LILLINGSTON CANYON CREEK DEBRIS BASIN
ADDENDUM TO THE PROGRAM EIR FOR SANTA BARBARA COUNTY FLOOD CONTROL ROUTINE MAINTENANCE

Location:

The Lillingston Canyon Debris Basin is located approximately 1.5 stream miles upstream from the confluence of Carpinteria Creek and Gobernador Creek, and 3.6 stream miles upstream from the mouth of Carpinteria Creek at the Pacific Ocean.

History:

Lillingston Canyon Debris Basin is an engineered facility that was built in 1971 by the U.S. Army Corps of Engineers after the Romero Fire burned a large percentage of the watershed. The dam embankment is an earthen filled dam capped with a relatively thin layer of grouted rock rip-rap. The basin is approximately 1 acre in size with a design capacity of approximately 26,400 cubic yards. The basin was designed to trap the anticipated high levels of sediment and debris conveyed down the creek during successive high rainfall events.

The Lillingston Debris Basin dam is composed of a 12-foot high grouted riprap spillway flanked by 14-foot high grouted riprap embankments, and a 97-foot long, 4-foot diameter smooth concrete culvert at the spillway's base. The culvert daylights onto a 34-foot long apron composed of grouted riprap with a varying slope of approximately 4%. On the downstream side of this apron, water falls vertically off the apron into a pool with a maximum depth of approximately 6 feet. The elevation a the top of the spillway is 322 above msl and the elevation at the bottom of the plunge pool is 295' above msl

Unlike other SBCFCD-maintained debris dams, this basin is not regularly maintained and cleared of debris by the SBCFCD. Having served its purpose in the years after the Romero Fire, the debris basin was allowed to fill in, revegetate, and the culvert has silted-in. The stream flows are directed over the top of the spillway and apron. As a result, this dam is impassable to steelhead and prevents them from accessing upstream spawning habitat. The following project is designed to de-construct this debris basin over a 4-year period.

Setting:

Lillingston Basin is located in the foothills of the Santa Ynez Mountains north of the City of Carpinteria, CA. Lillingston Basin is located at an elevation of 350 feet in the west fork of the Carpinteria Creek watershed. The Carpinteria Creek watershed splits into Lillingston Canyon and Gobernador Canyon near Highway 192/Casitas Pass. Land use in Lillingston Canyon is predominantly rural agriculture, with avocado and citrus orchards, low-density residential homes and ranch buildings, equine facilities, and undeveloped chaparral vegetation leading into Los Padres National Forest.

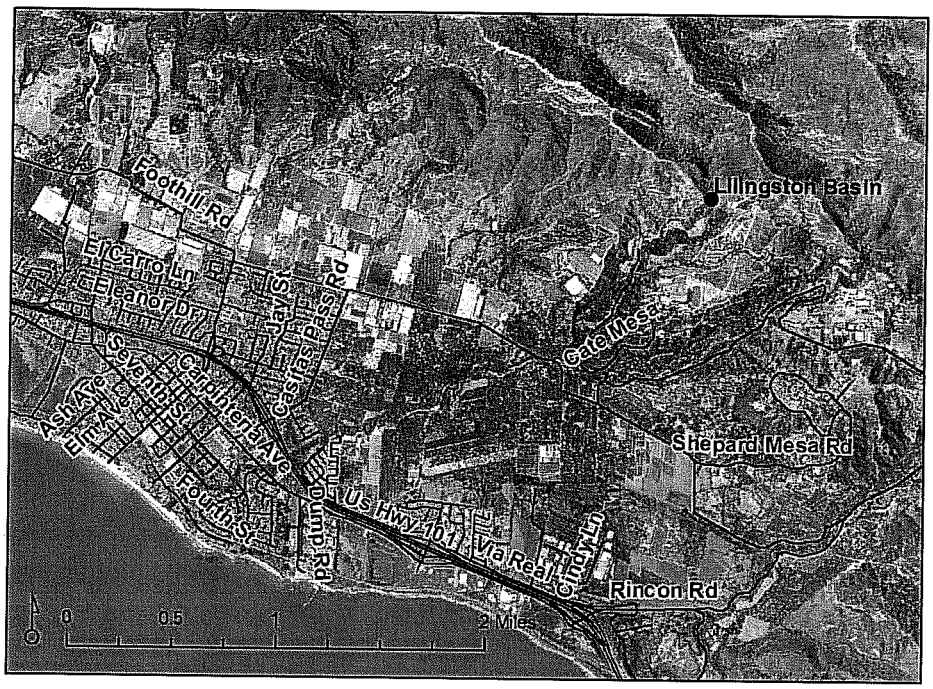


Figure 1. Location of Lillingston Canyon Debris Basin

The watershed size upstream of the basin is approximately 3,000 acres. The properties upstream of Lillingston Basin are almost entirely undeveloped chaparral with occasional trails and fire roads.

Wildlife/Vegetation Survey:

A wildlife and vegetation survey was performed by the District biologist on March 18, 2010. Particular emphasis was given to searching for special status wildlife species, including California red-legged frog and southern steelhead trout. No special-status plant species were detected. Vegetation communities are described in more detail below. The project area includes 5 zones: the basin itself, the embankment, the eastern bluff, the creek channel downstream of the basin, and an access route along the upper east bank

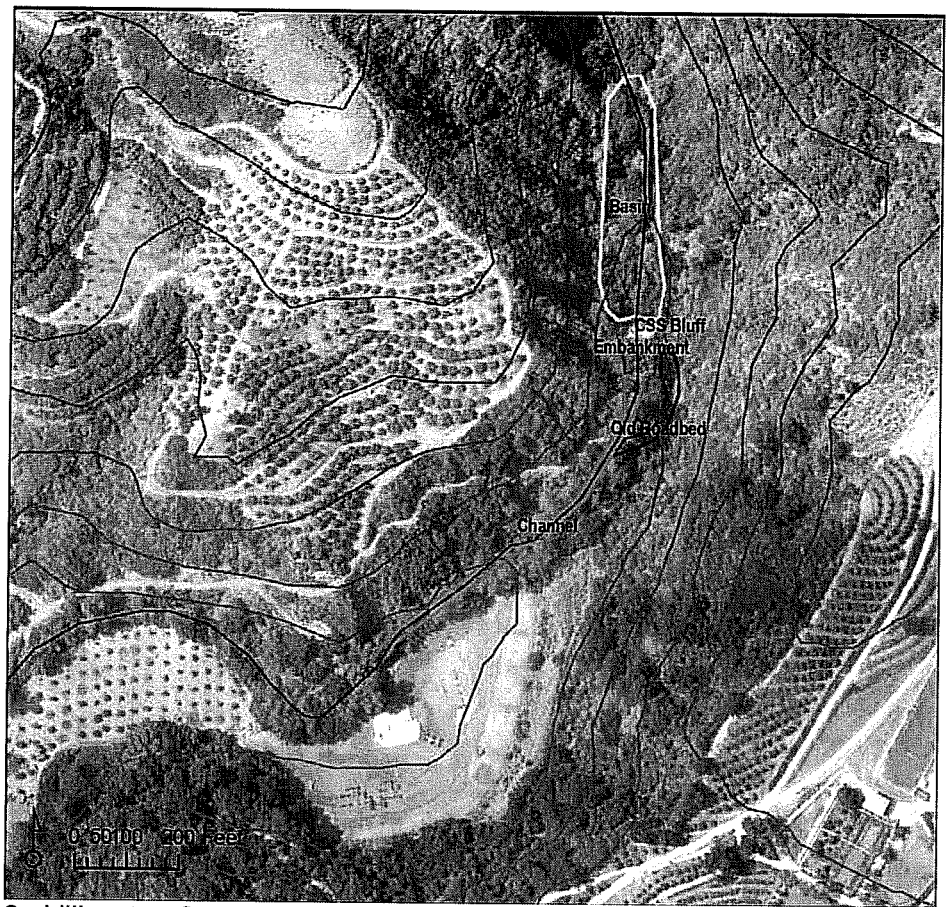


Figure 2. Lillingston Canyon Debris Basin Project Zones

Basin
The debris basin has been completely filled with sediment and vegetation since it was last cleaned approximately 25 years ago. During the wet season, the creek flows over the upper surface of the accumulated sediment through 2 to 3 small braided channels. Vegetation on the accumulated sediment is predominantly mixed-age willows, with occasional sycamore, alder, and bay trees. The understory is a dense thicket of blackberry, poison oak, ryegrass, mulefat, horsetail, sorrel, and cape ivy sprouts.

Embankment
The creek washes over the grouted rock surface of the embankment and flows over the concrete into a pool at the downstream side of the basin. Water also percolates through the basin and out of a culvert pipe that is embedded in the embankment. The embankment is mostly devoid of vegetation, with occasional sprouts of annual grasses, willows, canyon sunflower, and sorrel.

Bluff
The bluff overlooking the eastern edge embankment is populated by coastal sage scrub (CSS) species, a different vegetation community than the immediately adjacent area but not atypical of the Santa Ynez foothills. This slope is southwest-facing, rocky, and has no dense canopy, and is thus dryer than the basin or the downstream channel. CSS

species in this patch of area are dense mugwort, fennel, California sagebrush, buckwheat, black sage, scrubby coast live oaks, and horehound.

Creek Channel
The creek channel in the project area is characterized by large boulders, bedrock, and cobble with a well-developed but narrow riparian canopy. Sedimentation and turbidity were low. Water depth ranged from a few inches to 3 feet in a complex of riffles, pools, and small cascades.

The riparian corridor is dominated by willows and alder, with sycamore, California bay, coast live oaks, and large eucalyptus trees also present. Eucalyptus becomes more dominant at the base of the embankment, where several large eucalyptus trees are growing at both banks. The floor of the channel is devoid of large woody growth due to scouring flows, extreme rockiness and embedded boulders. The channel is typically 10 to 20 feet wide. The understory at the toe of the banks is a mix of native and exotic species, featuring poison oak, blackberry, clematis, horsetail, sorrel, ironweed, and cape ivy.

Old Roadbed
The project area includes an old access road at the east side of the basin embankment. This access road was most likely used during the initial construction and maintenance of the basin and has since been out of service and overgrown with vegetation.

Vegetation is dense and dominated by cape ivy. Occasional blackberry canes are evident through the cape ivy vines. Eucalyptus sprouts and small willows are present, but no large native woody growth is evident on the access route.

The project will involve trucks and equipment driving up the creek channel almost to the base of the embankment, and then exiting the creek channel onto the old road bed. This route was selected because it provides an existing flat surface for the equipment required to modify the basin for fish passage. Using the existing road bed will minimize the removal of large native trees in the riparian corridor and will preserve some of the pool habitat immediately downstream of the existing embankment during the course of the project. Taking access further upstream would result in more mature tree removal for the entire width of the riparian corridor at the new access point than would occur going up the creek channel. Additionally, the creek banks become much higher and steeper upstream of the existing access ramp and in order to create a new ramp, the bank and overbank area would have to be substantially cut and sloped to create an approximately 100-150' long ramp through the width of the riparian corridor and out into the overbank area in order for trucks to gain access into the creek.

