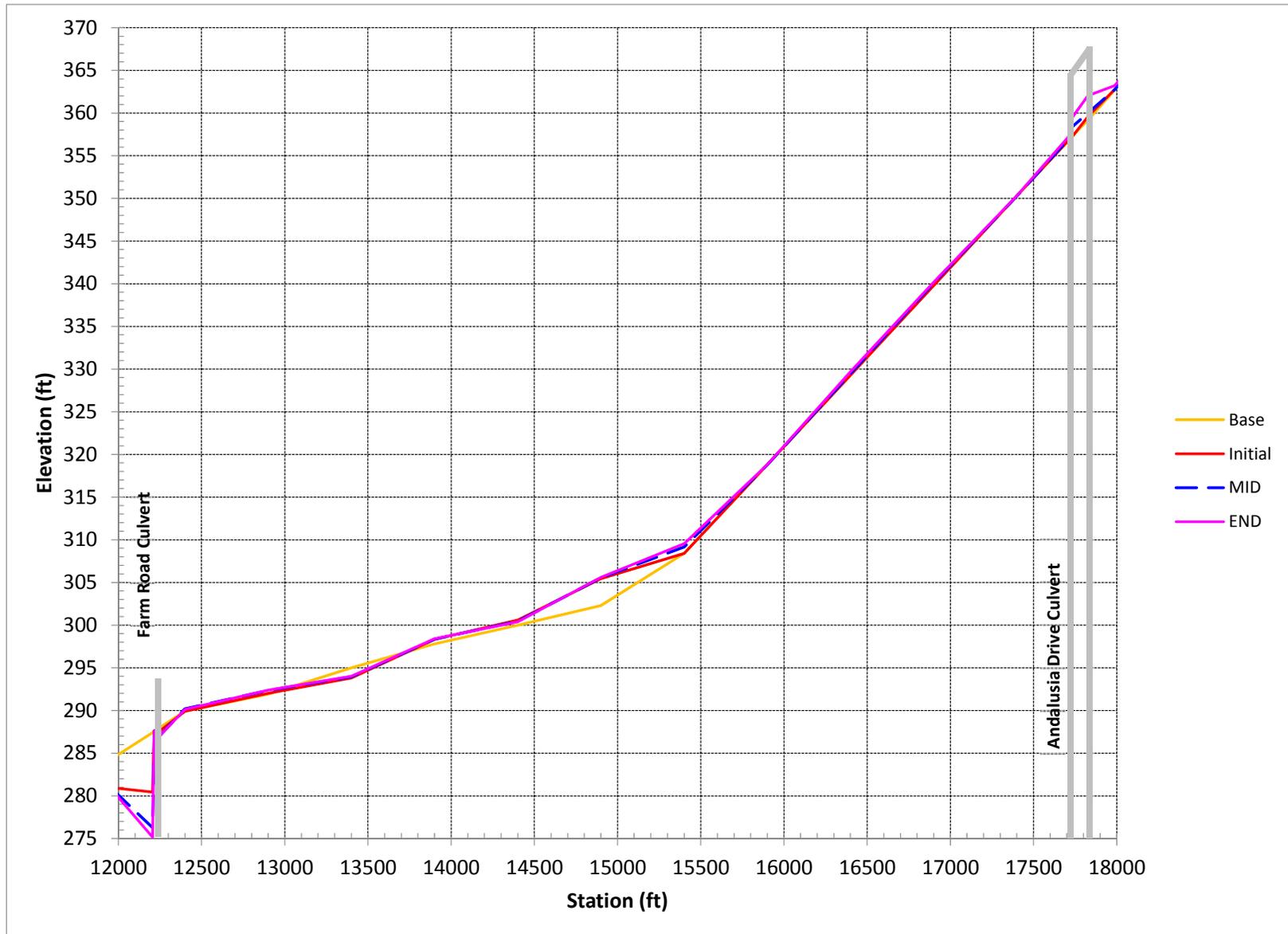
100-YEAR EVENT SEDIMENT TRANSPORT ANALYSIS RESULTS



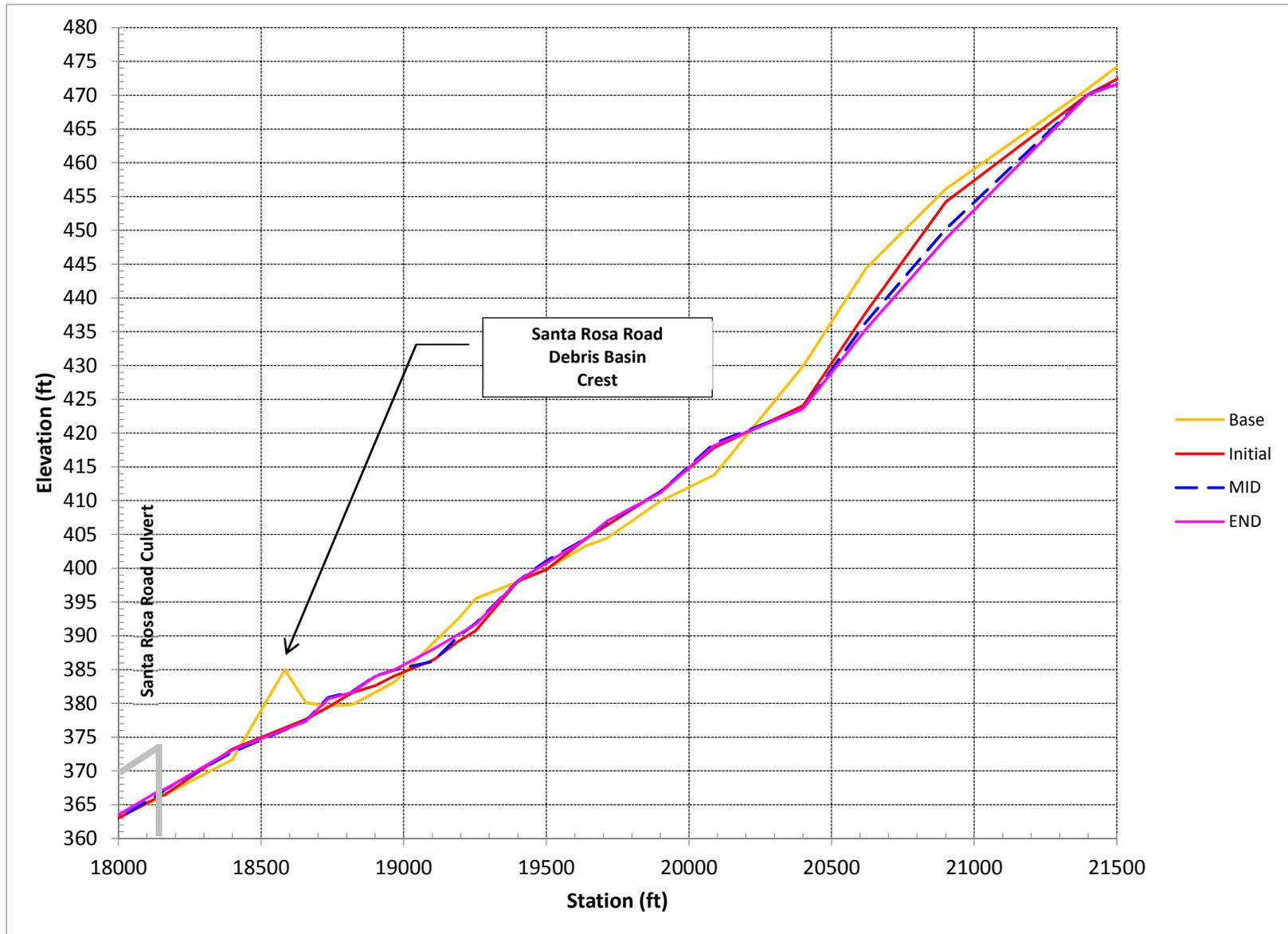
Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load A" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



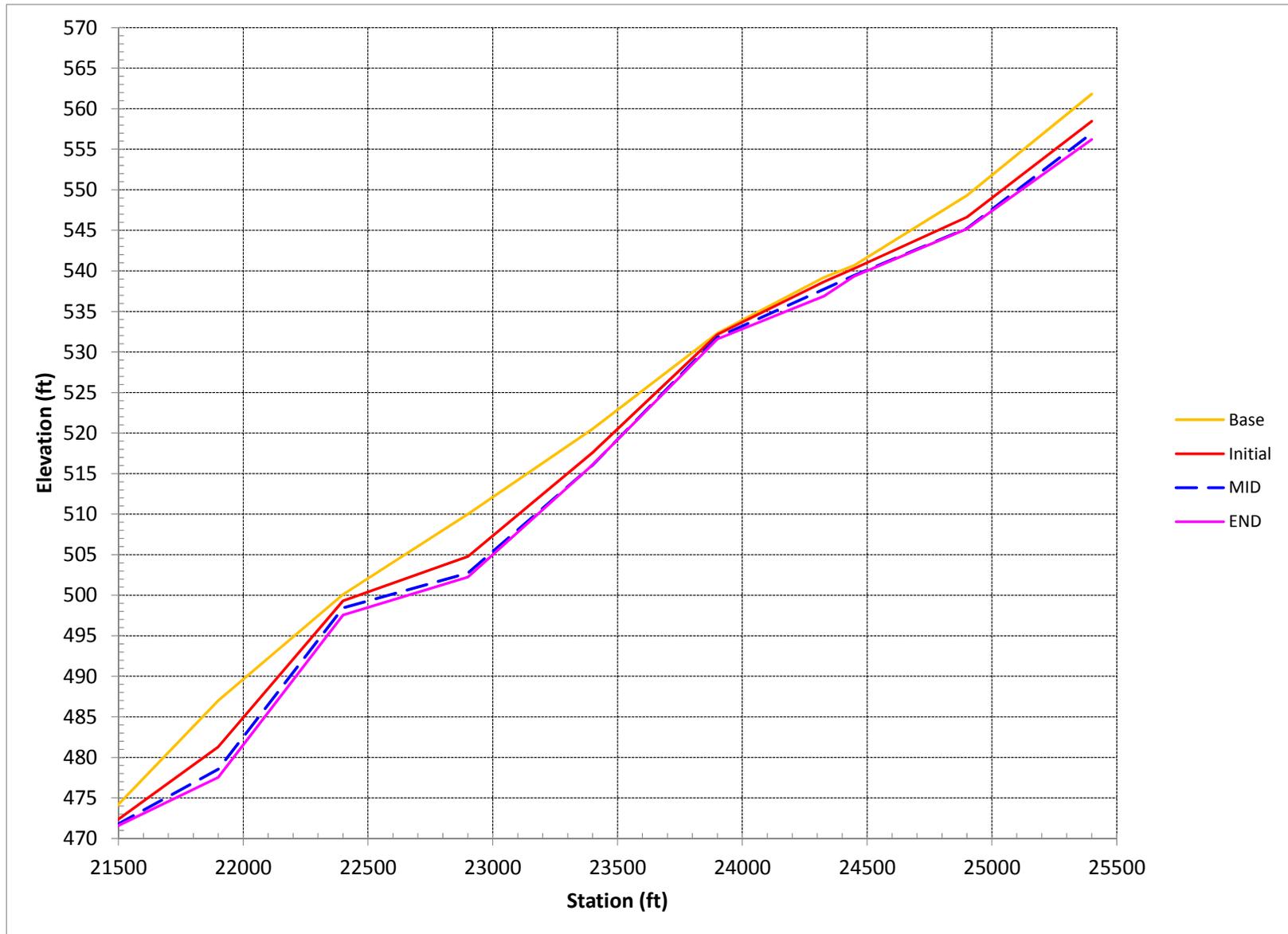
Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load A" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



