COUNTY OF SANTA CRUZ

PLANNING DEPARTMENT
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TOM BURNS, PLANNING DIRECTOR

NOTICE OF ENVIRONMENTAL REVIEW PERIOD

SANTA CRUZ COUNTY

APPLICANT: **SC County Environmental Health Department**

APPLICATION NO.: **08-0128**

APN: **Eureka Canyon Road (Post Mile 2.95)**

The Environmental Coordinator has reviewed the Initial Study for your application and made the following preliminary determination:

XX Negative Declaration
(Your project will not have a significant impact on the environment.)

XX *Mitigations will be attached to the Negative Declaration.*

_____ No mitigations will be attached.

_____ Environmental Impact Report
(Your project may have a significant effect on the environment. An EIR must be prepared to address the potential impacts.)

As part of the environmental review process required by the California Environmental Quality Act (CEQA), this is your opportunity to respond to the preliminary determination before it is finalized. Please contact Matt Johnston, Environmental Coordinator at (831) 454-3201, if you wish to comment on the preliminary determination. Written comments will be received until 5:00 p.m. on the last day of the review period.

Review Period Ends: **June 11, 2008**

Bob Loveland
Staff Planner

Phone: **454-3163**

Date: **May 8, 2008**

NAME: Eureka Canyon Fish Passage
APPLICATION: 08-0128
A.P.N: Public Right of Way P.M. 2.95

NEGATIVE DECLARATION MITIGATIONS

A. In order to ensure that the mitigation measures B - G (below) are communicated to the various parties responsible for constructing the project, prior to any disturbance on the property the applicant shall convene a pre-construction meeting on the site. The following parties shall attend: Department of Public Works (DPW) project engineer, project contractor supervisor, Santa Cruz County Resource Planning staff, project fisheries biologist and project wildlife biologist. Results of pre construction biotic surveys for nesting birds, western pond turtles, and California red legged frogs, foothill yellow-legged frogs, and dusky footed wood rats will also be collected at that time.

B. In order to prevent disturbance outside of the approved disturbance area, prior to any other site disturbance the applicant shall install high visibility orange construction fencing around the area of disturbance. This fencing must be in place at the time of the biologist training listed below.

C. In order to prevent impacts to special status species, including California Red legged frogs, foothill yellow-legged frogs, dusky footed wood rats, and western pond turtles, implement pre-construction surveys, worker training, and periodic site inspection by the consulting biologist according to United States Fish and Wildlife Service (USFWS) protocol, and the following:

1. Pre-construction survey shall be performed by a qualified biologist no closer than one week to the beginning of construction. Prior to beginning construction the owner/applicant shall submit the results of the survey to Environmental Planning staff for review;

2. If red-legged frogs are identified in or with access to the work area during pre-construction surveys or periodic inspections by the project biologist, the applicant/owner shall cease work pending consultation with USFWS;

3. If any specie of special concern is discovered during the preconstruction surveys, the qualified biologist shall remove them from the project site to a suitable location;

4. The project biologist shall conduct training for workers and equipment operators to inform them of the Endangered Species Act regulations as they apply to these species and to train them to properly identify the species in the field.

D. In order to prevent impacts to nesting birds, if the project is underway outside of the time period of August 1 to October 15, the project biologist shall perform surveys within two weeks of the expected start date. If protected birds are nesting within the project area, either disturbance will be avoided until young have fledged, or a radius of "no disturbance" shall be implemented after consultation with California Department of Fish and Game staff.

E. In order to prevent sedimentation of the creek and impacts to special status fish species, the DPW project engineer shall ensure that:

a) The stream bypass will be installed under the direction of the project fisheries biologist;
b) Sand bags shall contain only clean gravel;

F. To further protect wildlife, in addition to mitigation measures B – E, the DPW inspector shall

ensure all recommendations of the National Oceanic Administration (NOAA)/National Marine Fisheries Service (NMFS) Programmatic Biologic Opinion and Department of Fish and Game Stream Alteration Agreement are implemented.

G. To minimize noise impacts on surrounding properties to a less than significant level during construction, construction shall be limited to the time between 8:00 A.M. and 5:00 P.M. weekdays.

Environmental Review Initial Study

Application Number: 08-0128

Date: April 23, 2008
Staff Planner: Bob Loveland

I. OVERVIEW AND ENVIRONMENTAL DETERMINATION

APPLICANT: Santa Cruz County (Dept. of Environmental Health)

APN: 107-021-33 & 107-021-55

CONTACT: Chris Coburn (831) 454-2763

SUPERVISORAL DISTRICT: 2nd (Ellen Pirie)

LOCATION: The project site is located along Eureka Canyon Road within the vicinity of Post Mile 2.95 (Attachment 1).

SUMMARY PROJECT DESCRIPTION:
The project involves modifying an existing concrete box culvert (Post Mile Marker 2.95) placed within Corralitos Creek and making stream channel improvements in order to improve fish passage through the area. The proposed plan consists of rebuilding the failed culvert baffles on the existing box culvert floor, constructing a new downstream concrete grade control weir to backwater the culvert outlet and installing a new rock-fill weir downstream of the new concrete grade control structure. Upstream work is limited to re-configuring the gravel bar for about 50 feet upstream to improve passage and create a smooth transition across the gravel bar at the inlet. Material from the upstream gravel bar will be used for a rock toe trench, or berm, buried along the toe of the left wing wall at the upstream end of the culvert, at a location subject to regular, ongoing scour.

ALL OF THE FOLLOWING POTENTIAL ENVIRONMENTAL IMPACTS ARE EVALUATED IN THIS INITIAL STUDY. CATEGORIES THAT ARE MARKED HAVE BEEN ANALYZED IN GREATER DETAIL BASED ON PROJECT SPECIFIC INFORMATION.

___	Geology/Soils	X	Noise
___	Hydrology/Water Supply/Water Quality	X	Air Quality
X	Biological Resources	___	Public Services & Utilities
X	Energy & Natural Resources	___	Land Use, Population & Housing
___	Visual Resources & Aesthetics	___	Cumulative Impacts

____	Cultural Resources	____	Growth Inducement
____	Hazards & Hazardous Materials	X	Mandatory Findings of Significance
X	Transportation/Traffic		

DISCRETIONARY APPROVAL(S) BEING CONSIDERED

____	General Plan Amendment	____	Grading Permit
____	Land Division	X	Riparian Exception
____	Rezoning	____	Other:
____	Development Permit	____	
____	Coastal Development Permit	____	

NON-LOCAL APPROVALS

Other agencies that must issue permits or authorizations:

- California Department of Fish & Game
- U.S. Fish & Wildlife Service
- National Marine Fisheries Service
- U.S. Army Corp of Engineers
- Regional Water Quality Control Board

ENVIRONMENTAL REVIEW ACTION

On the basis of this Initial Study and supporting documents:

___ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

X 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 attached mitigation measures have been added to the project. A MITIGATED NEGATIVE DECLARATION will be prepared.

___ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Matt Johnston
Matthew Johnston

5/8/08
Date

For Claudia Slater
Environmental Coordinator

II. BACKGROUND INFORMATION

EXISTING SITE CONDITIONS

Parcel Size: The two parcels cited are for access.
Existing Land Use: Public right-of way and riparian area
Vegetation: Riparian area
Slope in area affected by project: ___ 0 - 30% _X_ 31 – 100%
Nearby Watercourse: Corralitos Creek
Distance To: The work to be completed is within an existing concrete box culvert and surrounding stream channel.

ENVIRONMENTAL RESOURCES AND CONSTRAINTS

Groundwater Supply: Yes
Water Supply Watershed: Yes
Groundwater Recharge: Yes
Timber or Mineral: Yes
Agricultural Resource: No
Biologically Sensitive Habitat: Yes
Fire Hazard: Yes
Floodplain: Yes
Erosion: Yes
Landslide: Yes
Liquefaction: No
Fault Zone: No
Scenic Corridor: No
Historic: No
Archaeology: Yes
Noise Constraint: No
Electric Power Lines: Yes
Solar Access: No
Solar Orientation: No
Hazardous Materials: No

SERVICES

Fire Protection: Pajaro Fire District
School District: Pajaro Valley Unified
Sewage Disposal: None
Drainage District: Zone 7
Project Access: Eureka Canyon Road
Water Supply: Not Applicable

PLANNING POLICIES

Zone District: Special Use
General Plan: R-M
Special Designation: Not Applicable

Urban Services Line:	___ Inside	_X_ Outside
Coastal Zone:	___ Inside	_X_ Outside

PROJECT SETTING AND BACKGROUND:

The project area is primarily within the county right-of way along Eureka Canyon Road (Post Mile Marker 2.95), but portions of the project extend into two adjacent properties (APN 107-021-33 & 107-021-55). Corralitos Creek is a deeply incised perennial stream, in the reach above and within the project area, capable of supporting all life stages of steelhead (*Oncorhynchus mykiss*) and other native species. Eight special-status species may occur or have been observed within the boundaries of the study area; these include: California red-legged frog (*Rana draytonii)*, foothill yellow-legged frog (*Rana boylii*), southern Pacific pond turtle, Cooper's hawk (*Accipiter cooperii*), yellow warbler (*Dendroica petechia*), pallid bat (*Antrozous pallida*), San Francisco dusky-footed

woodrat (*Neotoma fuscipes annectens*), and ringtail (*Bassariscus astutus*). A description of the status, natural history and pattern of occurrence for these species is presented in the biotic assessment (see Table 4). The slopes surrounding the project site are densely covered with second growth redwood (*Sequoia sempervirens*), tanoak (*Lithocarpus densiflorus*) and Douglas fir (*Pseudotsuga menziesii*). Riparian species present include white alder (*Alnus rhombifolia*), sycamore (*Platanus occidentalis*) and big-leaf maple (*Acer macrophyllum*). Upper slopes are drier and support a mixed California coast live oak (*Quercus agrifolia*), madrone (*Arbutus menzeisii*), bay laurel (*Laurus nobilis*), and tanoak hardwood forest. Upstream of the box culvert the banks and near-stream habitat support an established fern, horsetail and sedge understory that is deeply shaded throughout the year.

The County of Santa Cruz, in conjunction with the Resource Conservation District of Santa Cruz County and the California Coastal Conservancy, proposes to retrofit the existing concrete box culvert to be consistent with current fish passage design criteria from the National Marine Fisheries Service (NMFS) and the California Department of Fish and Game (CDFG). An evaluation of fish passage at PMM 2.95 culvert (Ross Taylor & Associates 2004) indicated that this culvert met passage criteria for adult steelhead over a limited part of the range of migration flows but failed to meet passage criteria for juvenile salmonids. The culvert may also be a velocity barrier at high flows. The design and permitting for the fish passage component has been funded through the Integrated Watershed Restoration Program (IWRP). The culvert retrofit project designs have been supported and reviewed by the IWRP technical advisory committee, which includes regulatory and technical staff from the resource agencies (specifically Jon Ambrose and Kit Crump from the National Marine Fisheries Service (NMFS) and Marcin Whitman and Serge Glushkoff from the California Department of Fish & Game (CDFG). The County, its consultants and IWRP staff have pre-consulted with NMFS through IWRP regarding Section 7 and have been advised that this project fits under the NMFS RC Programmatic Biological Opinion for Salmonid Restoration Projects. The fish ladder and channel restoration project implementation is funded through Propostion 40, which will expire after the 2008 summer construction season.

DETAILED PROJECT DESCRIPTION:

The County of Santa Cruz, in conjunction with the Santa Cruz County Resource Conservation District and the California Coastal Conservancy, proposes to modify an existing concrete box culvert along Eureka Canyon Road (near Post Mile Marker 2.95). The culvert retrofit and associated stream channel modifications are meant to improve fish passage for juvenile and adult steelhead *(Oncorhynchus mykiss)*. The work proposed is consistent with current fish passage design criteria from the National Marine Fisheries Service (NMFS) and the California Department of Fish and Game (CDFG).
The proposed plan consists of rebuilding the failed culvert baffles on the existing box culvert floor, constructing a new downstream concrete grade control weir to backwater the culvert outlet and installing a new rock-fill weir downstream of the new concrete grade control structure. Upstream work is limited to re-configuring the gravel bar for

about 80 feet upstream to improve passage and create a smooth transition across the gravel bar at the inlet. Material from the upstream gravel bar will be used for a rock toe trench, or berm, buried along the toe of the left wing wall at the upstream end of the culvert, at a location subject to regular, ongoing scour.