Wildife
Wildlife species observed in the project area and adjacent habitats include:

Red tailed hawk (overflying)
Song sparrow
Common yellowthroat
Pacific chorus frog
California tree frog
Northern mockingbird
Bushtit

California towhee
Coast range newt (within flowing water)
Western fence lizard (on embankment)
Coast garter snake
Juvenile steelhead/rainbow trout
Black bear scat

The wildlife survey took place at the beginning of the migratory bird season. Bird activity was high and while nesting was not directly observed, nesting is likely to occur in the basin and creek corridor.

Special Status Species
Coast range newt is a State species of concern and steelhead/rainbow trout are federally protected as endangered species in this region. The project would include pre-project survey, monitoring, and capture/relocation of steelhead/rainbow trout consistent with the Program EIR and the District's existing Biological Opinion from National Marine Fisheries Service. Coast range newt would also be relocated as part of this effort.

Red Legged Frog Survey
The daytime wildlife survey also examined the site for red legged frog (RLF), a threatened species known to occur in Santa Barbara County west and north of the project area. The RLF survey protocol of 1997 and updated in March 2005 describes a phased investigation using existing data, mapping, and field conditions in conjunction with focused surveys for RLF and egg masses. The first phase is an assessment of RLF locality records and potential habitat at the project site.

Based on more than 20 years of annual inspections of debris basins and creek channels by the District, no RLF have been detected in the Carpinteria Creek watershed. The project site is not within the designated Critical Habitat for RLF. The California Wildlife Habitat Relationships map shows the range of RLF extending into the upper Carpinteria Creek watershed, but not to the project site. The California Natural Diversity Database shows no historical RLF records within 1.5 miles of the project site, and one record from 1.5 to 9 miles of the site. This record is in Santa Monica Creek from 2005.

The habitat at the project site would be moderately suitable for RLF. The basin itself does not support open ponded water because the basin is filled with sediment and has been colonized with riparian vegetation. The water in the basin behaves as a flowing creek rather than a pool or pond generally preferred by breeding RLF. Water depth was a few inches to 1.5 feet. The pool formed at the downstream end of the basin is deeper and would provide more suitable RLF habitat, but the flow rate is higher than the slow-flowing channels in which the District frequently detects RLF in other parts of the County. Downstream of the plunge pool, the creek channel does not have ponded water; the channel is a complex of alternating riffles and shallow glides over rocky substrate.

While the existing records do not show previous RLF detections, the habitat quality is moderate, thus the second phase of the survey (field investigation) was performed starting on March 18, 2010.

During the daytime habitat survey, standing water was assessed for emergent vegetation and any evidence of RLF egg masses. Overall, there is very little vegetation

in any standing water in the project area. No RLF egg masses or tadpoles were detected.

A night-time survey was performed by the District Biologist on April 7, 2010 according to the protocol methodology. Conditions were favorable for RLF detection (clear weather, mild temperature, low wind, late stage moon and most recent rain within 7 days). No RLF adults, tadpoles, or egg masses were observed. Numerous Pacific chorus frogs and California tree frogs were heard calling, but no RLF calls were heard in the project area or the downstream creek corridor.

The District Biologist will perform onsite monitoring for a pre-project briefing, site prep (dewatering), and during execution of the project. In unlikely event that RLF are detected during the project, the animals would be protected and relocated per the conditions of the District's existing Biological Opinion for RLF and FWS would be notified.

Engineering Analysis:

District engineers conducted a Sediment Yields and Transport Capacity Analysis to determine the watershed yields and the carrying capacity of Carpinteria Creek for seven design storm events (1", 2" and 3" per 24 hour, 2 yr, 10 yr, 25 yr and 100 yr) to determine if the drainage channel can adequately handle the input of additional sediment from the phased removal of the Lillingston Debris Basin over a 4-year period. The Debris Basin has a capacity of 26,400 cubic yards and notching the dam embankment in four increments could result in approximately 6,600 cubic yards of sediment input into the system on an annual basis along with the natural sediment load produced from rainfall events.

The following table outlines watershed sediment yields, the potential release of material trapped within the basin and the transport capacity of Carpinteria Creek for six design storm events. Watershed Yields in Column 3 are calculated using the Modified Universal Soil Loss Equation (MUSLE) which represents the potential soil loss a watershed may experience during a particular storm event. Potential Basin Material in Column 4 for the 2 yr, 10 yr, 25 yr, and 100 yr represents the maximum potential sediment that could be released from behind the dam embankment after an incremental notching procedure. The total sediment located behind the dam embankment is 26,400 cubic yards (CY), and notching will be performed in four increments with notching depths corresponding to the release of approximately 6,600 CY. Columns 6 and 7 represent the creek's capacity to transport soil accumulated within the basin and creek bed material, respectively, in the reach of the creek immediately downstream of the existing basin. Results indicate that the transport capacity of the creek at this location is approximately equal to or greater than the total sediment potentially generated from the watershed and generated from within the basin. Table values have been rounded to the nearest hundred.

Table 1

UPPER CARPINTERIA CREEK WATERSHED SEDIMENT YIELD AND TRANSPORT CAPACITY

1	2	3	4	5	6	7
Storm Event	**Rainfall Runoff (cfs)[1]**	**Watershed Yield (CY)[2]**	**Potential Basin Material (CY)[3]**	**Total Yield (CY)[4]**	**Creek Transport Capacity Subsurface (CY)[5,6,8]**	**Creek Transport Capacity Surface (CY)[5,7,8]**
1" per 24 hrs	12	100	200	300	600	0
2" per 24 hrs	109	700	700	1,400	2,500	1,400
3" per 24 hrs	341	2,100	1700	3,800	5,500	4,100
2-year	877	5,500	6,600	12,100	12,500	11,000
10-year	2,415	15,900	6,600	22,500	30,200	28,100
25-year	2,232	21,800	6,600	28,400	39,600	37,400
100-year	4,476	31,100	6,600	37,700	54,100	51,500

[1] Rainfall Runoff represents the runoff generated by the associated storm event; they may or may not be equivalent to the same peak flow events for the creek. For example, a 2-year storm event may not generate a 2-year peak flow in a creek.

[2] MUSLE.

[3] Potential Basin Material for the 1"-3" 24-hour events is that expected to be mobilized based on the transport capacity of the in-basin channel, assuming the basin channel assumes its original 3% slope. Potential Basin Material for the 2yr-100yr events represents the maximum yield of material trapped behind Lillingston Basin, subject to transport by an incremental notching of the embankment.

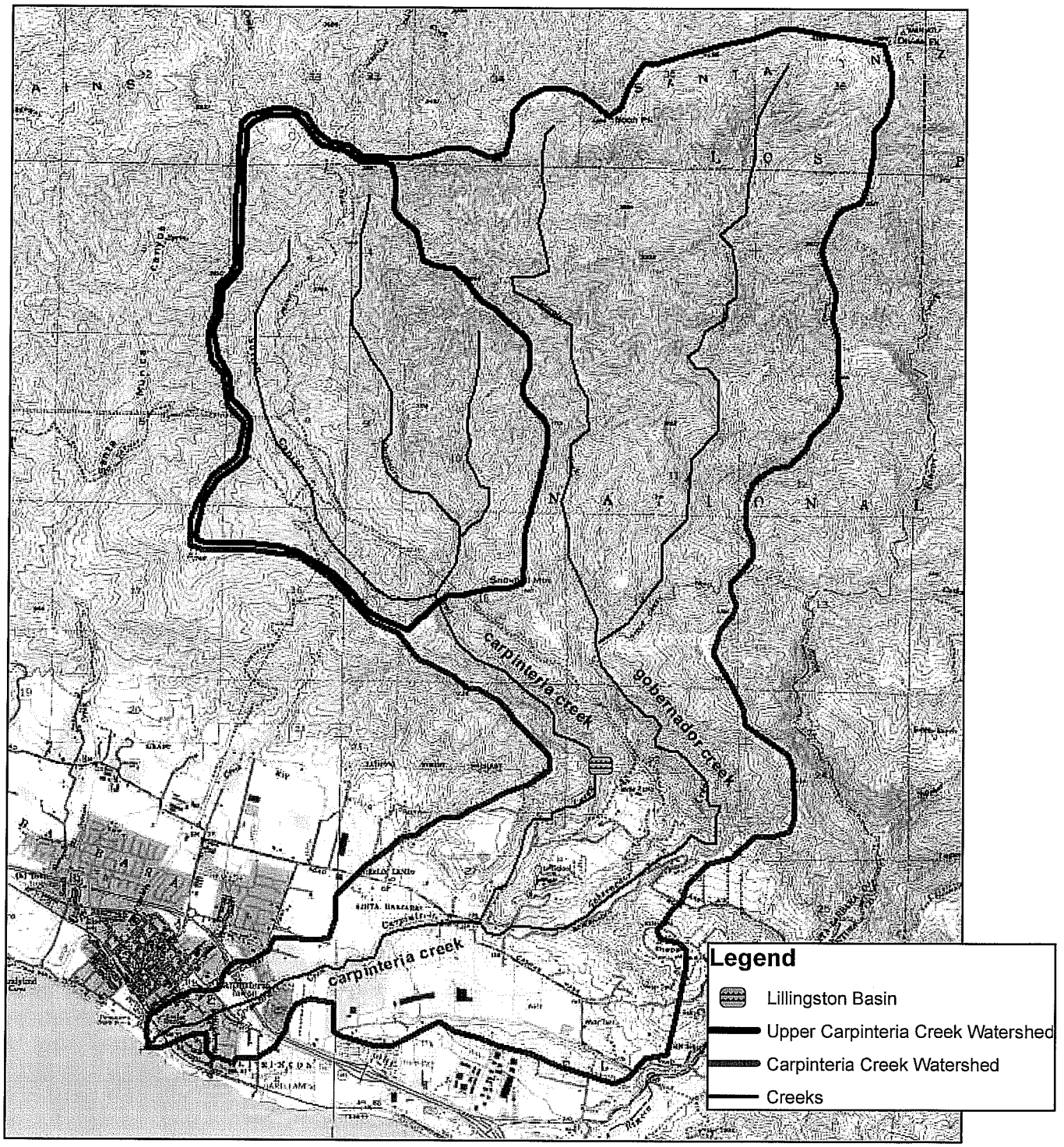
[4] The sum of Columns 3 and 4.

[5] Columns 6 and 7 represent transport capacities of typical creek section located approximately 200 feet downstream of the embankment.

[6] Subsurface represents grain size of subsurface borings taken by Fugro in the Gobernador debris basin and is representative of the material trapped behind the embankment.

[7] Surface represents from a surface pebble count completed on Gobernador Creek at the Widdoes crossing and is representative of the creek bed.