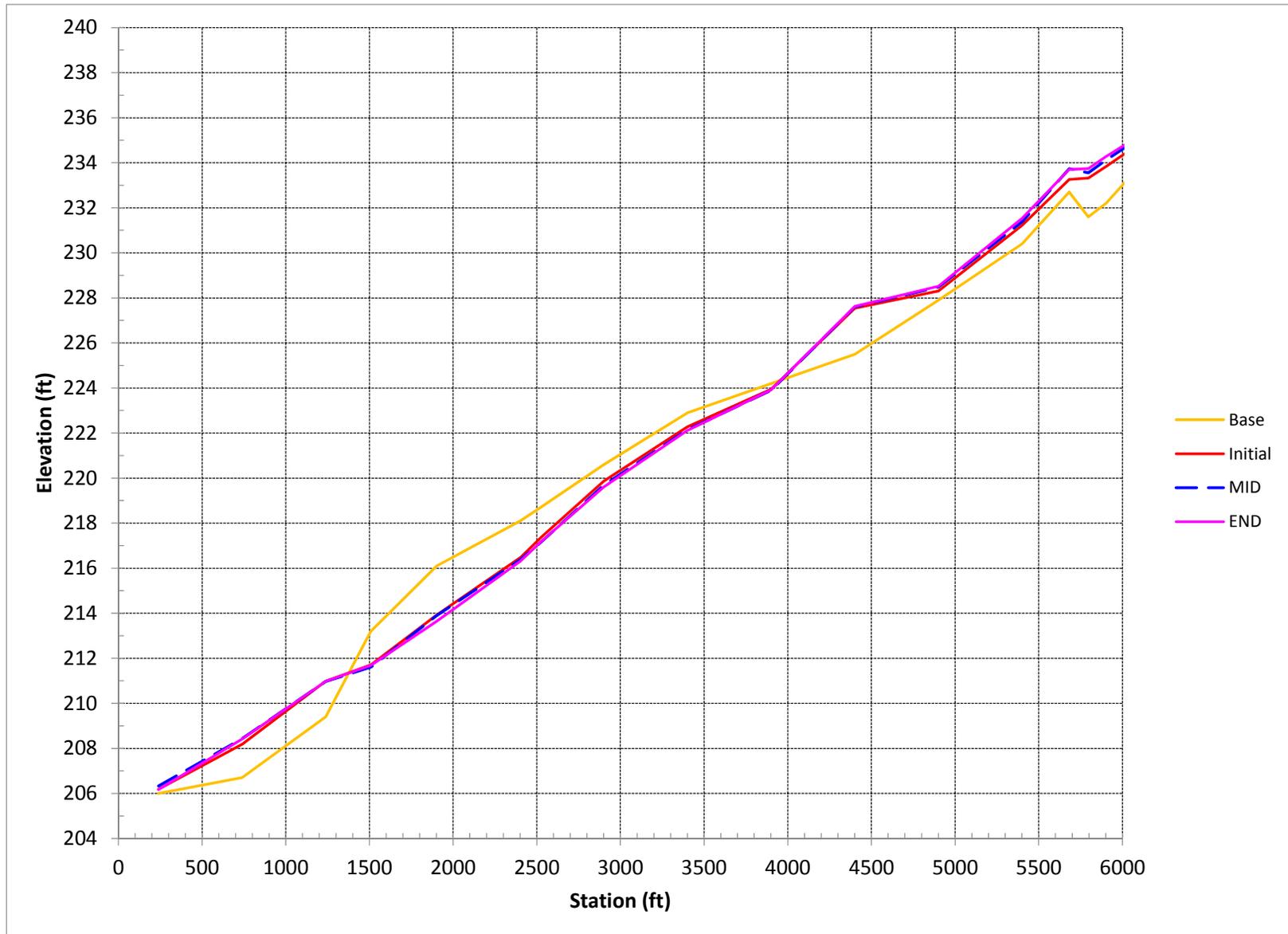
Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load A" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