As proposed, the existing culvert and wing wall structures will not be altered, with the exception of re-surfacing the badly scoured culvert floor as a part of the baffle reconstruction (approximately 3" of new concrete will be added to the floor to cover the currently exposed rebar). The fish passage retrofit within the culvert bore consists of nine 12-inch high concrete baffles. They are set perpendicular to the flow and spaced 10 feet apart. Each baffle consisted of a 12 inch high by 8 inch wide section with a flat crest that extends halfway across the culvert (6 feet) and a section with a sloping crest that extends from the middle of the culvert and terminates at the culvert wall, 3 inches (0.25 feet) above the floor. Downstream of the culvert an existing rock and log weir structures installed by Santa Cruz County in the mid 1980's will be left in place. Approximately 290 linear feet of freshwater stream habitat will be dewatered with a coffer dam and pipe stream bypass for approximately two months in order to complete site improvements.

The main steps in construction of the project are as follows:

- Stage construction materials and equipment
- Provide access for equipment and materials
- Install Best Management Practices (BMP's)
- Install coffer dams and dewatering equipment (dewater approximately 290 feet of stream)
- Site Demolition and wall footing excavation
- Construct new culvert baffles to provide suitable depths and velocities for passage over the range of migration flows
- Construct rock riffle ramp (extending about 60 feet between the concrete sill and existing cabled rock structure)
- Construct downstream concrete grade control weir
- Construct the rock weir and place rock channel fill
- Re-configure the gravel bar at the entrance to the culvert and recreate a single low flow thread within the streambed for approximately 80 feet upstream. This will improve passage and create a smooth transition across the grave bar at the inlet
- Install erosion/sediment control practices on all areas disturbed during construction activities.

III. ENVIRONMENTAL REVIEW CHECKLIST

A. Geology and Soils

Does the project have the potential to:

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Expose people or structures to potential adverse effects, including the risk of material loss, injury, or death involving:				
A. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or as identified by other substantial evidence?			X	

The project area is not mapped within an identified County or State fault zone.

B. Seismic ground shaking?			X	
C. Seismic-related ground failure, including liquefaction?			X	
D. Landslides?			X	

There are mapped landslides (Cooper Clark Map) in the vicinity of the project area, but none encroach into the project area.

2. Subject people or improvements to damage from soil instability as a result of on- or off-site landslide, lateral spreading, to subsidence, liquefaction, or structural collapse?			X	

The concrete box culvert has been in place for over 40 years and does not appear to have had any detrimental effect on people or improvements in the area.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Develop land with a slope exceeding 30%?			X	

The work activities proposed under this application include modifying an existing concrete box culvert and complete several stream channel modifications in order to improve fish passage. Although there are slopes that exceed 30% within the project area, no improvements are proposed on slopes in excess of 30%.

4. Result in soil erosion or the substantial loss of topsoil?			X	

The streambanks and soils in the project area are prone to erosion. Appropriate soil erosion and sediment control Best Management Practices (BMP's) such as silt fences and erosion control blankets will be used and maintained during construction and are part of the project design. Following construction native seed, biodegradable erosion control fabric will be applied to all disturbed areas including streambanks, access routes and staging areas (Attachment 2 Sheet 6).

5. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to property?			X	

The soil type mapped for this area (Ben Lomond-Felton complex) is not identified in the Santa Cruz County Soil Survey as being expansive.

6. Place sewage disposal systems in areas dependent upon soils incapable of adequately supporting the use of septic tanks, leach fields, or alternative wastewater disposal systems?				X
7. Result in coastal cliff erosion?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

B. Hydrology, Water Supply and Water Quality

Does the project have the potential to:

1.	Place development within a 100-year flood hazard area?			X	

The project area is not mapped within a 100-year flood hazard area on the National Flood Insurance Rate Map (FIRM), produced by the Federal Emergency Management Agency (FEMA). Although the project area is not identified on the FIRM, it is located within a 100-year flood hazard area. The following work is proposed in order to improve fish passage through an area with an existing concrete box culvert: install a new baffle system into the existing box culvert, construct a new concrete sill, install new rock riffles and complete gravel bar modifications. The "Design Summary" completed by Northwest Hydraulic Consultants, describes the retrofits and improvements proposed and contains the hydraulic analyses that demonstrate that the modifications meet fish passage criteria. The "Design Summary" can be reviewed at the Santa Cruz County Planning Department.

2.	Place development within the floodway resulting in impedance or redirection of flood flows?			X	

Refer to B.1 above.

3.	Be inundated by a seiche or tsunami?				X
4.	Deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit, or a significant contribution to an existing net deficit in available supply, or a significant lowering of the local groundwater table?			X	
5.	Degrade a public or private water supply? (Including the contribution of urban contaminants, nutrient enrichments, or other agricultural chemicals or seawater intrusion).			X	

	Significant Or Potentially Significant Impact	Less than *Significant* with Mitigation Incorporation	*Less than* Significant Or No Impact	Not Applicable
6. Degrade septic system functioning?				X
7. Alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which could result in flooding, erosion, or siltation on or off-site?			X	

Two temporary dams and a diversion pipe will be placed in the project area in order to dewater the stream (Attachment 2 Sheet 2) temporarily and allow construction activities to commence. Upon project completion the dams and diversion pipe will be removed and the water will reoccupy the pre-construction stream alignment.

8. Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems, or create additional source(s) of polluted runoff?			X	

No newly collected runoff is proposed as part of this project.

9. Contribute to flood levels or erosion in natural water courses by discharges of newly collected runoff?			X	

No new impervious surfaces are proposed as part of the project, thus there will be no additional storm water runoff that could contribute to flooding or erosion.

10. Otherwise substantially degrade water supply or quality?			X	

The direct impacts to water quality such as sedimentation and increased turbidity will be minimized by dewatering and diverting the stream during construction. An erosion/ sediment control plan has been approved that utilizes appropriate BMP's (silt fencing, straw wattles). Following construction, native seed, mulch and/or biodegradable erosion control fabric will be applied to all disturbed areas (Attachment 2 Sheet 6).

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

C. Biological Resources

Does the project have the potential to:

1. Have an adverse effect on any species identified as a candidate, sensitive, or special status species, in local or regional plans, policies, or regulations, or by the California Department of Fish and Game, or U.S. Fish and Wildlife Service?	____	X	____	____

The biological assessment completed by Kittleson Environmental Consulting (Attachment 3), has identified the presence of steelhead (*Oncorhynchus mykiss*) within the project area and an additional eight special status species that may occur or have been observed within the boundaries of the study area: California red-legged frog (*Rana draytonii)*, foothill yellow-legged frog (*Rana boylii*), southern Pacific pond turtle, Cooper's hawk (*Accipiter cooperii*), yellow warbler (*Dendroica petechia*), pallid bat (*Antrozous pallida*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and ringtail (*Bassariscus astutus*). A description of the status, natural history and pattern of occurrence for these species is presented "Table 4" of the biotic assessment. The implementation of the mitigations contained within the biotic assessment and biological opinion will reduce potential impacts to less than significant.

2. Have an adverse effect on a sensitive biotic community (riparian corridor), wetland, native grassland, special forests, intertidal zone, etc.)?	____	____	X	____

The project site is within the riparian corridor and sensitive habitat as defined in the Santa Cruz County Code Sections 16.30 and 16.32, respectively; and within the jurisdiction of the California Department of Fish and Game's Stream and Lake Bed Alteration Program (Section 1600). The proposed project will result in a temporary disturbance of riparian and aquatic habitat by heavy equipment accessing and working within the project area. Riparian and sensitive habitat disturbed during construction will be revegetated with locally appropriate native species. The biotic assessment identifies that one redwood tree (Diameter at Breast Height (DBH) = 6 inches) and one multi-stem arroyo willow (DBH < 4 inches) will be removed during construction of the temporary access road. Hydroseeding of native grass species, and installation of biodegradable erosion control fabric will be applied to all disturbed areas (Attachment 2 Sheet 6).

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
3. Interfere with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native or migratory wildlife nursery sites?		X		

The proposed project will require the temporary dewatering of the stream. Dewatering is necessary to complete various aspects of construction and to minimize potential impacts from release of sediment and other materials that may be deleterious to the stream environment. The implementation of the mitigations contained within the biotic assessment and biological opinion will reduce potential impacts to less than significant.

4. Produce nighttime lighting that will illuminate animal habitats?				X

Construction activities are limited to daytime hours only so nighttime lighting will not be required.

5. Make a significant contribution to the reduction of the number of species of plants or animals?			X	

The placement of approved Best Management Practices (BMP's) and implementation of identified mitigations will reduce potential impacts to less than significant.

6. Conflict with any local policies or ordinances protecting biological resources (such as the Significant Tree Protection Ordinance, Sensitive Habitat Ordinance, provisions of the Design Review ordinance protecting trees with trunk sizes of 6 inch diameters or greater)?			X	

The project sites are within the riparian corridor and sensitive habitat as defined in the Santa Cruz County Code Sections 16.30 and 16.32, respectively; and within the jurisdiction of the California Department of Fish and Game's Stream and Lake Bed Alteration Program (Section 1600). The proposed project will result in temporary disturbance of riparian and aquatic habitat by heavy equipment accessing and working in the project area. Riparian and sensitive habitat disturbed during construction will be treated with appropriate Best Management Practices (BMP's) and revegetated with locally appropriate native species (Attachment 2 Sheets 6).

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
7. Conflict with the provisions of an adopted Habitat Conservation Plan, Biotic Conservation Easement, or other approved local, regional, or state habitat conservation plan?				X

D. Energy and Natural Resources

Does the project have the potential to:

1. Affect or be affected by land designated as "Timber Resources" by the General Plan?			X	
2. Affect or be affected by lands currently utilized for agriculture, or designated in the General Plan for agricultural use?				X
3. Encourage activities that result in the use of large amounts of fuel, water, or energy, or use of these in a wasteful manner?				X
4. Have a substantial effect on the potential use, extraction, or depletion of a natural resource (i.e., minerals or energy resources)?				X

E. Visual Resources and Aesthetics

Does the project have the potential to:

1. Have an adverse effect on a scenic resource, including visual obstruction of that resource?			X	

The project site is not located along a County designated scenic road or within a designated scenic resource area.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. Substantially damage scenic resources, within a designated scenic corridor or public view shed area including, but not limited to, trees, rock outcroppings, and historic buildings?			X	

The project site is not located along a County designated scenic road or within a designated scenic resource area.

3. *Degrade the existing visual character* or quality of the site and its surroundings, including substantial change in topography or ground surface relief features, and/or development on a ridge line?			X	

Heavy equipment will be operating in and around the riparian zone and streambed. The effect on aesthetics will be temporary and will not be visible from the County right-of-way on Eureka Canyon Road. Soils disturbed by equipment access and/or construction will be revegetated with native grass species and container stock (Attachment 2 Sheet 6).

4. Create a new source of light or glare which would adversely affect day or nighttime views in the area?				X
5. Destroy, cover, or modify any unique geologic or physical feature?			X	

There are no unique geological or physical features on or adjacent to the site that would be destroyed, covered, or modified by the project.

F. Cultural Resources

Does the project have the potential to:

1. Cause an adverse change in the significance of a historical resource as defined in CEQA Guidelines 15064.5?			X	

Not mapped or expected.