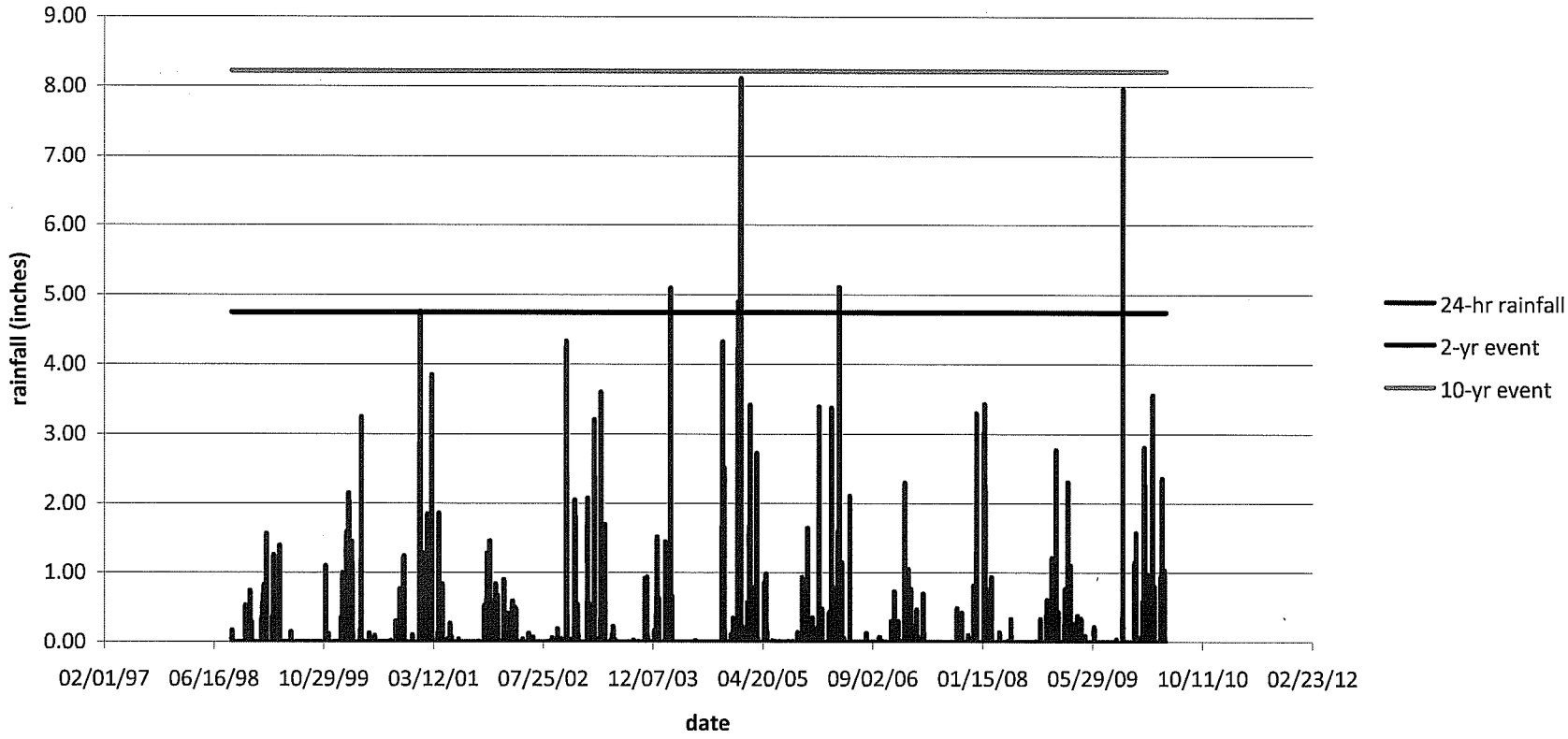
[8] Schoklitsch Transport Capacity Formula, 1962



Lillingston Debris Basin Modification Project Watershed Map [1]

[1] The HEC-HMS hydraulic model for the Gobernador Debris Basin Modification Project was used as the basis for identifying the Upper Carpinteria Creek Watershed (4 sq. mi. - comprised of Sutton Canyon and Carpinteria 1 subsheds) as the sediment yield-contributing watershed. The sub-watershed directly above the Lillingston Debris Basin was assumed to have nominal additional sediment yield as it comprises only 15% of the Upper Carpinteria Creek Watershed.

Figure 4
24-hr rainfall at Doulton Tunnel (#231)
WY 1998-99 through 2009-10



Transport equations generally overestimate actual sediment yields. This may be the result of factors including surface coarsening, grain size variations and simplification of the channel hydraulics. Furthermore, due to the various degrees of uncertainty in in-situ soil densities, soil water content and other soil-specific parameters, the results as tabulated herein should be used for qualitative purposes only. The Carpinteria Creek watershed map is provided as Figure 3. and supporting calculations are available upon request.

In summary, the Sediment Yields and Transport Capacity Analysis showed that for all the rainfall events, sediment yields are within the transport capacity of the system and the system can handle the anticipated sediment input from the debris basin modification without significant impacts to the drainage system. Additionally, as the return period storm event increases, the transport capacity consistently exceeds the total yield thus reinforcing the creek's capacity to transport the anticipated input of sediment.

Figure 4 shows the 24 hour rainfall totals at Doulton Tunnel (located in the hills above Carpinteria) from Water Year 1998-99 through 2009-10 with the statistically generated 2-year and 10-year return period rainfall event lines included on the table. This table shows that the area has received four events that were at least 2-year return periods and two that were 10-year events. The majority of rainfall events are less than the 2 year return period amount of 4.77 inches in a 24 hour period.

While one cannot predict the upcoming winters within this geographic area, a 2 year event statistically has a 50% chance of being equaled or exceeded in any given year which is close to what happened over the last 10 years with the four 2-year events. A 10 year event has a 10% chance of being equaled or exceeded in any given year, a 25 year event a 4% chance and a 100-year event has a 1% chance. The District expects appropriate levels of rainfall will occur during the project to move sediment out of the basin and through the system and that the system's carrying capacity is more than adequate to handle the sediment from the basin and watershed itself without resulting in significant impacts to Carpinteria Creek.

Project Description:

The District received a $208,000 Grant from the California Department of Fish and Game and the District will provide matching funds in order to complete the phased 4-year removal of the Lillingston Debris Basin dam embankment which will result in the reestablishment of Lillingston Canyon Creek to its historical elevation thus opening this watershed to steelhead migration, high quality spawning habitat as well as year-round resident habitat. Dam embankment removal will occur in the fall of 2010, 2011, 2012 and 2013.

A main component of the project is providing temporary access for trucks and heavy equipment. Lillingston Canyon Road provides paved public access up to an existing ranch road on private property. The ranch road terminates at an equestrian arena with turf and landscaping. The District has a recorded easement from 1972 through the equestrian arena and along the eastern edge of the canyon leading to the debris basin site. This access easement was used during initial construction of the basin, but has since been out of service. The access, as described for this project, up the creek bed and onto to the old access road on the east bank near the basin, is the same access route that was utilized more than 25 years ago when the basin was last maintained. While the easement is still valid, vegetation and substrate conditions have changed

since the easement was designated in 1972. There is no longer a defined "road" or pathway all the way up through the canyon to the debris basin. The easement runs along the creek bank with dense riparian canopy trees. Southeast of the basin, the easement runs across very steep terrain with little to no flat surface for vehicles. At the eastern flank of the basin, the easement connects with the remnants of an old access road that is overgrown with cape ivy.

The proposed project makes use of the 1972 easement to the extent feasible, but deviates from the easement in locations where mature native trees are present and where the topography is currently ill-suited for trucks and equipment. The proposed access route, described in detail below, minimizes impact to mature trees and reduces the amount of temporary earthwork required to provide vehicle access to remove the barrier.

Equipment will begin moving up the canyon through the ranch road and across the turf in the horse arena. Taking access into Lillingston Canyon Creek via an existing access ramp (25' x 15'), approximately 700 linear feet downstream of the debris basin embankment, an excavator will be used to move rocks and vegetation to the side of the invert to create a 12-foot wide access road along 500 feet of the creek invert. Approximately 200 feet downstream of the dam embankment, the excavator will leave the creek invert and continue the access road establishment along the east bank on the old overgrown access road that was used approximately 25 years ago. The access road along the east bank will be approximately 275 feet long. The road is being established so the excavator, dump trucks that will haul away the grouted rip rap, a chipper, and a water diversion device can gain access to the debris basin site. In addition to moving rocks from the middle of the invert, construction of the access road will require limited cobble fill to level the road between some of the large boulders or bedrock areas that cannot be moved by the excavator within the invert. In most cases, existing gravel along the edges of the invert or along the edges of the out-of-stream access road areas can be used for fill and some fill will be imported. It is estimated that up to approximately 100 cubic yards of fill will be needed to level the access ramp and road during each year of the 4-year project. It also estimated that during the first year of construction approximately 250 cubic yards of rocks will be moved to the edges of the creek invert in order to establish the in-channel access road. Re-establishment of the instream access road for the remaining three years of the project will most likely require much less rock movement but could also require the same efforts that are needed for the first year, depending upon whether storms deliver new rocks into the project reach or rocks set to the edges are moved by creek flows. Installation of the access road will result in .21 acres of temporary impacts (although not all vegetated) and the potential removal of the following numbers of various sized trees:

4 Willows: 8-in, 8-in, 5-in, 5-in diameter breast height (dbh)
7 White Alder: 12-in, 5-in, 14-in, 8-in, 10-in, 12-in, 12-in dbh
1 Eucalyptus: 14-in dbh
2 Sycamore: 5-inch, 5-inch dbh,

These trees were observed within or adjacent to the 12-foot wide access route through the creek corridor. Some of the trees may be avoided during construction, depending on final field considerations. Patches of willow and alder thicket are present along the edge of the corridor; some of these thickets will also need to be cut back or removed; these saplings, smaller than 4 to 5-inches dbh, were not included in the list above.

Immediately downstream of the basin and along the eastern flank of the creek, is a pocket of several large trees:

3 Sycamore: 8-in, 10-in, 10-in dbh
1 Eucalyptus: 12-in dbh
4 White Alder: 12-in, 12-in, 14-in, 14-in.

The access route will come up the creek bank and around the east side of these trees, tying into the old access route along the east side of the embankment. It is expected that all of these large trees can be avoided.