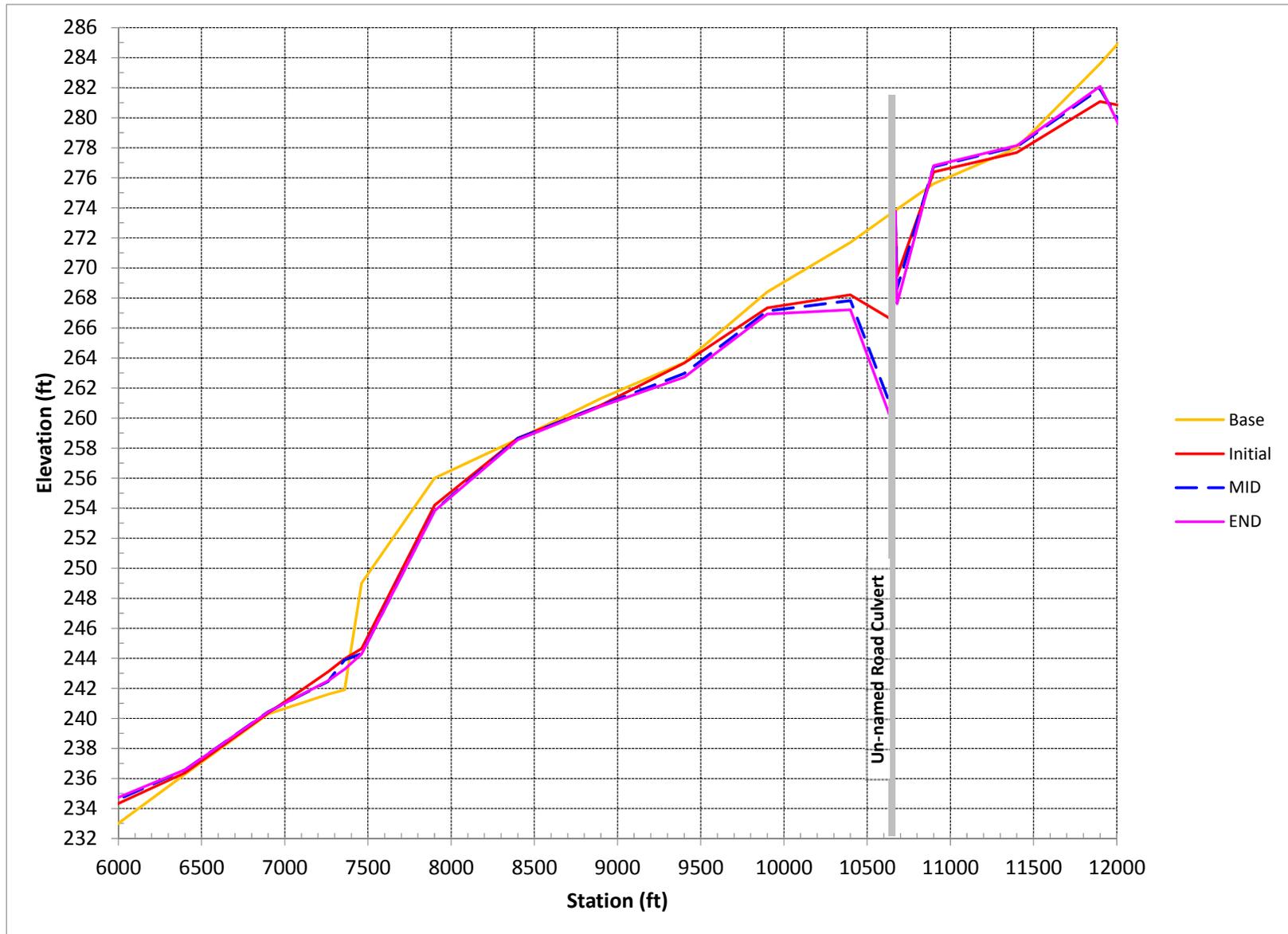
Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load A" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



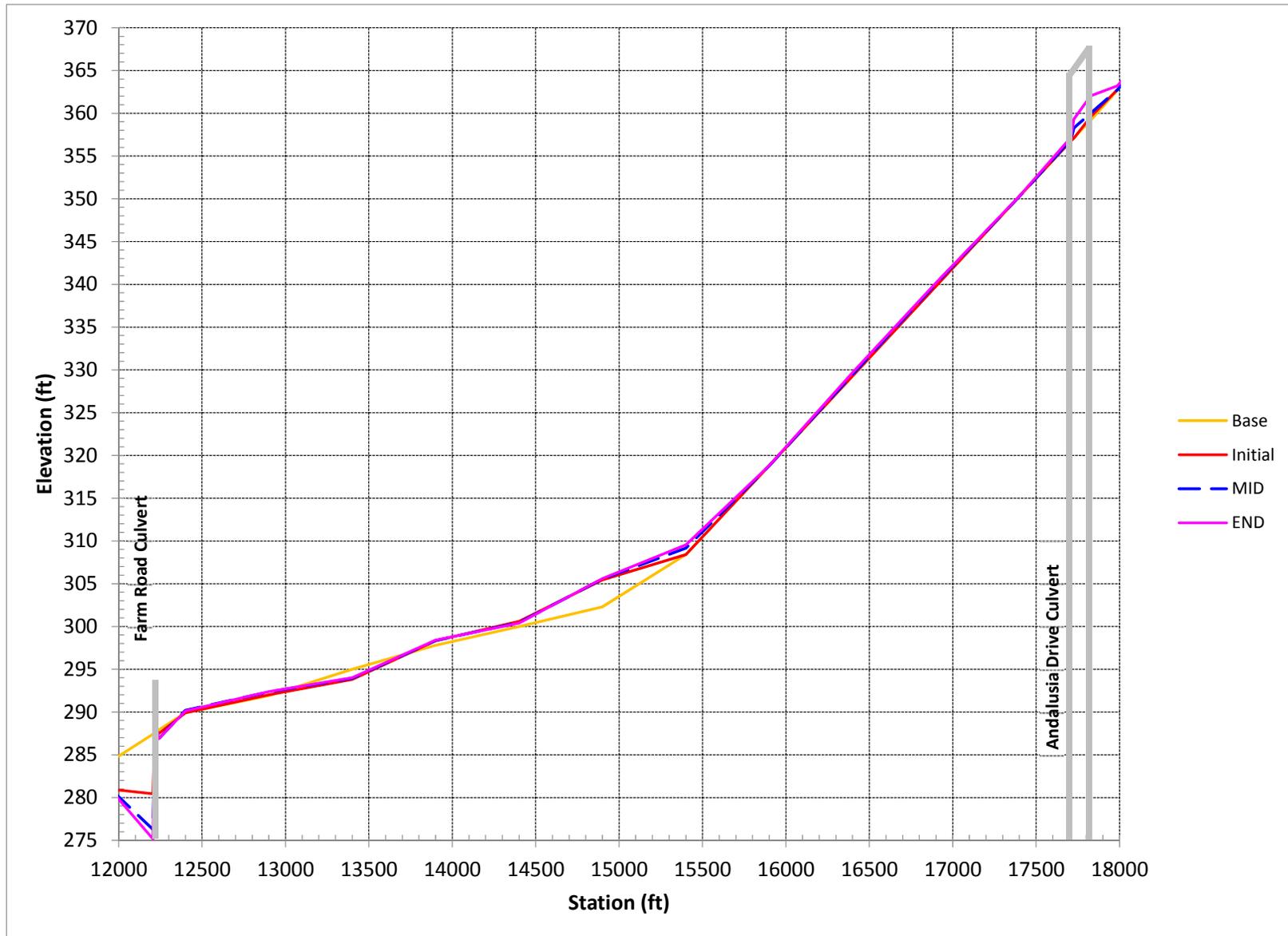
Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load A" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



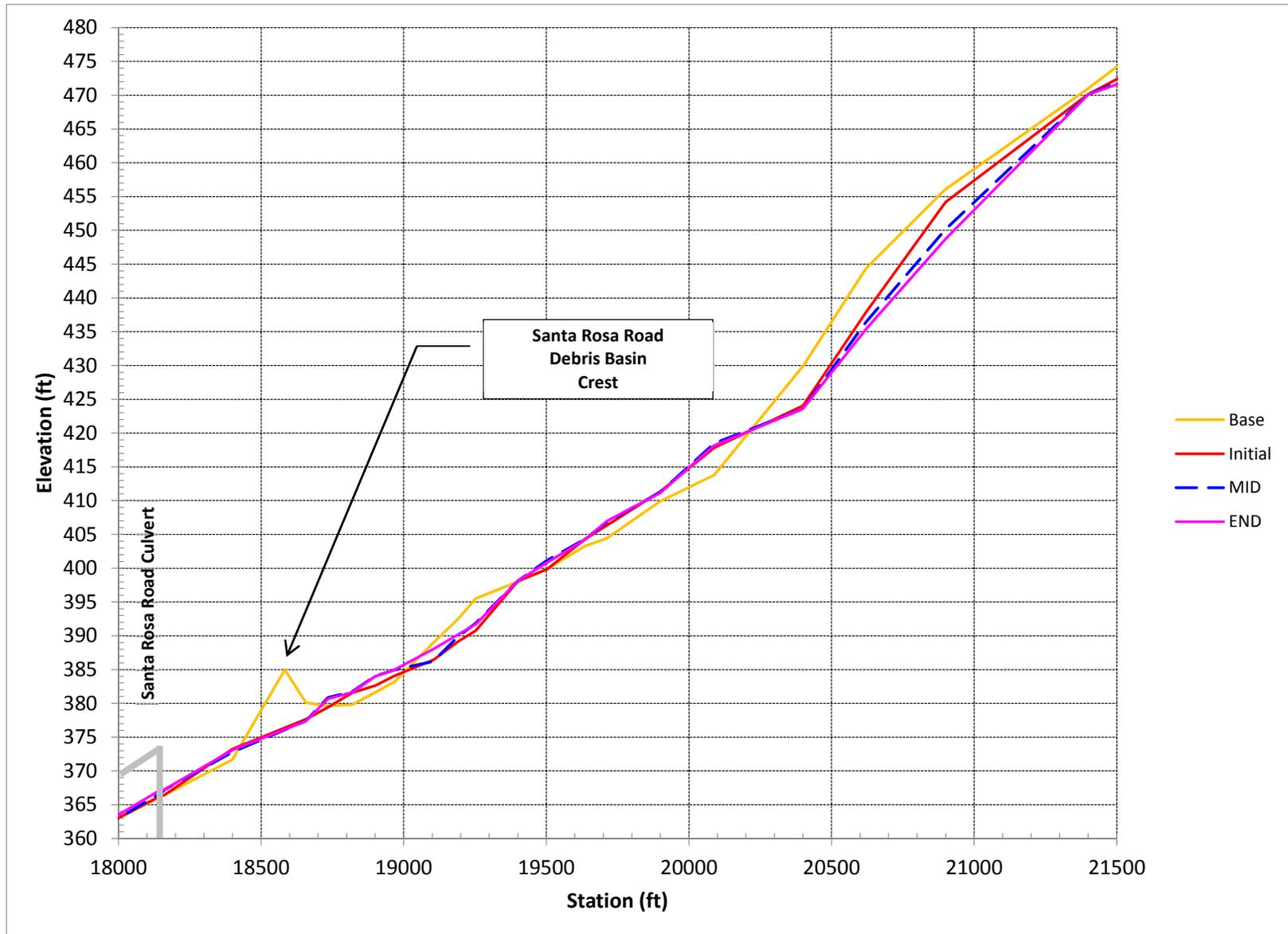
Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load B" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



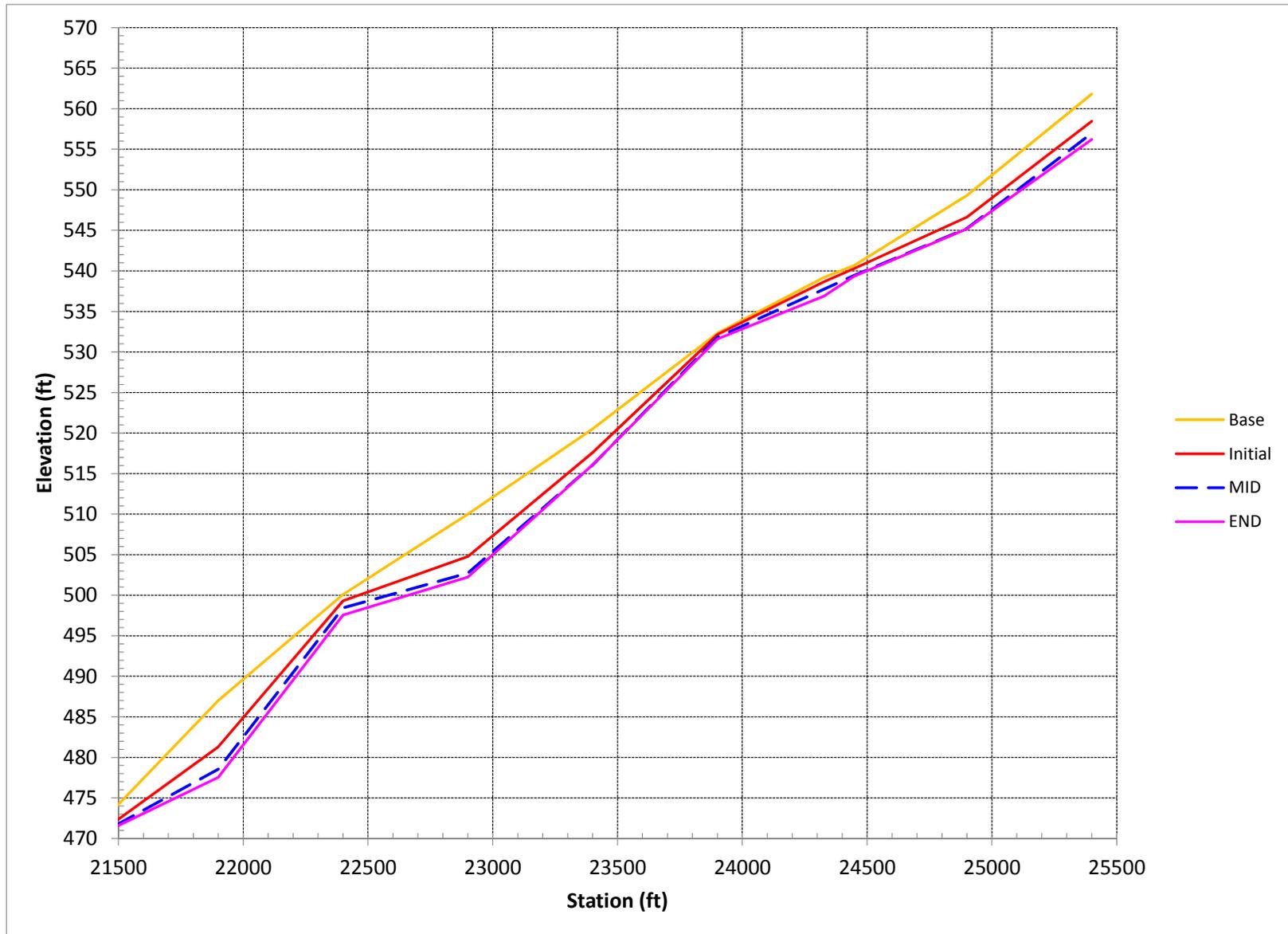
Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load B" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load B" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for "Load B" – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.



Santa Rosa Basin Proposed Conditions (Removal) Invert Profile for “Load B” – Base (before long-term simulation), Initial (after long-term simulation), Mid (peak of 100-year event), and Final Conditions.