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
2. Cause an adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines 15064.5?	____	____	X	____

Archeological resources have not been identified in the project area. Pursuant to County Code Section 16.40.040, if at any time in the preparation for or process of excavating or otherwise disturbing the ground, any human remains of any age, or any artifact or other evidence of a Native American cultural site which reasonably appears to exceed 100 years of age are discovered, the following will occur:

1. Cease and desist from all further excavations and disturbances within 200 feet of the discovery.

2. Arrange for staking completely around the area of discovery by visible stakes no more than 10 feet apart, forming a circle having a radius of no less than 100 feet from the point of discovery; provided, however, that such staking need not take place on adjoining property unless the owner of the adjoining property authorizes such staking.

3. Notify the Sheriff-Coroner of the discovery if human remains have been discovered. Notify the Planning Director if the discovery contains no human remain

3. Disturb any human remains, including those interred outside of formal cemeteries?	____	____	X	____

Refer to F.2 above.

4. Directly or indirectly destroy a unique paleontological resource or site?	____	____	X	____

The project site is not mapped within an identified paleontological resource area.

G. Hazards and Hazardous Materials

Does the project have the potential to:

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
1. Create a significant hazard to the public or the environment as a result of the routine transport, storage, use, or disposal of hazardous materials, not including gasoline or other motor fuels?			X	

Implementing the project will require use of heavy equipment in the riparian area and equipment will operate in the bed and banks of the stream channel. To reduce the potential of an accidental release of hazardous materials (fuel, hydraulic fluids) a Spill Prevention Control & Countermeasure Plan will be implemented to prepare for the unlikely event of a fuel or oil spill (Attachment 6).

2. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
3. Create a safety hazard for people residing or working in the project area as a result of dangers from aircraft using a public or private airport located within two miles of the project site?				X
4. Expose people to electro-magnetic fields associated with electrical transmission lines?				X
5. Create a potential fire hazard?				X
6. Release bio-engineered organisms or chemicals into the air outside of project buildings?				X

	Significant Or Potentially Significant Impact	Less than Significant with *Mitigation* Incorporation	Less than Significant Or No Impact	Not Applicable

H. Transportation/Traffic

Does the project have the potential to:

1. Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	____	____	X	____

The results of the project itself will not cause a foreseeable increase in traffic substantial to the existing traffic load and capacity of Eureka Canyon Road. Temporary additional use by construction workers and haul trucks will occur. This impact is considered less than significant.

2. Cause an increase in parking demand which cannot be accommodated by existing parking facilities?	____	____	____	X
3. Increase hazards to motorists, bicyclists, or pedestrians?	____	____	X	____

The proposed project will comply with current road requirements to prevent potential hazards to motorists, bicyclists, and/or pedestrians. Temporary traffic control will decrease potential hazards for the duration of the project (Attachment 5).

4. Exceed, either individually (the project alone) or cumulatively (the project combined with other development), a level of service standard established by the county congestion management agency for designated intersections, roads or highways?	____	____	X	____

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

I. Noise

Does the project have the potential to:

1. Generate a permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	____	____	X	____
2. Expose people to noise levels in excess of standards established in the General Plan, or applicable standards of other agencies?	____	____	X	____

Construction of the proposed project would increase ambient noise levels temporarily in the project vicinity. However, the project site is in an isolated area and is located 30+ feet below Eureka Canyon Road. Given these conditions, the noise and vibration created during construction activities would not expose people to noise levels in excess of specified standards. The impact would be less than significant.

3. Generate a temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	____	____	X	____

Refer to I.2. above.

J. Air Quality

Does the project have the potential to:
(Where available, the significance criteria established by the MBUAPCD may be relied upon to make the following determinations).

1. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	____	____	X	____

The North Central Coast Air Basin does not meet state standards for ozone and inhalable particulate matter (PM_{10}) (MBUAPCD, 2006). The regional pollutants of concern that would be emitted by the project are ozone precursors (Volatile Organic Compounds [VOCs] and nitrogen oxides [NOx]) and fugitive dust (PM_{10}). Ozone

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable

precursors and PM_{10} would be emitted by onsite construction equipment and haul trucks delivering and removing materials from the project sites. Construction projects using typical construction equipment such as dump trucks, scrappers, bulldozers, compactors and front-end loaders which temporarily emit precursors of ozone [i.e.volatile organic compounds (VOC) or oxides of nitrogen (NOx)], are accommodated in the emission inventories of State and Federally required air plans and would not have a significant impact on the attainment and maintenance of ozone standards. Project construction may result in a short-term, localized decrease in air quality due to generation of small amounts of dust. Standard dust control BMPs (e.g., periodic watering) are incorporated into the project, so air quality impacts associated with construction will be at a less than significant level.

2.	Conflict with or obstruct implementation of an adopted air quality plan?	____	____	X	____

Refer to J.1. above.

3.	Expose sensitive receptors to substantial pollutant concentrations?	____	____	X	____

Construction may result in a short-term, localized decrease in air quality due to generation of dust. Standard dust control BMP's are also incorporated into the project, so air quality impacts associated with construction will be at a less than significant level.

4.	Create objectionable odors affecting a substantial number of people?	____	____	X	____

The project would have less than significant impacts for the construction period, and would not create long-term objectionable odors.

K. Public Services and Utilities

Does the project have the potential to:

1.	Result in the need for new or physically altered public facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
a. Fire protection?				X
b. Police protection?				X
c. Schools?				X
d. Parks or other recreational activities?				X
e. Other public facilities; including the maintenance of roads?				X
2. Result in the need for construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
3. Result in the need for construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
4. Cause a violation of wastewater treatment standards of the Regional Water Quality Control Board?				X
5. Create a situation in which water supplies are inadequate to serve the project or provide fire protection?				X
6. Result in inadequate access for fire protection?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
7. Make a significant contribution to a cumulative reduction of landfill capacity or ability to properly dispose of refuse?			X	

No material will be exported as a result of the proposed construction activities.

8. Result in a breach of federal, state, and local statutes and regulations related to solid waste management?				X

L. Land Use, Population, and Housing

Does the project have the potential to:

1. Conflict with any policy of the County adopted for the purpose of avoiding or mitigating an environmental effect?			X	

The proposed project does not conflict with any policies adopted for the purpose of avoiding or mitigating an environmental effect.

2. Conflict with any County Code regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

The proposed project does not conflict with any regulations adopted for the purpose of avoiding or mitigating an environmental effect.

3. Physically divide an established community?				X
4. Have a potentially significant growth inducing effect, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X

	Significant Or Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Or No Impact	Not Applicable
5. Displace substantial numbers of people, or amount of existing housing, necessitating the construction of replacement housing elsewhere?				X

M. Non-Local Approvals

Does the project require approval of federal, state, or regional agencies? Yes X No ____

N. Mandatory Findings of Significance

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, substantially reduce the number or restrict the range of a rare or endangered plant, animal, or natural community, or eliminate important examples of the major periods of California history or prehistory? Yes ____ No X

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 which occurs in a relatively brief, definitive period of time while long term impacts endure well into the future) Yes ____ No X

3. Does the project have impacts that 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, and the effects of reasonably foreseeable future projects which have entered the Environmental Review stage)? Yes ____ No X

4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Yes ____ No X

TECHNICAL REVIEW CHECKLIST

	REQUIRED	COMPLETED*	N/A
Agricultural Policy Advisory Commission (APAC) Review			
Archaeological Review			
Biotic Assessment (Kittleson Environmental Consulting, dated January 11, 2008)		X	
Geologic Hazards Assessment (GHA)			
Geologic Report			
Geotechnical (Soils) Report			
Riparian Pre-Site			
Septic Lot Check			
Other: Design Summary completed by: Northwest Hydraulic Consultants (NHC), dated 12/07		X	

Attachments:

1. Project Plans (Sheets 1-6)
2. Biotic Assessment prepared by Kittleson Environmental Consulting, dated January 11, 2008
3. Avoidance and Mitigation Measures prepared by Kittleson Environmental Consulting
4. Traffic Control Requirements
5. Spill Prevention Control and Countermeasure Plan

Other technical reports or information sources used in preparation of this Initial Study

1. Biological Opinion completed by the National Marine Fisheries Service (NMFS). This document is on review at the Santa Cruz County Planning Department.
2. Design Summary completed by Northwest Hydraulic Consultants (NHC). This document is on review at the Santa Cruz County Planning Department.

Reviewed by: Don Hill, P.E. Construction Engineer

Reviewed by: Bill Dunlap Road Superintendent

Reviewed by: Jack R. Sohriakoff, P.E. Transportation Engineer

Reviewed by: Carr Rorn, P.E. ADA Engineer

INDEX OF SHEETS

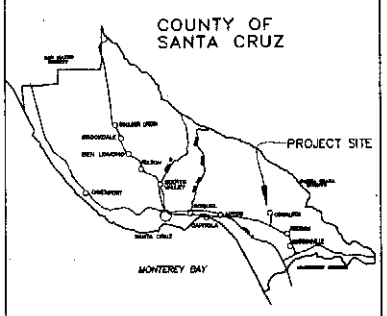
Sheet No.	Description
1	TITLE SHEET
2	DEWATERING, SITE ACCESS, & STAGING SHEET
3	PLAN SHEET
4	CULVERT DETAIL SHEET
5	DETAILS SHEET
6	EROSION CONTROL DETAILS SHEET

ATTACHMENT 1 Environmental Review Initial Study
APPLICATION 09-0126

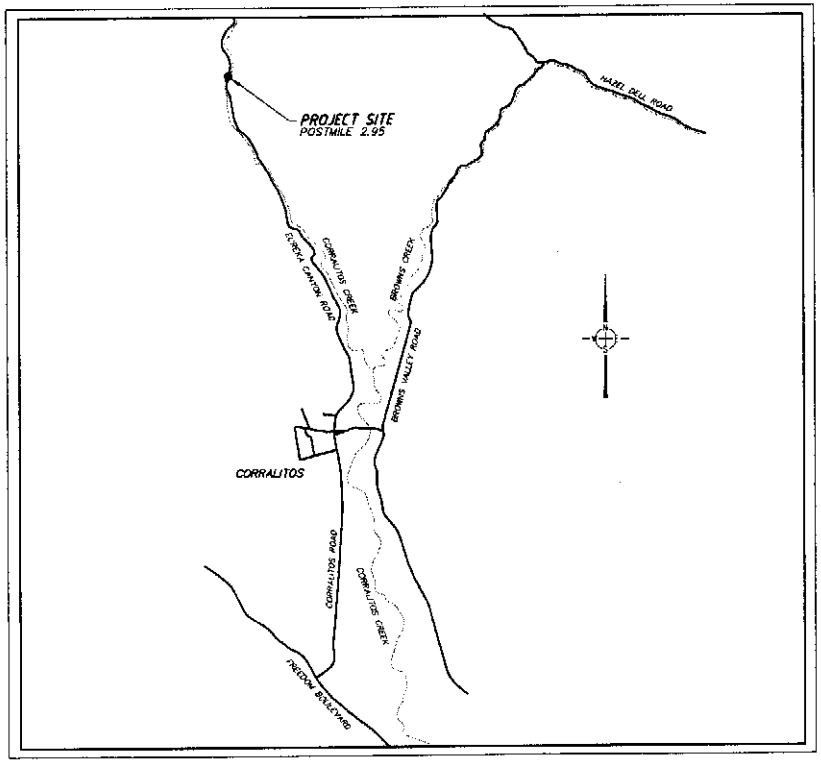
SANTA CRUZ COUNTY
DEPARTMENT OF PUBLIC WORKS

PROJECT PLANS FOR CONSTRUCTION OF
EUREKA CANYON ROAD CULVERT AT PM 2.95
SALMONID PASSAGE IMPROVEMENT

DIST	COUNTY	ROUTE	POST MILE TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SCr			1	6



LOCATION MAP



VICINITY MAP

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE COUNTY OF SANTA CRUZ DESIGN CRITERIA, STATE OF CALIFORNIA STANDARD PLANS, AND THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS DATED MAY 2006.
2. THERE SHALL BE NO CHANGES IN THE APPROVED IMPROVEMENT PLANS WITHOUT PRIOR APPROVAL BY THE SANTA CRUZ COUNTY DEPARTMENT OF PUBLIC WORKS.
3. LOCATIONS OF UNDERGROUND UTILITIES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING UNDERGROUND SERVICE ALERT AT LEAST 48 HOURS PRIOR TO EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING UTILITIES
4. THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE APPROVED BY ROAD DESIGN ENGINEERING.
5. THE PROJECT IS SUBJECT TO REQUIREMENTS OF PERMITS ISSUED BY VARIOUS REGULATORY AGENCIES. THE CONTRACTOR IS RESPONSIBLE TO UNDERSTAND AND PERFORM WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERMITS. THE CONTRACTOR SHALL COORDINATE WITH THE COUNTY TO OBTAIN COPIES OF ALL THE APPLICABLE PERMITS.
6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH PRIVATE PROPERTY OWNERS IF ENTRY ONTO PRIVATE PROPERTY IS REQUIRED FOR CONSTRUCTION OR DELIVERY OF MATERIALS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF PRIVATE PROPERTY, AND FOR THE REPAIR OF ANY DAMAGED CAUSED TO PRIVATE PROPERTY BY CONSTRUCTION ACTIVITIES.