Working from the top of the dam embankment, the excavator will break the grouted rip-rap from the dam embankment. It is estimated that a total of approximately 13,000 square feet or approximately 1000 cubic yards of concrete and rock will be removed as part of this project. Because this is a phased removal of the structure, the first year's construction will remove approximately 5' of the grouted rip rap from the embankment. Each successive year an additional 5' of the grouted rip rap will be removed. During the final year of structure removal, the grouted apron will also be removed. Even though similar 5' foot vertical sections will be taken out each year, the amount of grouted rock removed will increase each year due to the horizontal area becoming greater towards the bottom of the structure. Approximately 200 cubic yards of grouted rock will be removed the first year, 235 cubic yards the second year, 250 cubic yards the third year, and 310 cubic yards the fourth and final year. Each year, as the grouted rip rap is broken up, it will be loaded into articulated dump trucks and hauled off site and disposed of at the County Transfer Station. It is estimated that approximately 20-30 dump truck loads of grouted rip rap will be removed from the site each year. The number of dump truck loads will also vary because the grouted rock excavated will increase each year as the structure becomes wider as the removal gets closer to the base and apron. For the first year it is estimated that 20 dump truck loads will be required, 23 for the second year, 25 for the third year, and 30 loads during the fourth and final year. Because this is a multi-year project, the instream rocks and boulders will not be redistributed each year and the access road will be re-established each fall by moving rocks that may have moved from above into the creekbed along the access road.

During the 2010 maintenance season, the basin itself will be cleared of vegetation either by using the excavator or by a hand crew using chain saws. The cleared vegetation will be chipped into the surrounding hillsides outside of the flow area.

The phased removal of the embankment is being done in a manner that will meter the impounded sediment through the system over a four year period and during the phased removal, it will be extremely important to protect the remaining embankment from failure between each years' construction. During years 1-3, once the 5 feet of grouted rock embankment is removed, the dirt exposed top of the structure will be "capped" so water does not pipe into the structure and lead to the loss of the entire structure. The grouted rip rap will be removed from the embankment and set aside. The soil along the width of the embankment, will be graded off the top of the structure into the basin. The exposed new "top" of the structure will be covered with an impermeable lining, capped with approximately 2 feet of the soil that was pushed aside and then anchored with one of a number of materials. Approximately 55 cubic yards of native rock, if available, 55 cubic yards of imported rock, or large pieces of the grouted rock will be placed on top of the soil layer to protect and anchor the liner. A rock net may also be placed over the liner/soil/rock surface to further protect the structure. This material will be removed, set

aside and reused during years two and three of the phased removal. Year four of the removal will be the final removal of the embankment and all grouted rock will be removed from the site.

In order to catch any vegetative debris such as logs or tree stumps released from the debris basin during winter flows, a debris rack will be installed approximately 2,500 feet downstream of the debris basin at a location immediately upstream of the first bridge in the system where access into the creek to install the rack and subsequently clean debris from the rack with either a crane or winch truck is possible and can be completed adjacent to an existing road. The debris rack is the standard design that was installed after several of the recent fires in SB County. Debris racks are constructed out of 10" pipes spaced approximately 7' apart vertically set in a concrete base in a v-shape with the point of the V in the upstream direction. The height of the racks depends upon the depth of each creek. The District keeps the debris racks approximately 5 feet below the top of bank elevation, in order to avoid overtopping of the bank if the debris rack becomes plugged. The debris rack would be pre-fabricated at the contractor's yard in several pieces and hauled to the site where it will be installed. The racks are placed in "three sack slurry" concrete which is easier to remove when the time comes. In order to install the debris rack, a 5' wide trench the width of the creek is dug in the channel bottom using an excavator, the rack pieces are placed into the trench and the trench is backfilled with concrete to create the footing for the rack and then the footing is backfilled with soil. An area approximately 50' x 15' will be temporarily impacted to install the rack. Both creek banks immediately upstream of the bridge are grouted rip rap, therefore the debris rack will be placed against the banks but the banks will not be excavated for the installation. The rip rap is currently vegetated with ivy.

Lillingston Canyon Creek is a perennial creek, although flows are substantially reduced during the summer and fall months and the creek can dry up only 500 feet or less downstream of the debris rack site during normal or below normal rainfall years and can be reduced to isolated pools within the project reach. Prior to entering the creek with the excavator, a water diversion made of sand bags and plastic will be installed within the debris basin and the water will be pumped around the site through a pipe. The water intake will be screened to prevent aquatic wildlife from entering the diversion system. Once the access road is in place, if needed, settling tanks and pumps for a better water diversion will be brought into the basin and installed within the basin to keep water from flowing through the construction site. Creek flow will be pumped around the site and released approximately 800 feet downstream of the basin to avoid the access road.

Depending upon site conditions, and whether turbid water is being generated within the instream access road, an additional water diversion/settling tank(s) set-up may be placed at the bridge so non-turbid water can be released downstream. The water diversion method will be sized to accommodate the field conditions on any given year.

The District Biologist, and additional staff as needed, will monitor the water diversion and relocate aquatic wildlife outside of the project area. It is anticipated that coast range newt and juvenile/resident steelhead trout will be present in the project area during dewatering. Per the terms of the District's Biological Opinion, steelhead trout will be captured by netting as the water level drops. Specimens will be transferred into buckets or holding tanks with aeration; the tanks will be transported upstream outside of the project area and released into suitable pool habitat. Similarly, coast range newts will be

captured by netting or by hand and will be transported in tanks or buckets upstream outside of the project area into pool habitat.

The duration of work will vary each year with the first and last year taking longer than the second and third years. The 2010 construction year is estimated to take four weeks due to the initial establishment of the access road, installation of the debris rack, vegetation clearing in the debris basin, and removal of the first portion of the embankment. In years two and three, the access road will still be in place and may only require minor repairs to gain access. The main work will involve installation of the water diversion, embankment removal, and hauling the material from the work site. Work during years two and three is estimated to take two weeks. In 2013 which is the final year of embankment removal, in addition to the completion of the embankment removal, restoration of the access road and replanting of native vegetation will be project components. Year four work is estimated to take five weeks.

The dam embankment is scheduled to be completely removed by the fall of 2013. Once the embankment is completely removed, the creek invert along the access road will be restored to approximate the pre-project conditions by redistributing the rocks along the invert length to create pools and riffle areas and native vegetation will be planted.

Summary of Temporary Impacts (note: only the margins of the instream access road footprint have occasional patches of vegetation therefore the square footage of temporary impact is for the actual footprint of the access road and not total vegetated area).

Debris Basin Vegetation Removal: 1.1 acres
Instream Access Road: .13 acres
Bank-side Access Road: .08 acres
Access Ramp: .009 acres

Post Project Re-Vegetation:

The restoration objectives will be to mimic the pre-project condition as much as feasible in the different impacts zones of the project. The District has many years of experience in riparian restoration, including a debris-basin removal project in Gobernador Canyon, from which the restoration details have been formulated. From the access ramp upstream through the basin, a length of approximately 1400 liner feet, as part of the restoration effort, at least 20 willows and 60 white alder will be planted along the creek in order to compensate for the 2 willow and 6 white alder above 6" dbh that will most likely be removed to create the instream access road.

Instream Access Road
The majority of the creek invert is unvegetated with most of the vegetation occurring along the fringes of where the access road will be placed, therefore only a small amount of vegetation will be removed._This project area will involve patches of disturbance to trees and riparian vegetation at the fringes of the access route through the creek channel. After rocks are redistributed in the creek channel, the edges of the banks will be revegetated with native species to begin re-creating the near-stream habitat that will be temporarily removed for the project.

Even though the entire length of the channel is not currently vegetated, a 4 foot wide band of native vegetation will be planted along the 500 foot long east and west edge of the restored invert at the end of the construction period re-creating .09 acres of habitat. Restoration will use cuttings and root wads of local riparian species such as willow and alder, with supplemental container plantings of sycamore and cottonwood as needed.

Objectives will be to re-establish riparian cover (shade) and assist in re-establishing pools by anchoring rocks and boulders. Riparian cover is currently 80 to 100% and is not expected to be substantially reduced during the project.

If the project results in openings in the riparian canopy, re-planting will focus on refilling the open patches with native trees. Plantings/rootwads will also be installed at sites that lend themselves to pool formation, or where bare soil has been exposed. Performance criteria of this type of restoration planting will be mostly qualitative. If willow cuttings and rootwads do not show signs of successful resprouting and growth within the first wet season after installation, follow-up cuttings and/or container plants may be installed at a higher density. Seasonal monitoring of vegetation recovery will be included in the long-term assessment of the project.

Access Ramp

The access ramp at the horse arena will be revegetated through a combination of natural colonization, cuttings, container plants, and seeding. The site may need to be used for access if any remedial earthwork is required, thus the re-vegetation will use low-growing species that are tolerant of occasional vehicle traffic, such as blackberry, gooseberry, and wildrye. Willow and elderberry may be also be installed or inserted from cuttings. The objectives at this location will be to stabilize exposed soil. If regrowth is insufficient to control erosion, additional plantings, mulching, or seeding would be performed.
The goals of restoration will be to establish 50% native cover 1 year after installation, 70% at 2 years, and 80% at 3 years.

Bank-side Access Road

The out-of-stream access road along the east bank will be revegetated with a mix of riparian and upland species once the de-construction is complete. This access ramp is likely to recolonize with native species and exotics already established within Lillingston Canyon. Extensive cape ivy at the road and along the canyon walls is very likely to encroach into this site post-construction. Supplemental willow cuttings, alders, sycamores, wild rye, and blackberry will be planted to encourage the natural recolonization process and slow encroachment of non-native cape ivy from the adjacent hillside. Depending on final configuration of the access ramp, the upper slopes of the access ramp into the basin may be planted or seeded with coastal sage transitional species such as mugwort, black sage, California sagebrush and/or coast live oak seedlings. Given that the current state is nearly 100% non-native cover, the performance criteria at this site will be to improve over the existing condition by establishing 10 to 25% native cover.

Basin

Re-vegetation in the basin itself will depend on the shape and configuration of the slopes after the embankment is completely removed. The District expects the basin to revert to a canyon with fairly steep sides and a rocky/boulder substrate, with a narrow riparian corridor along the toe and tops of the bank, much like the existing condition downstream

and upstream of the basin. Since the embankment will be removed in phases over four years, it is expected that the slopes of the basin will begin to be naturally recolonized each year as the embankment is lowered.

Each season, the District will assess the slopes and the rate of natural colonization in anticipation of post-project restoration requirements. After complete removal, the District will install supplemental plantings and/or seeding as necessary if natural recolonization is not adequate.

Natural recolonization of the basin slopes exposed by the removal of the embankment and formed by the gradual removal of the basin sediment will be assessed in terms of the following objectives during the wet season immediately following complete removal of the embankment:

- Native cover over 50 percent of exposed slopes suitable for regrowth.
- Slopes that are greater than 70% slope or exposed rock will not be revegetated.
- Native riparian species can incluce but are not limited to overstory tree species such as willow, alder or sycamore, and understory herbaceous species such as horsetail, blackberry, clematis or cattails.
- Invasive weed cover on the basin slopes amounts to less than 10% of ground cover.
- Species (such as willow, alder, sycamore, cottonwood or elderberry) that will eventually provide shade/canopy cover along the banks have begun to colonize the slopes over the past several years of embankment removal (qualitative assessment).

It is anticipated that as the basin embankment is removed over four years, the slopes within the basin that are exposed as the sediment is flushed out of the basin will become colonized with native species including tree species such as willows, alders, or sycamore. If, after the final removal phase is completed, the regrowth on the previously exposed basin slopes does not show canopy species, then willows, alders and sycamore will be planted along the basin slopes in the fall of 2013 to begin the establishment of canopy species along this reach.

If the basin slopes contain less than 70% cover on the plantable portions of the slopes three years after project completion, the District will plant additional cuttings, container plants and/or seed the basin slopes to increase the native cover to at least 70% and improve the riparian habitat function. Assessments, maintenance of the restoration areas, and supplemental revegetation will continue for 5 years after removal of the basin or until 70% cover is achieved.

Summary of Planting Acreages:

Instream Access Road: .09 acres
Bank-side Access Road: .08 acres
Access Ramp: .009 acres
Basin Slopes (as needed): .59 acres

Revegetation will be installed in late fall to take advantage of winter rains. Revegetation will focus on encouraging natural recolonization and soil stabilization with minimal watering and maintenance required, due to the remoteness and difficulty accessing the site once the creek corridor has been reconfigured.

The debris rack will be removed as well, in the fall of 2014 once the project is complete and the area has been through the winter of 2013. No revegetation is needed at the debris rack site.

Impacts and Mitigation Measures:

Listed below are the impacts and associated mitigation measures for each of the issue areas impacted by this project as identified in the Updated Program EIR.

Impacts:
Impacts identified for this project have been taken directly from the Impact Summary Table of the Updated Program EIR for Santa Barbara County Flood Control Routine Maintenance Activities (01-EIR-01) with additional detail provided as relevant to this project. Only the impacts that apply to this project are included. Some of the impacts listed below are considered Class I (unavoidable significant) under the worst-case scenario assumptions of the PEIR, however due to the limited scope of this project and the current state of the creek, this project would not be considered a worst-case scenario. Therefore, unless otherwise noted, the impacts identified below are considered Class II.

Mitigation Measures:
Mitigation measures for this project have been taken directly from the Impact Summary Table of the Updated Program EIR for Santa Barbara County Flood Control Routine Maintenance Activities (01-EIR-01) and are the standard maintenance practices which were revised when the PEIR was updated in 2001. Only the mitigation measures that apply to the identified impacts are included.

Water Quality:
Impacts:
EIR Section 5.2.2

WQ-A. Potentially Reduce the Amount of Natural Biofiltering. Removal and/or thinning of vegetation from channel bottom due to brushing, herbicide application, desilting, and channel shaping cause a temporary reduction in vigor and/or cover of successional riparian habitats and emergent wetlands. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. It could potentially reduce the bio-filtration effects (if any) of emergent wetlands present along the wetted channel and debris basin bottom. As such, maintenance activities could contribute to an overall decrease in water quality.

WQ-C. Accidental Spills and Leaks. Accidental leakage or spill of fuel and/or oil from heavy equipment working within or directly adjacent to the watercourse or in a debris basin can cause discharge of pollutants to the creek, which would degrade water quality. This impact is anticipated to be highly localized because most accidental spills are limited in quantity (e.g., less than 50 gallons) and would occur in the dry season when flows are absent. Potential accidental spills of herbicides from applicators.

Mitigation:
EIR Section 5.2.3

H-1 - Maintenance Need Analysis. The District shall evaluate relevant hydraulic factors when determining the need, type, and extent of channel maintenance for non-exempt watercourses where natural geomorphic processes are largely intact. Key factors that shall be included in the evaluation include: (1) hydraulic benefits of maintaining the bankfull channel (if present) dimensions, natural sinuosity, and natural channel bed roughness; and (2) potential adverse hydraulic effects of excessive brushing, channel shaping, equipment activity in the channel, and bank hardening. Hydraulic principles of creating and maintaining channel stability and sediment transport equilibrium shall be applied, if applicable. The analyses and determinations relevant to this issue shall be documented in the Annual Plan. Clear maintenance objectives with attainable benefits for the protection of life, property, and habitat shall be established for each project and presented in the Annual Plan. A primary objective of this measure is to minimize maintenance activities to the extent feasible, consistent with District's program objectives.

B-2 – Minimize Vegetation Removal from Channel Bottom. The District shall minimize vegetation removal from the channel bottom to the least amount necessary to achieve the specific maintenance objectives for the reach (i.e., removing obstructive vegetation or silt-trapping vegetation). Brushing and herbicide application for vegetation control on the channel bottom shall be conducted in a non-continuous, mosaic-like manner, to the extent feasible, allowing small patches of in-channel native vegetation to persist.

B-7 – Post Maintenance Channel Bed Treatment. The District shall roughen the channel bed after channel desilting maintenance to create microtopography that will encourage re-establishment of aquatic habitats over time. Pools and riffles shall be recreated in the work area if they were removed during maintenance, to the extent feasible. Modifications of the creek bed shall be consistent with geomorphological considerations identified through mitigation measure H-1.

W-4 - Prevent Accidental Spills and Leaks. The mixing and dispensing of herbicides and equipment fueling or maintenance shall not occur within a channel or a basin. Spill containment and clean-up procedures for herbicides and vehicle fuels and oils shall be developed by the District. All field personnel shall be trained and all field vehicles shall be equipped with appropriate materials.

Residual Impacts:
Incorporation of the above mitigation measures would reduce the impacts to Water Quality to less than significant levels.

Water Quality Class III
Class III Impacts are less than significant and do not require mitigation measures. The District, however, does provide mitigation measures for most of the Class III impacts.

WQ-D. Temporary Sedimentation and Turbidity. Channel shaping, desilting, bank stabilization by placing fill or grading banks, bank protection construction or repair, pilot channel construction, access ramp construction, and excessive removal and/or thinning of in-channel vegetation could cause localized increases in suspended sediments and

turbidity which could temporarily degrade water quality. This impact would also occur due to debris basin desilting and to a lesser degree, to pilot channel and outlet works clearing.

The phased removal of the debris basin embankment will gradually introduce up to 6,600 additional cubic yards of sediment into the system on an annual basis for four years. Sediment yield and transport capacity calculations show the additional input of sediment is within the carrying capacity of the system. During storm events the associated runoff could become incrementally more turbid than if the project was not occurring, however the duration of turbidity is not expected to be longer than would normally occur with flows becoming clear within the same time frame as they do without the project, estimated to be within 24 to 48 hours.

Mitigation:
W-1 - Reduce Sedimentation. The District shall minimize the amount of surface disturbance and vegetation removal to the extent feasible during all maintenance activities in order to reduce the area of disturbed soils that could be eroded during winter runoff. No stockpiles or dewatering operations shall be established in the channel bed or basin bottom. All fill shall be compacted to reduce erosion. All disturbed banks and terraces above the low flow channel shall be seeded with appropriate riparian grasses and herbs and/or planted with willows, mulefat, or other woody plant species. The objectives of the seeding and/or planting are to stabilize these areas and reduce erosion. The selection of species to be used and the density of seeding or planting shall balance the need for maintaining channel capacity while meeting these objectives. If work must occur in a wetted channel that has continuous flow downstream of the work site, the District shall either temporarily divert streamflow around the work site, or provide temporary sediment containment downstream of the site. In addition, the District shall check silt fencing, diversions, and settling ponds twice a day.

Wetland, Riparian Habitat and Rare Plants

Impacts:
EIR Section 5.3.2

WRR-A. Reduce Amount and Quality of Channel Bottom Habitat. Removal and/or thinning of vegetation from channel bottom due to brushing, herbicide application, desilting, and channel shaping cause a temporary reduction in vigor and/or cover of successional riparian habitats and emergent wetlands. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. Although the functions and values of the habitat temporarily disturbed by maintenance would be replaced through the District's habitat restoration program, there is a potentially adverse cumulative effect of annual habitat disturbances throughout the County.

WRR-C. Access Ramp Habitat Impacts. Construction or maintenance of access ramps could temporarily reduce the amount of riparian habitat.

WRR-D. Temporary Habitat Disturbance. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could temporarily remove wetland, riparian and aquatic habitats in work areas

WRR-E. Displace Sensitive Plants. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, channel shaping, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could remove regionally rare plant species This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. This impact is expected to occur infrequently because so few sensitive plants occur in the areas maintained.

Mitigation Measures:
EIR Section 5.3.3

See Water Quality Section for Mitigation Measure:
B-2– Minimize Vegetation Removal from Channel Bottom.

B-1 - Compensatory Habitat Mitigation. The District shall provide compensatory habitat mitigation for the removal of riparian and wetland habitat associated with brushing, herbicide spraying, channel shaping, bank stabilization by placing fill or grading banks, pilot channel construction, bank protection installation, access ramp construction, and channel desilting. The mitigation shall be required for all vegetated habitat, with the exception of areas dominated by aggressive, noxious non-native weeds (e.g., giant reed). The restoration treatment shall occur either on-site (i.e., along suitable portions of the drainage and its tributaries where the project is located) or off-site (Los Carneros Mitigation Bank) in accordance with the updated restoration plan described in the updated Program EIR, using a 1:1 acreage replacement ratio. A 2:1 ratio shall be used for impacts due to new grade stabilizers and non-vegetated bank protection, as described in the updated Program EIR. Prior to the use of the Los Carneros Mitigation Bank, the District shall consult with other organizations with expertise in habitat restoration (e.g., Wetlands Recovery Project) to determine if they have any knowledge of any on-site opportunities. Mitigation for specific affected areas shall only occur once during the next ten years of the maintenance program. That is, once habitat mitigation has been achieved for a portion of a drainage, no further mitigation is required for future maintenance of that reach or site over the next ten years regardless of the type of maintenance activity, provided the previous habitat mitigation has been successfully implemented, and the District continues to minimize habitat impacts to the extent feasible. After ten years, the habitat mitigation requirement shall begin again, regardless of previous habitat mitigation. Native trees with a diameter at breast height of 6 inches or more that are removed shall be replaced at a 10:1 ratio at the restoration site, independent of the replacement of habitat based on acreage. To the extent feasible, habitat restoration opportunities shall be sought on the tops of banks and landward of the creek that could provide a bio-filtering benefit for overland stormwater runoff. In addition, the District will seek opportunities to use regionally rare plants in the restoration plans, as feasible.

Please note that the Debris Basin Maintenance Plan, for which this is an addendum to, does not include a replacement mitigation ratio of 1:1 for vegetation removal with in debris basins therefore the majority of the above mitigation measure B-1 does not apply to the work or vegetation removal within the debris basin. However it does pertain to the access ramp and establishment of the access roads within the creek corridor.

B-3 - Construction Monitoring During Maintenance Activities. The District Biologist shall monitor maintenance activities daily to ensure that the appropriate methods and limits are used. Results of the monitoring shall be documented in the annual post-maintenance report. These activities include brushing, herbicide application, channel shaping, desilting, bank stabilization by placing fill or grading banks, bank protection construction or repair, grade stabilizer construction or repair, pilot channel construction, and access ramp construction.