THE CONTRACTOR SHALL POSSESS A CLASS "A" LICENSE AT THE TIME THE CONTRACT IS AWARDED

Senior Roads Design Engineer
Registered Civil Engineer
REGISTERED PROFESSIONAL ENGINEER STEVEN WERNER No. 59814 Exp. 12-31-09 CIVIL STATE OF CALIFORNIA

Assistant Director of Public Works
Transportation Division
Registered Civil Engineer
REGISTERED PROFESSIONAL ENGINEER ADAM BIRELEICH No. 47809 Exp. 3-31-08 CIVIL STATE OF CALIFORNIA

Director of Public Works
Registered Civil Engineer
REGISTERED PROFESSIONAL ENGINEER THOMAS L. BOLICH No. 28862 Exp. 3-31-08 CIVIL STATE OF CALIFORNIA

Chair, Board of Supervisors

Plans Approval Date

PRELIMINARY
NOT FOR CONSTRUCTION

Job No. 50457

FILE NAME: \\DWG-01-Corralitos Creek.dwg

Environmental Review Inital Study
ATTACHMENT 1, 2 of 6
APPLICATION 08-0126

NOTES:

1. ELEVATION CONTOURS SHOWN ON THIS SHEET WERE DEVELOPED FROM A TOPOGRAPHIC SURVEY CONDUCTED JAN 13, 2004 BY nhc, USING TRADITIONAL GROUND SURVEY METHODS AND EQUIPMENT. THE CONTOURS SHOWN ACCURATELY REPRESENT THE GENERAL GROUND SURFACE BUT THE DATA DOES NOT MEET NATIONAL MAP ACCURACY STANDARDS, AS DEFINED BY THE USGS. IN LOCALIZED AREAS THE GROUND ELEVATIONS SHOWN MAY VARY SLIGHTLY FROM THOSE SHOWN BY THE CONTOURS.

2. COORDINATES AND ELEVATIONS SHOWN ARE ON PROJECT SPECIFIC DATUMS. THERE IS NO CONVERSION AVAILABLE FOR COMMON HORIZONTAL OR VERTICAL DATUMS.

3. EXISTING GROUND ELEVATIONS WITHIN THE CHANNEL ARE SUSCEPTIBLE TO CHANGE DURING TIMES OF HIGH FLOWS. THE EXISTING CONDITIONS SHOWN ON THESE PLANS REPRESENT THE CONDITIONS ON JAN 13, 2004 WHEN THE TOPOGRAPHIC SURVEY WAS PERFORMED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING EXISTING CONDITIONS AT THE TIME OF CONSTRUCTION.

4. AT LEAST ONE LANE OF EUREKA CANYON ROAD SHALL REMAIN OPEN FOR TRAVEL BY THE PUBLIC AT ALL TIMES DURING CONSTRUCTION. ONE LANE MAY BE CLOSED TO TRAFFIC AT THE CONTRACTOR'S DISCRETION TO ACCOMMODATE CONSTRUCTION ACTIVITIES, DELIVERY OF MATERIALS, AND STAGING OF EQUIPMENT. ANY LANE CLOSURES AND ALL PROJECT SITE TRAFFIC CONTROL SHALL CONFORM TO SECTION 12 OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS.

5. THE CONSTRUCTION BASELINE SHOWN WAS COMPUTED USING THE COORDINATE SYSTEM ESTABLISHED BY CP-1 AND CP-2. THE CONSTRUCTION BASELINE IS NOT MONUMENTED IN THE FIELD. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION SURVEYING AND PROTECTION OF THE CONTROL POINTS.

6. THIS DEWATERING PLAN IS TO BE IMPLEMENTED BY THE CONTRACTOR WHEN WATER IS FLOWING IN THE CREEK BETWEEN JULY 1ST AND OCTOBER 15ST: THESE ARE THE BASIC REQUIREMENTS NECESSARY FOR THE CONTRACTOR'S SITE DEWATERING PLAN AS SPECIFIED IN THE SPECIAL PROVISIONS.

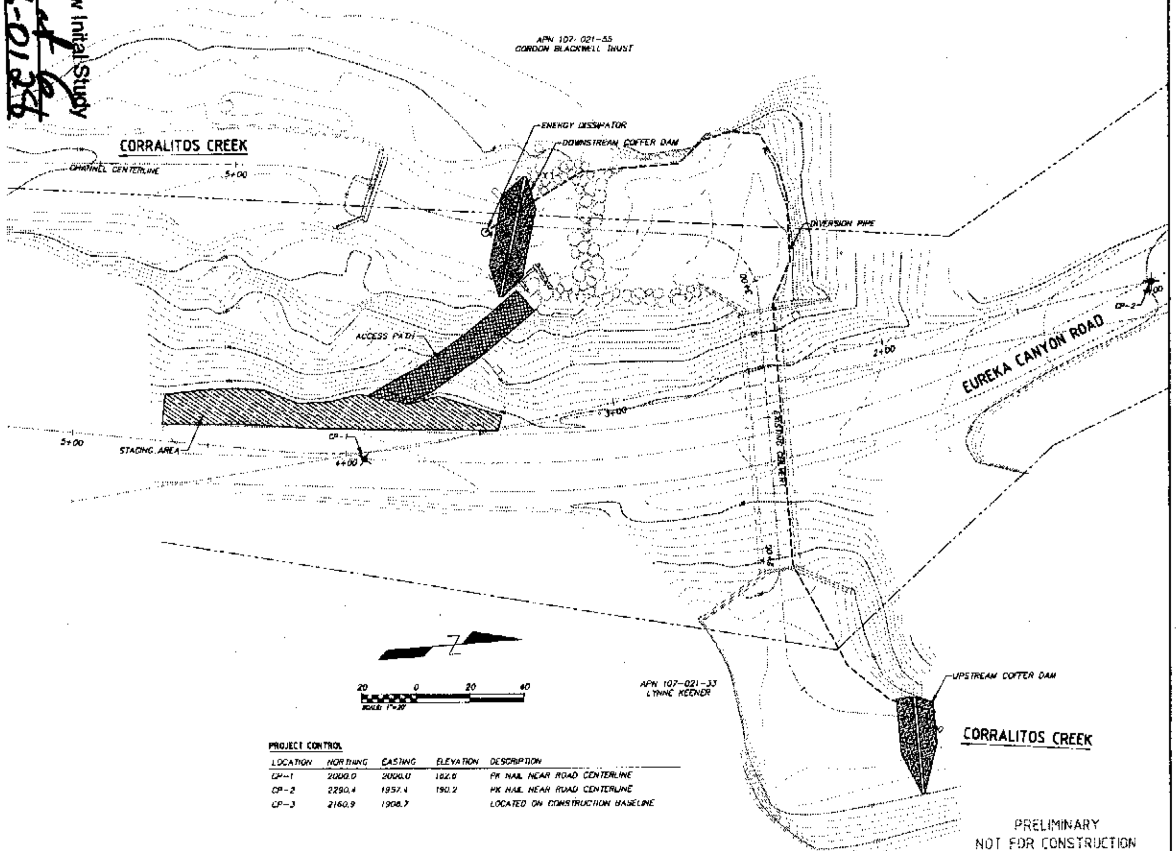
7. CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL AT LEAST THREE WEEKS PRIOR TO THE START OF CONSTRUCTION HIS SITE DEWATERING PLAN FOR THIS PROJECT AS REQUIRED BY THE SPECIAL PROVISIONS. THE CONTRACTOR'S SITE DEWATERING PLAN SHALL DETAIL EXACTLY HOW THE CONTRACTOR INTENDS TO DEWATER THE CONSTRUCTION SITE, INCLUDING ALL WATER PUMPS TO BE UTILIZED AND HOW THE SUMP DISCHARGE SITE SHALL BE REVEGETATED. THE DIVERSION PIPE SIZE SHALL BE SUFFICIENT TO HANDLE ACTUAL FLOWS DURING THE CONSTRUCTION PERIOD. THE CONTRACTOR MAY ELECT TO TEMPORARILY INSTALL A PRESSURE DRIVEN DIVERSION SYSTEM TO EFFICIENTLY BYPASS THE AREA WHERE THE CONCRETE RAMP BAFFLES ARE TO BE INSTALLED.

8. DETAILS OF THE PROPOSED STREAM DIVERSION SHALL BE APPROVED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME(CDFG)PRIOR TO CONSTRUCTION OF THE DIVERSION A QUALIFIED COUNTY HIRED FISH BIOLOGIST, WHO HAS BEEN AUTHORIZED BY NATIONAL MARINE FISHERIES SERVICE(NMFS) TO HANDLE PROTECTED FISH, SHALL PERFORM A SURVEY FOR STEELHEAD, WITH RESCUE AND RELOCATION AS NEEDED. A LETTER FROM THE COUNTY CONSULTING BIOLOGIST WITH THE RESULTS OF THE SURVEY AND DESCRIPTION OF RESCUE OPERATION SHALL BE SUBMITTED TO ENVIRONMENTAL PLANNING STAFF.

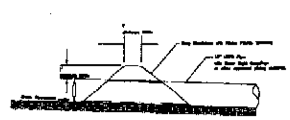
9. ALL WATER PUMPS TO BE UTILIZED BY THE CONTRACTOR WILL REQUIRE A SUMP DISCHARGE SITE. THE PLANNED SUMP DISCHARGE SITE MUST BE APPROVED BY THE ENGINEER AND SHALL REQUIRE A METHOD OF DESILTING ALL WATER PUMPED FROM THE CREEK INTO THE SUMP. AT A MINIMUM, THE SUMP DISCHARGE SITE SHALL REQUIRE FILTER FABRIC CONTAINMENT FACILITIES. DISCHARGE SITE SHALL BE DETERMINED BY THE ENGINEER.

10. THE SUMP DISCHARGE SITE SHALL BE REVEGETATED IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED SITE DEWATERING PLAN AND AS DIRECTED BY THE ENGINEER.

11. REMOVE STREAM DIVERSION DAMS AT THE END OF THE PROJECT AND RESTORE STREAM CHANNEL TO PRECONSTRUCTION CONDITIONS.



STREAM DIVERSION DETAIL



STREAM DIVERSION CROSS SECTION DETAIL

PROJECT CONTROL

LOCATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP-1	2000.0	2000.0	182.6	PK NAIL NEAR ROAD CENTERLINE
CP-2	2290.4	1957.4	190.2	PK NAIL NEAR ROAD CENTERLINE
CP-3	2160.9	1906.7		LOCATED ON CONSTRUCTION BASELINE

PRELIMINARY
NOT FOR CONSTRUCTION

FOR REDUCED PLANS ORIGINAL SCALE IN INCHES 0 1 2 3

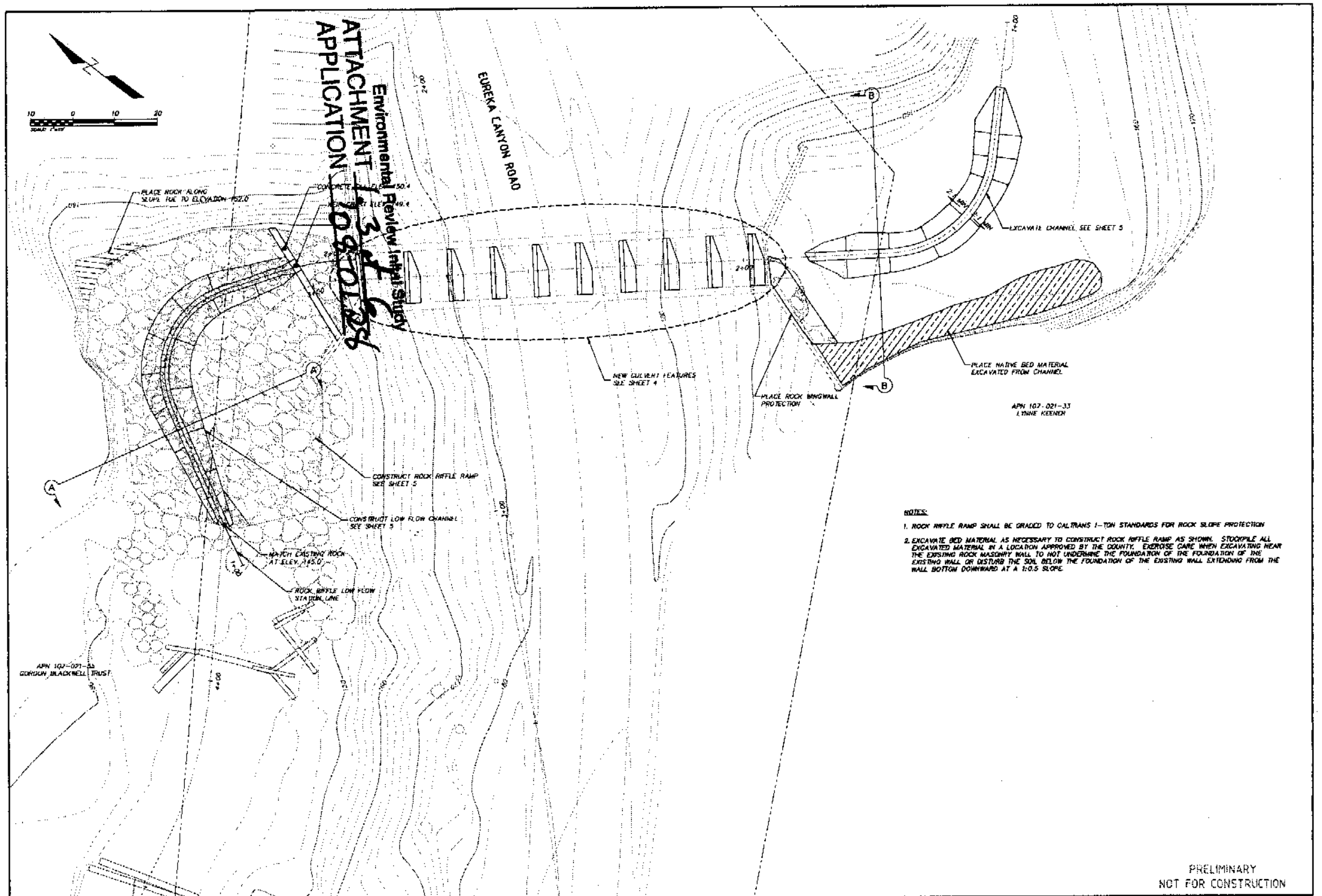
DRAWING NAME: DWG-01

DATE	REVISION	BY

PROJECT ENGINEER
nhc northwest hydraulic consultants

COUNTY OF SANTA CRUZ – DEPARTMENT OF PUBLIC WORKS
EUREKA CANYON ROAD CULVERT AT PM 2.95
SALMONID PASSAGE IMPROVEMENT
DETWATERING, SITE ACCESS, & STAGING SHEET

DRAWN: ts
CHECKED: (lh
DATE: 12/20/07
SCALE: 1"=20'
JOB NO. 50457
SHEET 2 of 6



NOTES:

1. ROCK RIFFLE RAMP SHALL BE GRADED TO CALTRANS 1-TON STANDARDS FOR ROCK SLOPE PROTECTION

2. EXCAVATE BED MATERIAL AS NECESSARY TO CONSTRUCT ROCK RIFFLE RAMP AS SHOWN. STOCKPILE ALL EXCAVATED MATERIAL IN A LOCATION APPROVED BY THE COUNTY. EXERCISE CARE WHEN EXCAVATING NEAR THE EXISTING ROCK MASONRY WALL TO NOT UNDERMINE THE FOUNDATION OF THE FOUNDATION OF THE EXISTING WALL OR DISTURB THE SOIL BELOW THE FOUNDATION OF THE EXISTING WALL EXTENDING FROM THE WALL BOTTOM DOWNWARD AT A 1:0.5 SLOPE.

PRELIMINARY
NOT FOR CONSTRUCTION

FOR REDUCED PLANS ORIGINAL SCALE IN INCHES

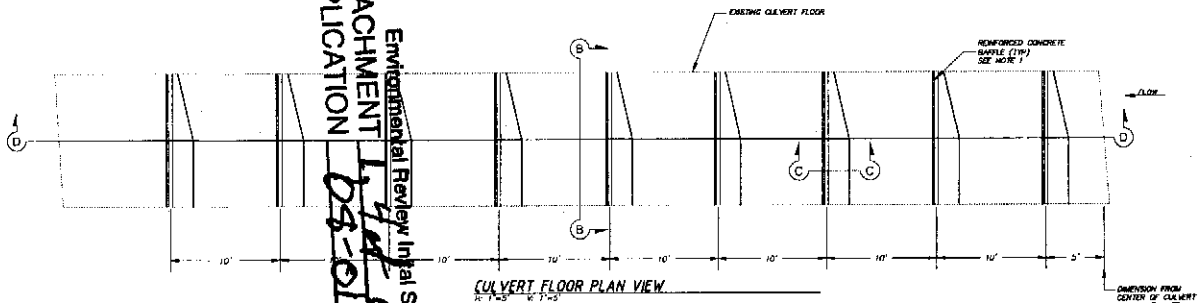
DRAWING NAME: DWG-01

COUNTY OF SANTA CRUZ – DEPARTMENT OF PUBLIC WORKS
EUREKA CANYON ROAD CULVERT AT PM 2.95
SALMONID PASSAGE IMPROVEMENT
PROJECT PLAN SHEET

PROJECT ENGINEER
nhc

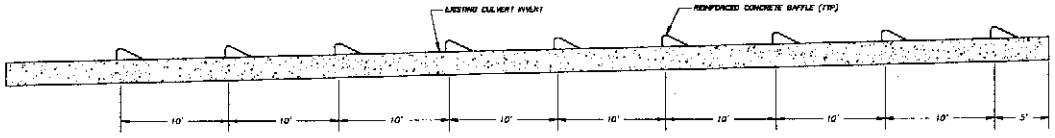
DRAWN: ts
CHECKED: ljh
DATE: 12/20/07
SCALE: 1"=30'
JOB NO. 50457
SHEET 3 of 6

ATTACHMENT 1
APPLICATION
Environmental Review Initial Study

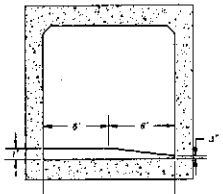


CULVERT FLOOR PLAN VIEW
H: 1"=5' V: 1"=5'

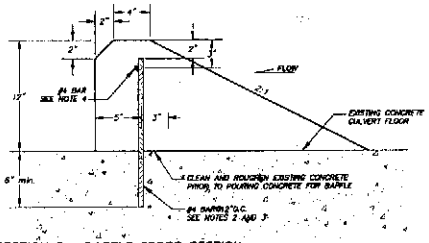
NOTES:
1. CONCRETE BAFFLES SHALL BE CONSTRUCTED AS "MINOR STRUCTURES" AS DESCRIBED IN SECTION 51 OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS. THE CONCRETE SHALL HAVE A 28-DAY MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI.
2. REINFORCEMENT STEEL SHALL CONFORM TO SECTION 53 OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS. ALL REINFORCEMENT STEEL SHALL BE EPOXY COATED, SEE SECTION 53-1.020 OF THE STANDARD SPECIFICATIONS. VERTICAL REINFORCEMENT BARS SHALL BE INSTALLED AT THE SPACING SHOWN ON THE DETAIL DRAWING. THE VERTICAL REINFORCEMENT BARS THAT ARE CLOSEST TO THE EXISTING CULVERT WALLS SHALL BE INSTALLED NO MORE THAN 6 INCHES FROM THE CULVERT WALL.
3. VERTICAL REINFORCEMENT BARS SHALL BE CONNECTED TO THE EXISTING CONCRETE CULVERT FLOOR USING HILTI HY-150 ADHESIVE MORTAR, OR EQUAL PRODUCT APPROVED BY THE ENGINEER. USE OF HILTI HY-150 ADHESIVE MORTAR, OR APPROVED EQUAL, SHALL CONFORM WITH THE MANUFACTURER'S INSTRUCTIONS.
4. THE REINFORCEMENT STEEL PLACED HORIZONTALLY IS REQUIRED AT ALL LOCATIONS WHERE THE FINISHED HEIGHT OF THE BAFFLE IS GREATER THAN 6 INCHES. WHERE THE BAFFLES ARE EQUAL TO OR LESS THAN 6 INCHES, THE HORIZONTAL REINFORCEMENT BAR IS OPTIONAL.
5. #4 BAR IS THE DESIGNATION IN UNITED STATES STANDARD MEASURES FOR REINFORCEMENT BAR WITH A NOMINAL DIAMETER OF ½ INCH.



SECTION D - CULVERT FLOOR PROFILE
H: 1"=5' V: 1"=5'



SECTION B - CULVERT CROSS SECTION
H: 1"=3' V: 1"=3'



SECTION C - BAFFLE CROSS SECTION
H: 1"=2' V: 1"=2'

PRELIMINARY
NOT FOR CONSTRUCTION

FOR REDUCED PLANS ORIGINAL SCALE IN INCHES 0 1 2 3

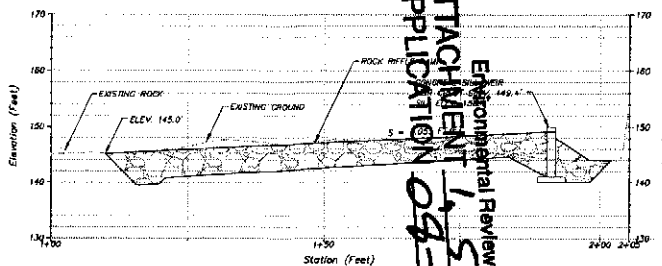
DRAWING NAME: DWG-01

BY	DATE	REVISION

PROJECT ENGINEER
nhc
northwest hydraulic consultants
3950 Industrial blvd., suite 100
West Sacramento, CA 95691
(916) 371-2426 fax: (916) 371-2427

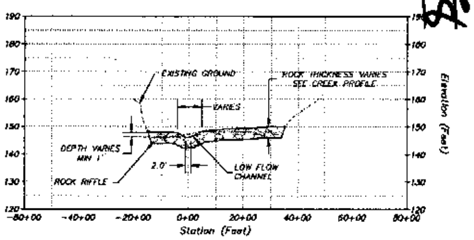
COUNTY OF SANTA CRUZ - DEPARTMENT OF PUBLIC WORKS
EUREKA CANYON ROAD CULVERT AT PM 2.95
SALMONID PASSAGE IMPROVEMENT
CULVERT BAFFLES PLAN AND DETAILS