H-8 – Access Ramps. The distance between access ramps shall be determined by balancing the impacts of driving equipment on the channel bed versus creating extra access points. Access ramps shall be placed in areas with minimum potential for erosion. Access ways shall be sited, constructed, and maintained in a manner that minimizes disturbance to native vegetation, wildlife, and aquatic organisms. The width of all new ramps shall be minimized to the extent feasible. Unneeded access ramps shall be removed and restored to a natural condition. For ramps that will be used infrequently (e.g., every three years or more), the District shall seed or plant the ramp after each use with native species, compatible with adjacent vegetation and resistant to occasional vehicle use, to prevent infestations of noxious weeds. Permanent and frequently used ramps shall be stabilized with vegetation, as feasible, and designed to minimize unauthorized vehicle access.

B-4 - Restore Temporarily Disturbed Areas. The District shall restore channel banks containing riparian or wetland vegetation that are temporarily disturbed by maintenance or construction activities associated with the following: channel shaping, placement of bank protection, ramp construction, and repair or construction of bank protection and grade stabilizers. Restoration objectives, methods, plant species, maintenance, and monitoring shall follow the guidelines in the updated restoration plan described in the Program EIR. The restoration of channel bed habitats shall only occur if it would not conflict with the maintenance needs in the affected reach.

B-5 - Pre-Construction Biological Surveys and Avoidance Measures. A District biologist shall inspect all maintenance areas in creeks and basins during the annual spring field assessments (April and May) to determine if any sensitive plants, fish, or wildlife species are present, or habitats for these species are present. If the species are present, the District shall modify maintenance activities to avoid removal or substantial disturbance of the key habitat areas or features. Avoidance and impact minimization measures shall be described in the Annual Plan for each maintenance project. If a rare plant could be affected, the District shall relocate the plant by cultivation or seeding methods to a suitable nearby site. If a sensitive fish or wildlife species will be present at a maintenance site during the work period, the District shall schedule the work to avoid the species, if possible. If avoidance is not feasible, the District shall attempt to relocate the species or population with approval from the California Department of Fish and Game, US Fish and Wildlife Service or National Marine Fisheries Service, as appropriate. This measure applies to all currently known sensitive species that occur in maintained drainages and basins, as well as species that are determined to be sensitive in the future. Endangered species experts with handling permits shall be consulted during relocation efforts to provide additional assurances that relocation is effective. Such consultation shall include assistance in field efforts, as warranted.

B-6 - Construction Monitoring for Sensitive Species. The District Biologist shall monitor, on a daily basis, earth and vegetation disturbing maintenance activities located at and adjacent to locations where sensitive species are known to occur. The need for

monitoring and the areas to be monitored shall be determined during the annual field assessment in the spring. The objective of the monitoring is to ensure that key habitat features or species locations are avoided.

Residual Impacts:
Incorporation of the above mitigation measures would reduce the impacts to Wetland, Riparian Habitat and Rare Plants to less than significant levels.

Wetland, Riparian Habitat and Rare Plants, Class III Impacts
Class III Impacts are less than significant and do not require mitigation measures. The District, however, does provide mitigation measures for most of the Class III impacts.

F. Facilitate Weed Colonization. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could facilitate colonization of disturbed areas by non-native invasive weeds. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins.

Mitigation:
See Wetland, Riparian Habitat and Rare Plants, Mitigation Measure:
B-1 – Compensatory Habitat Mitigation

FISH, AQUATIC SPECIES, AND WILDLIFE
Impacts:
EIR Section 5.4.2

FAW-A. Displace Wildlife due to Vegetation Removal in the Channel Bottom. Removal and/or thinning of vegetation from channel bottom due to brushing, herbicide application, desilting, and channel shaping cause a temporary reduction in vigor and/or cover of successional riparian habitats and emergent wetlands. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. These actions could reduce foraging and loafing habitat for certain riparian and wetland dependent bird species. It can also reduce habitat heterogeneity for reptiles and small mammals, and degrade aquatic habitats by removing protective cover and increasing temperatures. While the long term functions and values of the habitat temporarily disturbed by maintenance would be replaced through the District's updated habitat restoration program, there will be a temporal impact to wildlife that cannot be fully mitigated.

FAW-B. Adverse Effects of Maintenance on Aquatic Habitat. Channel shaping, bank stabilization by placing fill or grading banks, sandbar removal, excessive removal and/or thinning of in-channel vegetation, and pilot channel construction could reduce vegetation cover, pools and gravel beds, organic input from overhanging vegetation supporting aquatic productivity, and instream cover and debris providing micro-habitat. In addition, fish and aquatic organisms could be directly displaced. These impacts are temporary and reversible.

FAW-D. Displace Wildlife for New Access Ramps. Construction or maintenance of access ramps could temporarily reduce the amount of riparian habitat. This action could

adversely affect nesting, cover, and foraging habitat for riparian-dependent bird species, as well as cover for riparian amphibians, reptiles, and mammals.

FAW-E. Displace or Remove Sensitive Fish and Wildlife. Disturbance of channel banks and bed from heavy equipment during channel shaping, placement of bank protection, channel shaping, desilting operations, ramp construction, and repair of bank protection and grade stabilizers could remove and displace sensitive fish and wildlife species, depending upon location and time of year. This same impact could occur due to clearing pilot channels and outlet works in debris basins, as well as removing sediments from basins. Species that could be directly affected include the southern steelhead trout, arroyo chub, southwestern pond turtle, two-striped garter snake, San Diego horned lizard, California red-legged frog, silvery legless lizard, and tri-colored blackbird. Species that could be indirectly affected due to habitat modification include southwestern willow flycatcher, least Bell's vireo, yellow warbler, yellow breasted chat, purple martin, warbling vireo, Wilson's warbler, Swainson's thrush, blue grosbeak.

FAW-G. Fish Passage Impacts from New Grade Stabilizers .New grade stabilizers may be installed to stabilize the bed of a channel that is being lowered due to headcutting. A new or reconstructed stabilizer could create a vertical drop, which may become a fish passage impediment or barrier over time, depending on the height of the vertical drop.

Mitigation Measures:
EIR Section 5.4.3

See Wetlands, Riparian Habitat, and Rare Plants Section for Mitigation Measures:
B-1 - Compensatory Habitat Mitigation
B-5 - Pre-Construction Biological Surveys and Avoidance Measures.
B-6 - Construction Monitoring for Sensitive Species

See Water Quality Section for Mitigation Measures:
B-2 – Minimize Vegetation Removal from Channel Bottom
B-3 - Construction Monitoring During Vegetation Removal
H-1 – Maintenance Need Analysis

H-7 – New or Repaired Grade Stabilizers. Prior to installing a new grade stabilizer to control channel bed degradation, the District shall conduct the hydraulic analysis described in H-1. In addition, the District shall first consider stabilizer designs that use native ungrouted rock. The new structure shall not create a passage impediment for fish. This measure also applies to the repair or reconstruction of existing stabilizers. Detailed plans for new and repaired grade stabilizers shall be presented in Annual Plans, including a consideration of alternative designs and justification for the selected design.

F-1 – Assist Others with Fish Passage Impediment Removal Projects. Subject to available resources, the District shall provide technical and regulatory assistance to other parties (agencies and non-governmental organizations) seeking to remove or modify fish passage impediments along reaches maintained by the District. Assistance shall include review and recommendation concerning project plans; and identifying a CEQA lead agency and assisting in the preparation of a CEQA document for the proposed project; and general assistance in acquiring access easements and permits.

Residual Impacts:
Incorporation of the above mitigation measures would reduce the impacts to Fish, Aquatic Species and Wildlife to less than significant levels.

Fish, Aquatic Species, and Wildlife, Class III Impacts
Class III Impacts are less than significant and do not require mitigation measures. The District, however, does provide mitigation measures for most of the Class III impacts.

FAW-H. Increased Water Temperatures in Aquatic Habitats. Brushing and spraying cause the removal of vegetation in the channel bed which could increase the temperature of water present due to greater solar radiation. The higher temperatures could adversely affect the quality of aquatic habitats in the channel bottom, if present.

FAW-I. Effects of Sediments and Turbidity on Aquatic Organisms. The following activities could cause a temporary increase in sediment and turbidity levels: brushing, mowing, and spraying channel bed vegetation; channel shaping, desilting, bank stabilization by placing fill or grading banks, pilot channel construction, equipment movement on the channel bed, and pilot channel clearing in basins. The higher levels could adversely affect fish and aquatic organisms present in any aquatic habitats.

Removal of the Lilingston Debris Basin will result in increased sediment and debris load as the basin releases several years' worth of accumulated material back into the creek system. While the accumulated material in the basin is all native to the watershed, the sudden reintroduction of material may have incidental impacts on fish and aquatic wildlife. The project is proposed in phases to stagger the release of material and allow the system to adjust gradually.

Currently, the creek downstream of the debris basin is functioning in a sediment-deprived state since the embankment has trapped both fine sediment and large debris for many years. As a result, the creek has downcut a pool at the downstream end of the basin.
Storm flows in southern Santa Barbara County creeks are typically very turbid, especially early in the hydrograph. As a result of the proposed project, turbidity will remain high during rain events and a larger quantity of sediment will be delivered downstream compared to background conditions. The effect may be similar to that of a wildfire, landslide, or other natural disturbance in the watershed.

When the embankment is notched and material is released during storm events, the downstream pool will fill with sediment. Downstream pools will also fill, at least partially, with sediment, gravel, and larger rock. The degree of sedimentation is directly related to rainfall patterns. The Sediment Yields and Transport Capacity Analysis (attached) shows that the estimated annual release of 6,600 cubic yards from the basin would occupy less than the available sediment transport capacity during a 2-year storm. As storm size increases, sediment from the basin occupies less and less of the available sediment capacity. This indicates that the sediment from the basin has less influence during larger storms compared with smaller storms, but even in a small storm the sediment load is below the capacity of the system within the first 200 feet downstream of the basin.

The degree to which the sedimentation is noticeable downstream of the basin depends on rainfall patterns, substrate, and hydrogeomorphology, along with all of the other sources of sediment in the watershed. The anticipated effect of sedimentation will

become less apparent with distance from the basin, and will be incorporated into the normal cycles of erosion and sedimentation that occur in the watershed in the years following basin removal.

Sedimentation in pools may have negative impacts on fish and breeding amphibians. Pools will likely become shallower, leaving less available habitat for aquatic animals when flows recede in the summer. Coast range newt and other amphibians may be displaced upstream or further downstream to find suitable breeding habitat.

Biomonitoring and relocation during dewatering will remove aquatic species from the project area during the initial phase of the work, minimizing the loss of individual animals. The indirect impact to fish and wildlife is temporary and will be abated by the increase in available habitat upstream of the basin as the stream gradient reaches a new equilibrium as well as new habitat that will form within the new stream channel that is currently occupied by the debris basin. Impacts to fish and amphibians are expected to be short term and less than significant.

FAW-J. Impact of Accidental Releases on Aquatic Organisms. There is a very low potential for the accidental discharge of fuel, oil, and herbicides to a channel or debris basin during routine maintenance. Such spills may affect fish and aquatic organisms, if present.

Mitigation Measures:
See Water Quality Section for Mitigation Measure:
B-2 - Minimize Vegetation Removal from Channel Bottom
W-1 - Reduce Sedimentation
W-4 - Prevent Accidental Spills and Leaks

Hydrology
Impacts:
EIR Section 5.1.2
H-A. Preventing a Build up of Channel Resistance May Increase Velocities. Channel resistance is reduced by brushing, mowing, spraying, and discing to remove obstructive and/or silt-trapping vegetation; and by removing storm debris and obstructive sandbars. These actions can result in higher velocities, which in turn could theoretically cause minor and localized channel degradation that contributes to bank erosion in the affected reach. This impact is expected to occur very infrequently, if at all, and would only have localized hydraulic impacts. To ensure that this impact is avoided under the current program, the District would conducts an "engineering analysis" (Mitigation Measure H-1) to determine the need, nature, and extent of maintenance activities each year along maintained drainages, and give full consideration of incidental adverse hydraulic effects associated with channel maintenance.

H-D. Effect of Equipment on Channel Bed. For large maintenance projects, the movement of equipment in the channel bed can disrupt any armored layer on the channel bed and loosen sediments. It may also reduce the channel topographic diversity, which imparts a certain resistance to flow, thereby increasing flow velocities and sediment transport capacity.

Mitigation Measures:
EIR Section 5.1.3

See Water Quality Section for Mitigation Measure:
H-1 - Maintenance Need Analysis.
B-7 - Post Maintenance Channel Bed Treatment

Residual Impacts:
Incorporation of the above mitigation measures would reduce the impacts to Hydrology to less than significant levels.

Hydrology Class III Impacts
Class III Impacts are less than significant and do not require mitigation measures. The District, however, does provide mitigation measures for most of the Class III impacts.

H-E. Impact of Removing Channel Obstructions (Excessive Desilting). Excessive desilting could result in lowering the channel bed below its previous invert elevation, which could contribute to over-steepened banks that are prone to failure. This impact is expected to occur very infrequently, if at all, and would only have localized hydraulic impacts.

H-F. Altered Channel Sinuosity and Slope. Creation of a straight pilot channel could theoretically reduce sinuosity, increase channel slope, and cause channel bed degradation. This impact is expected to occur very infrequently, if at all, and would only have localized hydraulic impacts.

H-H. Steep or Exposed Access Ramps. Creating an overly steep and unstabilized access ramp can cause increased local bank erosion

Mitigation Measures:
See Water Quality Section for Mitigation Measure:
H-1 - Maintenance Need Analysis

H-2 - Extent of Desilting. The depth of channel desilting shall not cause bank undercutting or channel headcutting. The District shall make a field determination of the maximum depth of desilting based on channel capacity objectives, an evaluation of channel invert elevation and slope through the project reach, and a consideration of the maximum allowable bank length and slope that would cause bank instability. To the extent feasible, banks and bank vegetation shall not be disturbed or reconstructed during desilting to avoid destabilizing the banks.

H-3 - Post Desilting Restoration. After desilting, the District shall restore the channel geometry at the desilting site to a more natural state, as feasible, based on the channel shape, dimension, and slope upstream and downstream of the project site. The channel geometry shall be designed to enhance post-maintenance sediment transport through the desilted reach. If banks are disturbed during desilting, they should be set at a slope that matches existing undisturbed banks and stabilized, to the extent feasible and taking into account available right of way.

H-4 - Pilot Channel Construction. If it is necessary to construct a pilot channel or substantially modify an existing low flow channel, the District shall attempt to maintain the low flow channel length, width, slope, substrate, and sinuosity that are characteristic of the project reach, as determined by field observations of undisturbed low flow channels upstream and downstream of the project reach.

H-8 – Access Ramps. The distance between access ramps shall be determined by balancing the impacts of driving equipment on the channel bed versus creating extra access points. Access ramps shall be placed in areas with minimum potential for erosion. Access ways shall be sited, constructed, and maintained in a manner that minimizes disturbance to native vegetation, wildlife, and aquatic organisms. The width of all new ramps shall be minimized to the extent feasible. Unneeded access ramps shall be removed and restored to a natural condition. For ramps that will be used infrequently (e.g., every three years or more), the District shall seed or plant the ramp after each use with native species, compatible with adjacent vegetation and resistant to occasional vehicle use, to prevent infestations of noxious weeds. Permanent and frequently used ramps shall be stabilized with vegetation, as feasible, and designed to minimize

Air Quality

Impacts:

EIR Section 5.5.2

AQ-A. Equipment Emissions. Temporary emissions of reactive organic compounds (ROC), particulate matter, and NOx associated with gasoline and diesel-powered heavy-duty maintenance equipment, as well as employee vehicles and trucks transporting excavated materials to and from maintenance sites.

AQ-B. Fugitive Dust Emissions. Temporary emissions of fugitive dust (particulate matter) due to earth moving activities during maintenance, including channel shaping, desilting, bank stabilization by placing fill or grading banks, bank protection construction or repair, pilot channel construction, and access ramp construction.

Mitigation Measures:

EIR Section 5.5.2

A-1 – Reduce Emissions. Implement the following Santa Barbara County APCD-approved measures for each piece of heavy-duty diesel construction equipment to minimize NO_x emissions: (1) The engine size of construction equipment shall be the minimum practical size; (2) Heavy-duty diesel-powered construction equipment manufactured after 1996 (with federally mandated clean diesel engines) should be utilized wherever feasible; (3) The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest number is operating at any one time; (4) Construction equipment operating onsite shall be equipped with two to four degree engine timing retard or precombustion chamber engines; (5) Catalytic converters shall be installed on gasoline-powered equipment, if feasible; (6) Diesel catalytic converters shall be installed, if available; and (7) Diesel powered equipment should be replaced by electrical equipment, whenever feasible.

A-2 – Reduce Fugitive Dust. Implement the following Santa Barbara County APCD-approved measures to minimize fugitive dust emissions: (1) After clearing, grading, earth moving or excavation is complete, the disturbed area must be treated with watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur; (2) During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this shall include wetting down such areas in the

late morning and after work is completed for the day. Increased watering frequency shall be required whenever the wind speed exceeds 15 mph. Reclaimed water shall be used whenever possible; (3) Minimize the amount of disturbed area and reduce on site vehicle speeds to 15 miles per hour or less; (4) Gravel pads should be installed at all access points to prevent tracking of mud onto public roads; (5) If importation, exportation, and stockpiling of fill material is involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation; (6) Trucks transporting fill material to and from the site shall be tarped; and (6) Dust control requirements shall be shown on all grading plans.

Noise

Impacts:
EIR Section 5.6.2

N-A. Maintenance Equipment Noise. Maintenance activities that require the use of heavy equipment, such as channel shaping and desilting, could temporarily increase the ambient indoor and outdoor noise levels for noise-sensitive receptors located in close proximity to the watercourse where maintenance work is conducted. This impact would be limited to weekdays between 8 AM and 5 PM, with a limited duration of several days at any one location. Increased ambient noise levels could cause a nuisance to noise sensitive receptors, such as residences, schools, nursing homes, and day care centers.

Mitigation Measures:
EIR Section 5.6.3

N-1 – Minimize Noise. Routine maintenance work shall be limited to weekdays and the hours of 7:30 AM and 4:30 PM. Equipment and haul trucks shall be equipped with functioning and properly maintained muffler systems, including intake silencers where necessary. Additional reductions in noise emissions shall be provided, as feasible, by performing noisy operations, such as chipping and loading spoils into dump trucks on the banks, as far away as practicable from sensitive receptors.

Cultural Resources

Impacts:
EIR Section 5.7.2

CR-A. Disturb Cultural Resources. There is a remote potential for certain earth-disturbing maintenance activities to disturb buried prehistoric and historic archeological sites and isolated artifacts. This impact would occur only on undisturbed upland sites outside watercourse channels and basins due to incidental excavation grading banks for stabilization, installing or repairing bank protection, and constructing access ramps.

Mitigation Measures:
EIR Section 5.7.3

C-1 - Unexpected Archeological Finds. If cultural materials are unexpectedly uncovered during maintenance activities, the District shall immediately consult with a qualified archeologist who shall inspect the material and coordinate with the District to halt or redirect earth-disturbing maintenance work until the significance of the material is determined, and the location is cleared for further work.

C–2 – Archeological Surveys. The District shall conduct an archeological field investigation in maintenance areas that may be disturbed by excavation activities

associated with routine maintenance when such work occurs in upland areas outside watercourses and basins that: (1) appear to represent undisturbed ground not subject to previous excavations or significant grading; and (2) contain known significant archeological sites. The investigation shall be conducted by a qualified cultural resource specialist.

VISUAL

Impacts:
EIR Section 5.9.2

V-A. Visual Impacts in Channels. Certain maintenance activities could reduce the visual quality of riparian corridors that are visible from both private viewpoints (e.g., private roads, backyards of private residences) and public viewpoints (e.g., public parks roads). These channel maintenance activities include channel shaping, bank protection construction or repair, bank stabilization, and desilting. An adverse visual impact would occur if such activities remove substantial amounts of riparian vegetation or very large specimen trees (such as oaks, sycamores) and/or substantially modifies the banks and bed of a watercourse such that the affected reach is clearly characterized as a man-altered landscape feature.

Mitigation Mesures:
EIR Section 5.9.3

V–1 - Minimize Visual Impacts in Channels. The District shall minimize brushing in the channel bottom (per Mitigation Measure B-1), minimize remove of bank vegetation (per Mitigation Measure H-2), incorporate natural channel dimensions during channel reshaping (per Mitigation Measure H-1), restore all temporarily disturbed areas with native riparian trees and shrubs (per Mitigation Measure B-4), and use biotechnical methods with riparian vegetation for bank protection and repair, as feasible (per Mitigation Measure H-4). Implementation of these measures will reduce short and long-term visual impacts.