DRAWN: TB
CHECKED: WH
DATE: 12/20/07
SCALE: VARIES
JOB NO. 50457
SHEET 4 OF 6

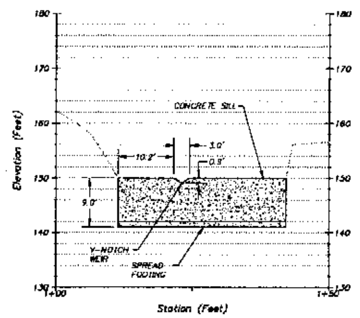


ROCK RIFFLE PROFILE
H: 1"=10' V: 1"=10'

Environmental Review Inital Study
ATTACHMENT 1, 5 of 6
APPLICATION 08-0128



SECTION A - ROCK RIFFLE SECTION
SCALE: 1"=20'



CONCRETE SILL/WEIR SECTION
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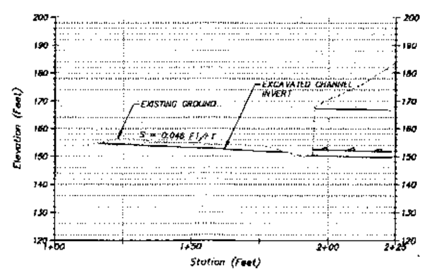

UPSTREAM CHANNEL PROFILE
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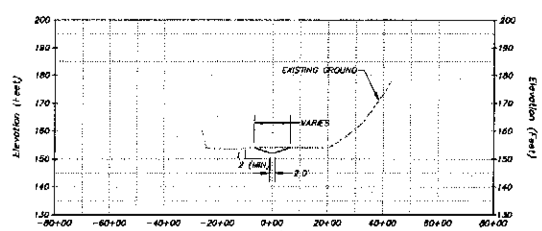


SECTION B - TYPICAL EXCAVATED CHANNEL
SCALE: 1"=20'

NOTES:

1. GRADE THE CHANNEL BED TO FILL AREAS THAT ARE MORE THAN 4" BELOW THE SPECIFIED FINISHED TOP ELEVATION OF THE ROCK RIFFLE STRUCTURE. USE NATIVE STREAMBED MATERIAL FOR FILL.

2. ALONG THE SURFACE, INDIVIDUAL ROCKS MAY PROJECT UP TO 6" ABOVE THE NEAT LINE AND GAPS BETWEEN ROCKS MAY EXTEND BELOW THE NEAT LINE. THE ENGINEER WILL MAKE MINOR FIELD ADJUSTMENTS TO THE DIMENSIONS AND GRADES SHOWN TO PRODUCE AN IRREGULAR SURFACE THAT MEETS THE DESIGN OBJECTIVES. INDIVIDUAL PLACEMENT OF ROCKS LARGER THAN 36" MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.

3. AFTER CONSTRUCTING THE ROCK RIFFLE STRUCTURE TO THE ELEVATIONS AND GRADES SHOWN ON THESE PLANS, COVER APPROXIMATELY 25 TO 50 PERCENT OF THE SURFACE OF THE ROCK RIFFLE STRUCTURE WITH COBBLES THAT ARE 4" OR LARGER. THE COBBLES SHALL BE NATIVE STREAMBED MATERIAL THAT WAS EXCAVATED DURING THE INITIAL GRADING FOR THE ROCK RIFFLE STRUCTURE.

PRELIMINARY
NOT FOR CONSTRUCTION

FOR REDUCED PLANS ORIGINAL SCALE IN INCHES 0 1 2 3

DRAWING NAME: DWG-01

DATE	REVISION	BY

PROJECT ENGINEER
nhc northwest hydraulic consultants, 3950 Industrial blvd, suite 100C, west sacramento, california 95691, (916) 371-7400 fax (916) 371-7475

COUNTY OF SANTA CRUZ – DEPARTMENT OF PUBLIC WORKS
EUREKA CANYON ROAD CULVERT AT PM 2.95
SALMONID PASSAGE IMPROVEMENT
DETAILS SHEET

DRAWN: TB
CHECKED: ljh
DATE: 12/20/07
SCALE: VARIES
JOB NO. 50457
SHEET 5 of 6

ATTACHMENT 4 Environmental Review Initial Study
APPLICATION 09-0128

SILT FENCE INSTALLATION

Construction Specifications

The height of a silt fence shall not exceed 36 inches (0.9 m). Storage height and ponding height shall never exceed 18 inches (0.5 m).

The fence line shall follow the contour as closely as possible.

If possible, the filter fabric shall be cut from a continuous roll to avoid the use of joints. When joints are necessary, filter cloth shall be spliced only at a support post, with a minimum 6 inch (0.2 m) overlap and both ends securely fastened to the post.

Posts shall be spaced a maximum of 10 feet (3.1 m) apart and driven securely into the ground (minimum of 12 inches (0.3 m)). When extra strength fabric is used without the wire support fence, post spacing shall not exceed 6 feet (1.8 m).

Turn the ends of the fence uphill.

A trench shall be excavated approximately 4 inches (101 mm) wide and 8 inches (0.2 m) deep along the line of posts and upslope from the barrier.

When standard-strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least 1inch (25.4 mm) long, tie wires or hog rings. The wire shall extend into the trench a minimum of 2 inches (51 mm) and shall not extend more than 36 inches (0.9 m) above the original ground surface.

The standard-strength filter fabric shall be stapled or wired to the fence, and 8 inches (0.2 m) of the fabric shall extend into the trench. The fabric shall not extend more than 16 inches (0.9 m) above the original ground surface. Filter fabric shall not be stapled to existing trees.

When extra-strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts.

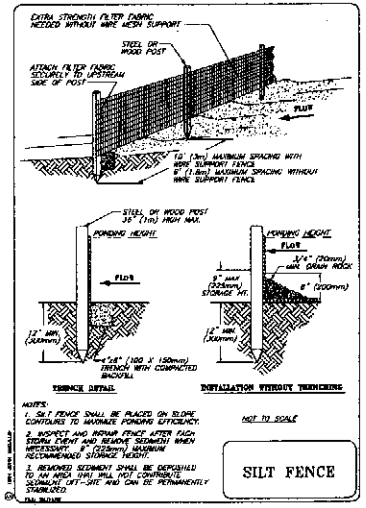
The trench shall be backfilled and the soil compacted over the toe of the filter fabric.

Silt fences placed at the toe of a slope shall be set at least 6 feet (1.8 m) from the toe in order to increase ponding volume.

Silt fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized and any sediment stored behind the silt fence has been removed.

Inspection and Maintenance:

- Silt fences and filter barriers shall be inspected weekly after each significant storm (1 inch (25.4 mm) in 24 hour). Any required repairs shall be made immediately.
- Sediment should be removed when it reaches 1/3 height of the fence or 6 inches (0.3 m) maximum.
- The removed sediment shall conform with the existing grade and be vegetated or otherwise stabilized.



EROSION CONTROL SEED MIXTURE

30 lbs. Bromus carinatus cucamonga - Cucamonga Brome
6 lbs. Vulpia microstachys - Three Weeks Fescue
4 lbs. Trifolium wildenovii -Tomcat Clover
25 lbs. Sterile Hybrid Rhestgrass or Barley (optional*)
*Optional - for cool cover needed in winter months

ORGANIC EROSION CONTROL BLANKET INSTALLATION

Construction Specifications:

Site Preparation:

- Proper site preparation is essential to ensure complete contact of the protection matting with the soil.
- Grade and shape area of installation.
- Remove all rocks, clods, vegetation or other obstructions so that the installed blankets or mats will have direct contact with the soil.
- Prepare seedbed by loosening 2-3 inches (50.8-76.2 mm) of topsoil above final grade.
- Incorporate amendments, such as lime and fertilizer, into soil according to soil test and the seeding plan.

Seeding:

- Seed area before blanket installation for erosion control. Seeding installation is often specified for turf reinforcement application. When seeding prior to blanket installation, all check slots and other areas disturbed during installation must be reseeded.
- Where soil filling is specified, seed the matting and the entire disturbed area after installation and prior to filling the mat with soil.

Anchoring:

- U-shaped wire staples, metal geotextile stake pins, or triangular wooden stakes can be used to anchor mats to the ground surface. Wire staples should be a minimum of 11 gauge. Metal stake pins should be 3/16 inch (4.8 mm) diameter steel with a 1 1/2 inch (38.1 mm) steel washer at the head of the pin. Wire staples and metal stakes should be driven flush to the soil surface. All anchors should be 6-8 inches (0.2 0.5 m) long and have sufficient ground penetration to resist pullout. Longer anchors may be required for loose soils.

Installation on Slopes:

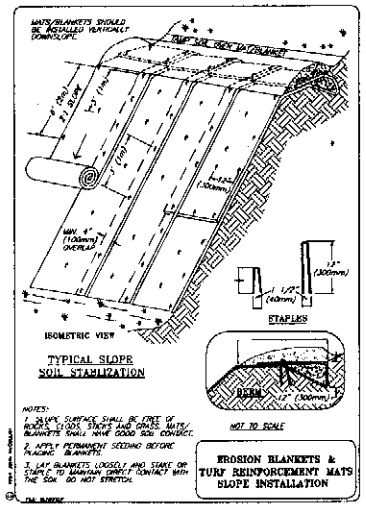
- Begin at the top of the slope and anchor its blanket in a 6 inch (0.2 m) deep x 6 inch (0.2 m) wide trench. Backfill trench and tamp earth firmly.
- Unroll blanket downslope in the direction of the water flow.
- The edges of adjacent parallel rolls must be overlapped 2-3 inches (51 76 mm) and be stapled every 5 feet (0.5 m).
- When blankets must be spliced, place blankets end over end (shingle style) with 6 inch (0.2 m) overlap. Staple through overlapped area, approximately 12 inches (0.3 m) apart.
- Lay blankets loosely and maintain direct contact with the soil - do not stretch.
- Blankets shall be stapled sufficiently to anchor blanket and maintain contact with the soil. Staples shall be placed down the center and staggered with the staples placed along the edges. Steep slopes, 1:1 to 2:1, require 2 staples per square yard. Moderate slopes, 2:1 to 3:1, require 1-2 staples per square yard (1 staple 3 s.f.). Gentle slopes require 1 staple per square yard.

Installation in Channels:

- Dig initial anchor trench 12 inches (0.3 m) deep and 6 inches (0.2 m) wide across the channel at the lower end of the project area.

Erosion Control Fabric:

- SC150BN Double Net Straw Coconut Blanket from North American Green, Evansville IN (800) 772-2040 or approved equal. Install per manufacturers specifications.



PRELIMINARY
NOT FOR CONSTRUCTION

FOR REDUCED PLANS ORIGINAL SCALE IN INCHES 0 1 2 3

DRAWING NAME: DWG-01

COUNTY OF SANTA CRUZ - DEPARTMENT OF PUBLIC WORKS	PROJECT ENGINEER	BY
EUREKA CANYON ROAD CULVERT AT PM 2.95	nhc	DATE
SALMONID PASSAGE IMPROVEMENT		REVISION
EROSION CONTROL DETAILS SHEET		

DRAWN: tg
CHECKED: tjh
DATE: 12/20/07
SCALE: VARIES
JOB NO. 50457
SHEET 6 OF 6

Biotic Assessment:
EUREKA CANYON ROAD PM 2.95 CULVERT RETROFIT PROJECT

Project Description

The County of Santa Cruz, in conjunction with the Resource Conservation District of Santa Cruz County (RCD) and the California Coastal Conservancy, proposes to retrofit the existing concrete box culvert at the County of Santa Cruz' culvert crossing on Corralitos Creek to be consistent with current fish passage design criteria from the National Marine Fisheries Service (NMFS) and the California Department of Fish and Game (CDFG). An evaluation of fish passage at the Eureka Canyon Road PM 2.95 culvert (Ross Taylor and Associates 2004) indicated that this culvert met passage criteria for adult steelhead over a limited part of the range of migration flows but failed to meet passage criteria for juvenile salmonids. The culvert may also be a velocity barrier at high flows. The broad goal for the retrofit was to eliminate the drop at the outlet of the culvert and increase depths and velocities within the culvert barrel at low and moderate flows.