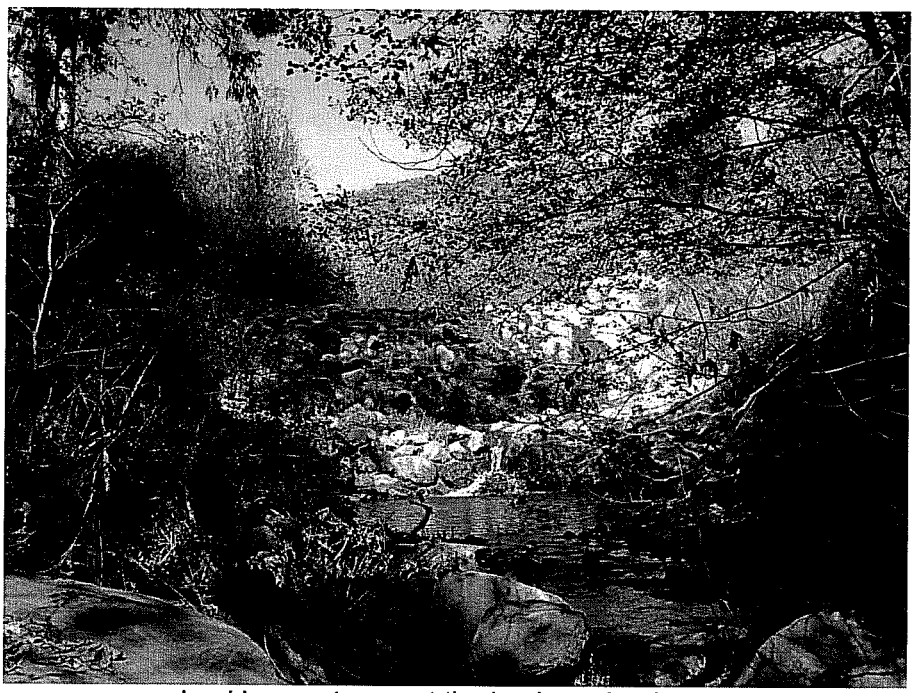
Visual, Class III Impacts

Class III Impacts are less than significant and do not require mitigation measures. The District, however, does provide mitigation measures for most of the Class III impacts.

V-B. Visual Impacts in Basins. The grading of a pilot channel in the middle of a debris basin would reduce the amount of vegetation in the basin. The removal of vegetation and accumulated sediment from debris basins will periodically reduce the amount of riparian vegetation in the basin. These impacts would be minor because they are temporary and affect a very small area; the basin (i.e., visual setting) is a man-made feature; and public access to the basin and/or nearby public viewing locations is generally prohibited.

Mitigation Measures:
EIR Section 5.9.3
None required.

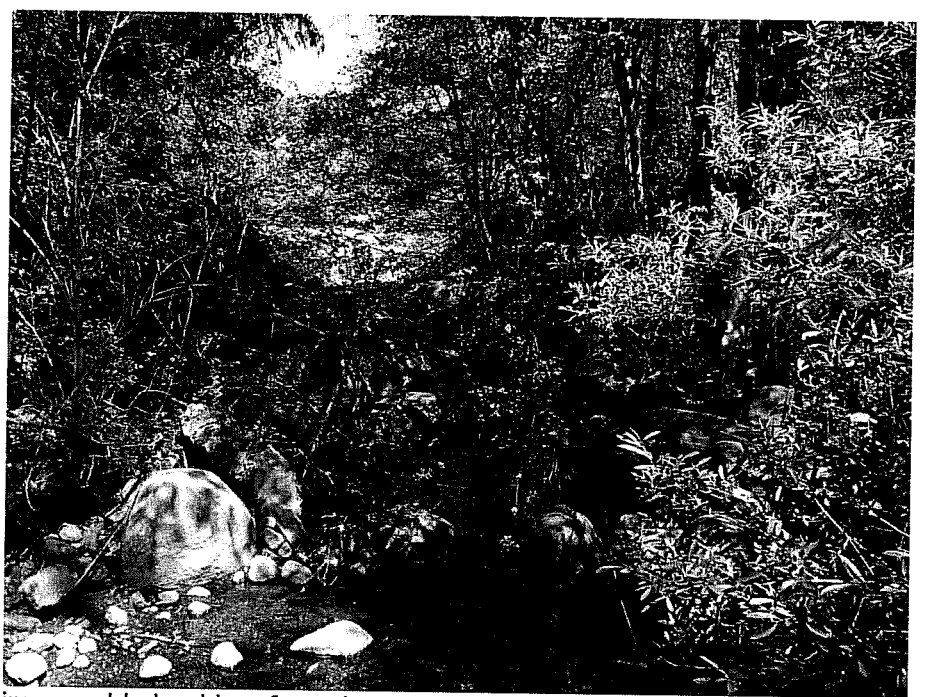
Lillingston Canyon Debris Basin
4-year Phased Removal, 2010-2013
Pre-project Photographs



Looking upstream at the basin embankment

Looking upstream at the basin embankment

Looking upstream at the basin embankment showing impassable boulders. The access road transitions from the creek invert up onto the east bank approximately 75 feet downstream of these boulders.



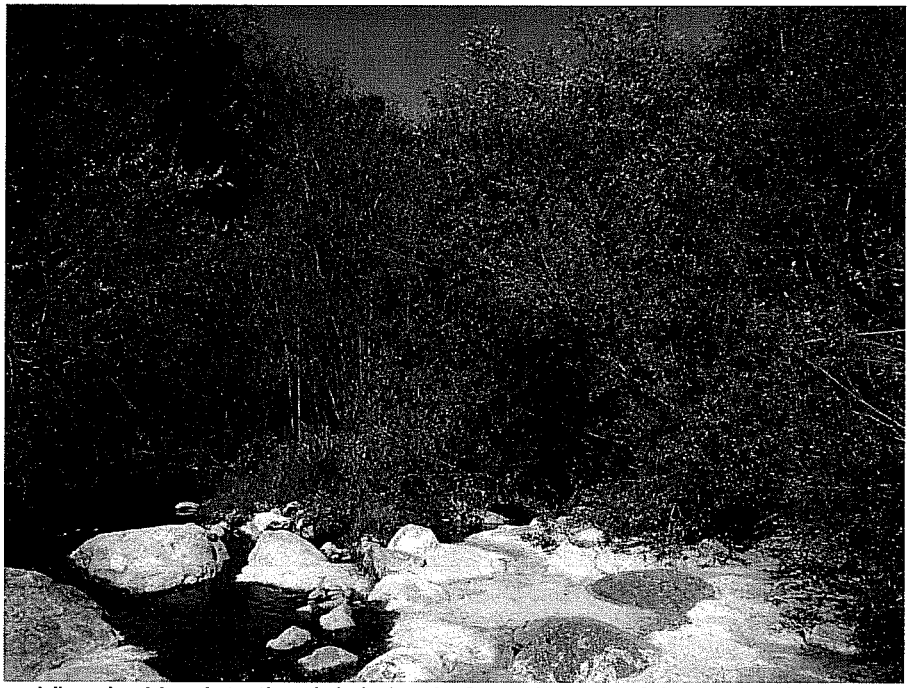
View of the impassable boulders from downstream at the location where the access road transitions to the east bank.

View from the west bank of the impassable boulders. The access road will be on the east bank behind the alder trees within the green ivy area.

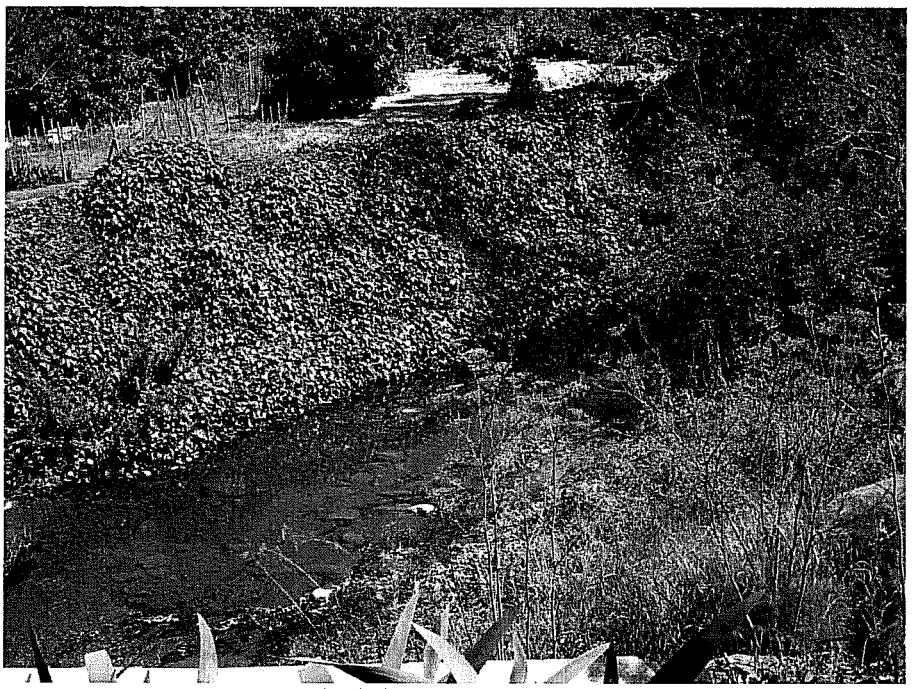
Representative view of the streambed downstream of the basin showing the unvegetated creek invert and scattered rocks that will be moved to the sides of the channel for access. Access road will be in the streambed at this location.

Representative view of the streambed approximately 300 feet downstream of the basin showing the unvegetated creek invert and scattered rocks that will be moved to the sides of the channel for access. Access road will be in the streambed at this location.

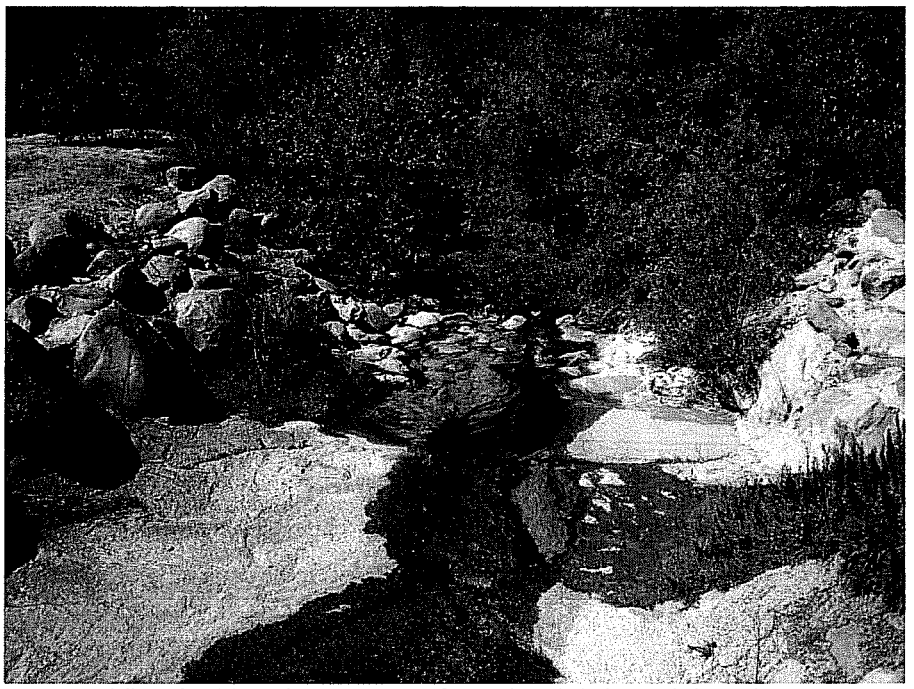
Representative view of the streambed approximately 500 feet downstream of the basin showing more rocky stretches of the creekbed and the rocks that will be moved to the sides of the channel for access. Access road will be in the streambed at this location.



View looking into the debris basin from the top of the embankment.



Debris Rack location.



View looking downstream from the debris rack location.