The proposed plan consists of rebuilding the failed culvert baffles on the existing box culvert floor, constructing a new downstream concrete grade control weir to backwater the culvert outlet and installing a new rock-fill weir downstream of the new concrete grade control structure. Upstream work is limited to re-configuring the gravel bar for about 50 feet upstream to improve passage and create a smooth transition across the gravel bar at the inlet. Material from the upstream gravel bar will be used for a rock toe trench, or berm, buried along the toe of the left wing wall at the upstream end of the culvert, at a location subject to regular, ongoing scour.

As proposed, the existing culvert and wing wall structures will not be altered, with the exception of re-surfacing the badly scoured culvert floor as a part of the baffle reconstruction. Approximately 3" of concrete will be added to the floor to cover the currently exposed rebar. Downstream of the culvert, existing, rock and log weir structures installed by Santa Cruz County in the mid 1980's will be left in place. Approximately 300 linear feet of freshwater stream habitat will be dewatered with a coffer dam and pipe stream bypass for a period of up to two months to construct the new concrete baffles, concrete grade control weir and rock weir.

The design and permitting for the project has been funded through the Integrated Watershed Restoration Program (IWRP). The project designs have been supported and reviewed by the IWRP technical advisory committee, which includes regulatory and technical staff from the resource agencies (specifically Jon Ambrose and Kit Crump from NOAA/NMFS and Marcin Whitman and Serge Glushkoff from CDFG). The City, its consultants and IWRP staff have pre-consulted with NMFS through IWRP regarding Section 7 and have been advised that this project fits under the NMFS/NOAA RC Programmatic Biological Opinion for Salmonid Restoration Projects. The fish ladder and channel restoration project implementation is funded through Prop 40, which will expire after the 2008 summer construction season.

The main steps in construction of the project are as follows:

- Providing access for equipment and materials
- Staging construction materials and equipment
- Dewatering 300 feet of stream
- Site Demolition and wall footing excavation
- Constructing culvert baffles
- Constructing downstream concrete grade control weir
- Constructing the rock weir and placing rock channel fill
- Installation of erosion control and native revegetation features

Construction Procedures

Equipment and material access to the project site will occur through an existing access road from the 1980's down the left bank (looking downstream). A staging area used to store equipment and materials will be developed on the southbound Eureka Canyon Road shoulder on cleared, level ground. Fencing will be installed between the staging area and the top of bank to clearly delineate the limits of the construction zone. Traffic impacts will be limited to temporary lane closures during equipment and material deliveries. No construction will be done from the road surface. The Resource Conservation District and the County will obtain access rights from the downstream property owner.

Construction will occur during the summer-fall months during low flows. Typical summer flows are about 2 to 4 cfs. The site will be dewatered prior to equipment entering the stream. Upstream of the site a coffer dam will be constructed with sandbags and plastic sheet to collect the flow. The dam will outlet into pipe of sufficient size to pass typical summer flows. This pipe will convey the flow around the construction site and will outlet downstream of the project impact area. A second coffer dam will be constructed downstream of the site to contain seepage flows. The length of dewatered stream is 300'. Due to the length of the project and the drop in slope through the project reach, the bypass pipe will not be designed with criteria for fish passage.

Site demolition will include removal of the existing wood baffles and excavation of bed material for channel improvements upstream and downstream. The downstream rock weir/ramp will be constructed with large rock and placed consistent with the attached 60% plans. Excavator, backhoe and/or bobcat will remove existing bed material to the design grades. Excavated material will be re-used on the site. An excavator or loader will deliver rock to the stream bed from the staging are on Eureka Canyon Road and an excavator will place the rock.

Based on preliminary biological surveys 1 redwood (DBH =6") and 1 multi-stem arroyo willow (DBH<4") will be removed on the existing the access route. Vegetation is sparse on the access road and on the right bank and gravel bar where equipment will operate. Along the road shoulder French broom will be removed and beaked hazelnut shrubs will be hand trimmed to for clearance to and from the staging area on Eureka Canyon Road.

Concrete forms and rebar will be constructed for the culvert baffles and downstream weir structure within the dewatered reach. All new concrete work will be done within the dewatered reach and will comply with standard best management practices for water quality protection. Concrete truck cleanout(s) will be done within the staging area on

Eureka Canyon Road, or a suitable off-site location.

Construction Quantities

Table 6, following, provides a summary of the quantities of materials required for the main design elements.

Table 1: Construction Quantities

Item	Quantity
Excavation	180 cy
Concrete (Sill Footing)	6 cy
Concrete (Sill w/o Footing)	9 cy
Concrete (Baffles)	6.2 cy
Rock Weir	330 cy
U/S Scour Protection	18 cy
Rock (U/S Channel Reconfiguration)	34 cy
Dewatered Area	11,800 cy
Access Route Area	650 sf
Staging Area	1,330 sf

The rock size selected for the rock weir riffle structure was based on a method for rock drop structures developed by Smith and Murray (1975). The overall gradation for the riprap was obtained using the Corps of Engineers procedure included in EM 1110-2-1601, which resulted in the following specification:

Table 2: Rock Size

Size (inches)	*Percent Smaller*
48"	100%
36"	90 – 70%
30"	60 – 30%
18"	30 – 0%
12"	5 – 0%

The above gradation primarily consists of large rock and there will be large voids when the structure is installed. During low flows, water will travel subsurface through the voids until they are plugged by sediment deposition.

Biological Assessment Methods

To develop the preliminary biotic assessment, two site visits were made to the project area and a snorkel survey was conducted. The first project site visit occurred on May 3, 2006 and the second on May 15, 2006. At those times KEC conducted a daytime binocular survey for California red-legged frogs (*Rana aurora draytonii* or "RLF"), while general habitat notes and digital photos were captured. No California red-legged frogs were observed.

The second field visit focused on a detailed riparian inventory to map and qualitatively characterize the potential riparian project impacts. In this effort, all trees over 2" dbh were identified, photographed and mapped in a field book for future inclusion on project plan sheets. No formal wetland delineation was conducted. On July 19, 2006 KEC conducted a snorkel survey of the site to observe steelhead numbers and habitat use.

In the office, KEC field archives, nhc design documents and previous consultant reports were reviewed. The California Natural Diversity Database was searched for the Loma Prieta, Watsonville East and Watsonville West USGS Quads. Local biologists with experience in Corralitos Creek were consulted in person and by phone. In addition, for four years during the early to mid 1990's, KEC was located an adjacent parcel and visited the site and vicinity on a regular basis for both formal and informal wildlife surveys.

Environmental Setting

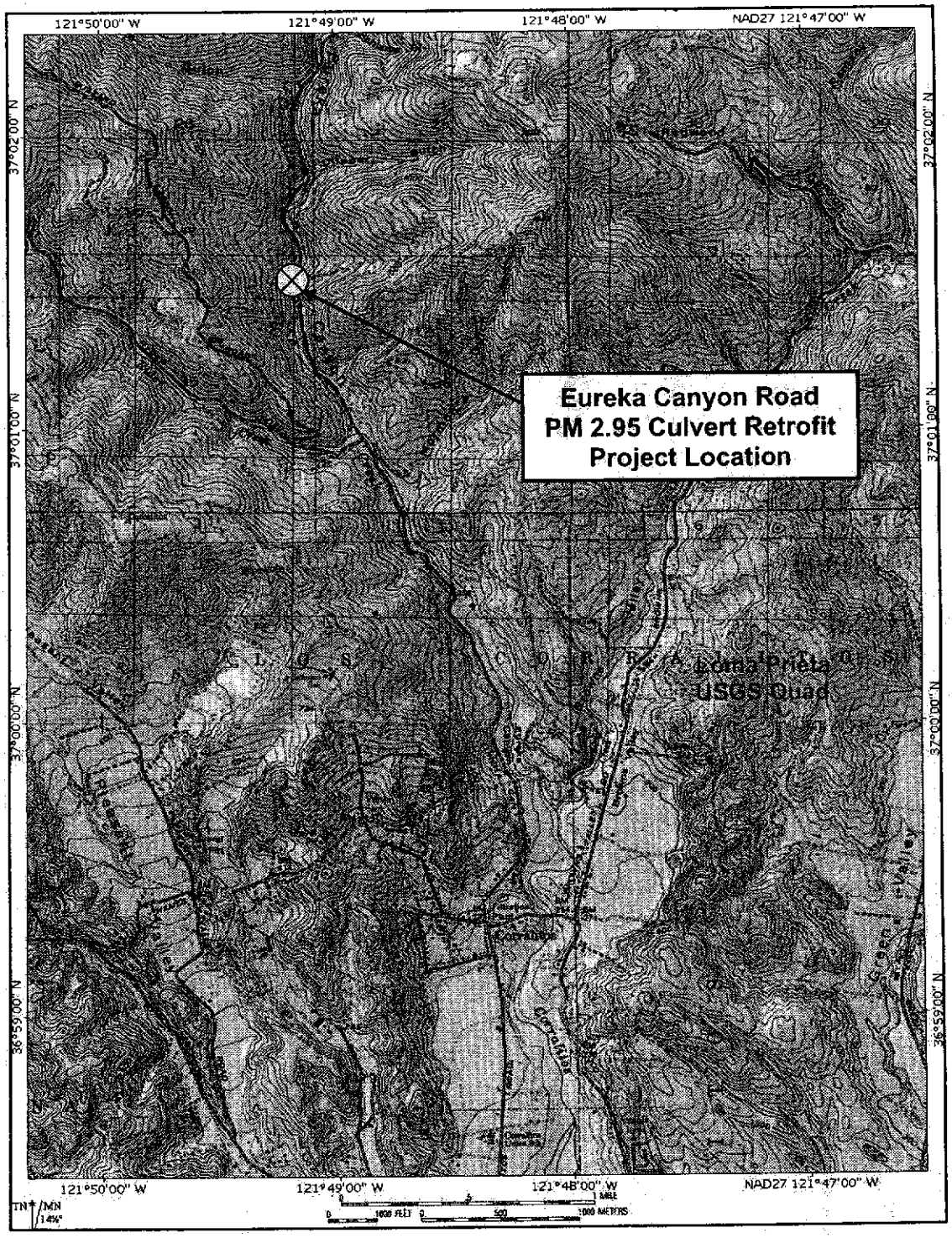
The Eureka Canyon PM 2.95 project site located on the main stem of Corralitos Creek, upstream of the confluence with Browns Creek and Rider Creek. The contributing Corralitos watershed is characterized by steep relief with predominantly second growth redwood (*Sequoia sempervirens*), tanoak (*Lithocarpus densiflorus*) and Douglas fir (*Pseudotsuga menziesii*) covered slopes and a white alder (*Alnus rhombifolia*), sycamore (*Platanus occidentalis*) and big-leaf maple (*Acer macrophyllum*) riparian zone. Upper slopes are drier and support a mixed California coast live oak (*Quercus agrifolia*), madrone (*Arbutus menzeisii*), bay laurel (*Laurus nobilis*), and tanoak hardwood forest. Southern exposures and historically cleared ridges and slopes support maritime chaparral habitats, with scattered rural homes, grasslands, vineyards and orchards.

Homes, scattered equestrian facilities and rural driveways are scattered along Eureka Canyon Road. On the downstream right bank, the project area abuts a recent landslide and sparsely vegetated Purisima formation siltstone exposure. On the left bank, the riparian zone is dominated by the white alder, big-leafed maple riparian zone and second growth redwoods. Upstream, the riparian corridor is deeply shaded and well vegetated on both banks with horsetail, fern, and sedge understory and big leaf maple and redwood overstory. The steep slopes above the project site on the left bank support primarily redwood, Douglas fir, madrone, tanoak, California live oak, and California hazel (*Corylus californica*).

Land-use

The land use in the Eureka Canyon PM 2.95 project area is zoned and classified as TP/Timber Preserve and R-M/Mountain Residential. Timberland, scattered homes and privately owned open space occur on the slopes and hilltops surrounding the site. The riparian corridor is mature and intact both upstream and downstream of the project site, with breaks in the riparian canopy only occurring at road crossings.

FIGURE 1: PROJECT LOCATION



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APPLICATION 06-0126

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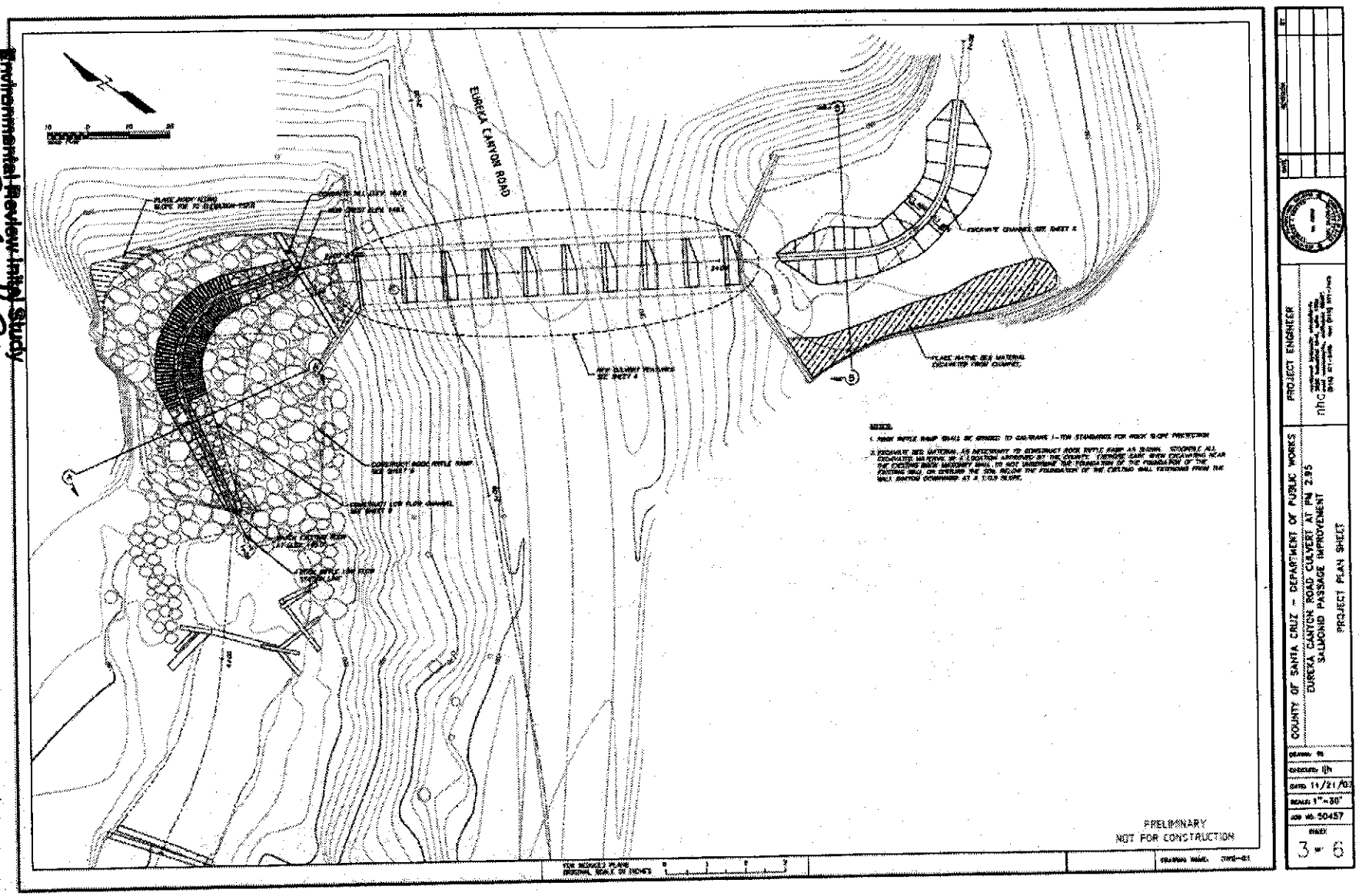
APPLICATION 08-0128

Environmental Review Initial Study

FIGURE 2: PROPOSED PROJECT LAYOUT



ATTACHMENT 2 Environmental Review Initial Study
APPLICATION 08-0228

FIGURE 3: PROPOSED CULVERT BAFFLE DETAILS

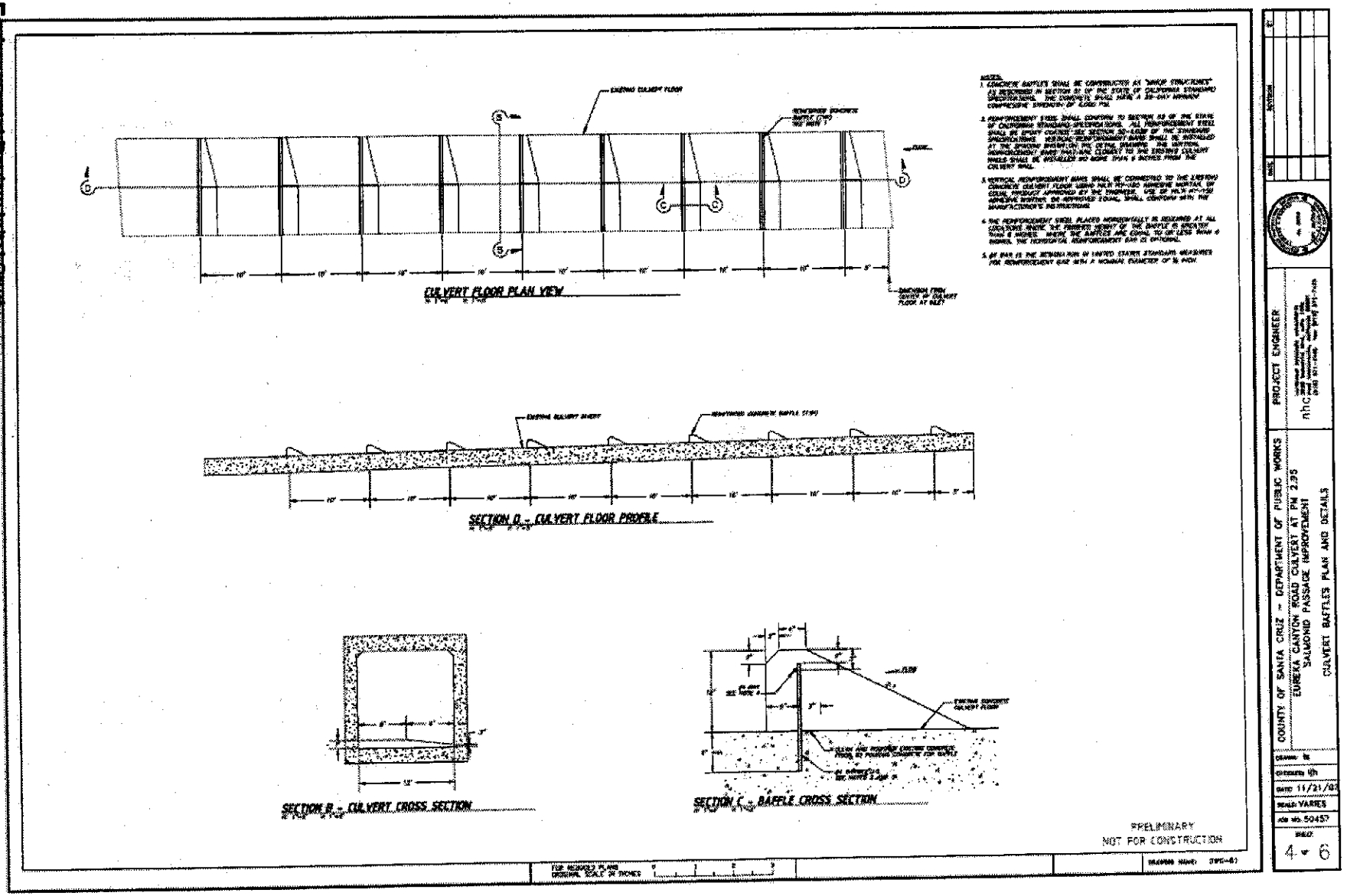


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FIGURE 4: PROPOSED ACCESS AND DEWATERING PLAN

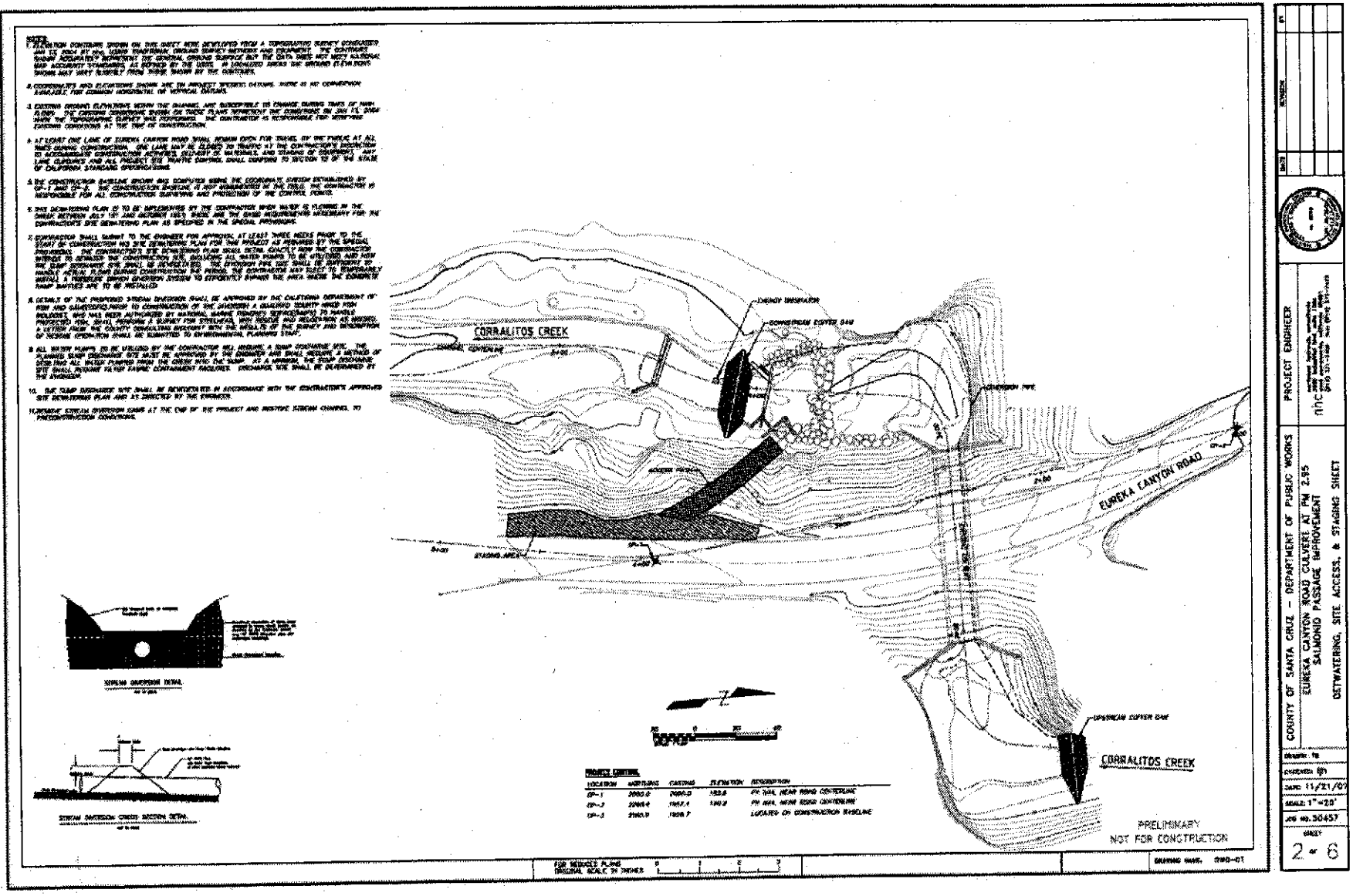
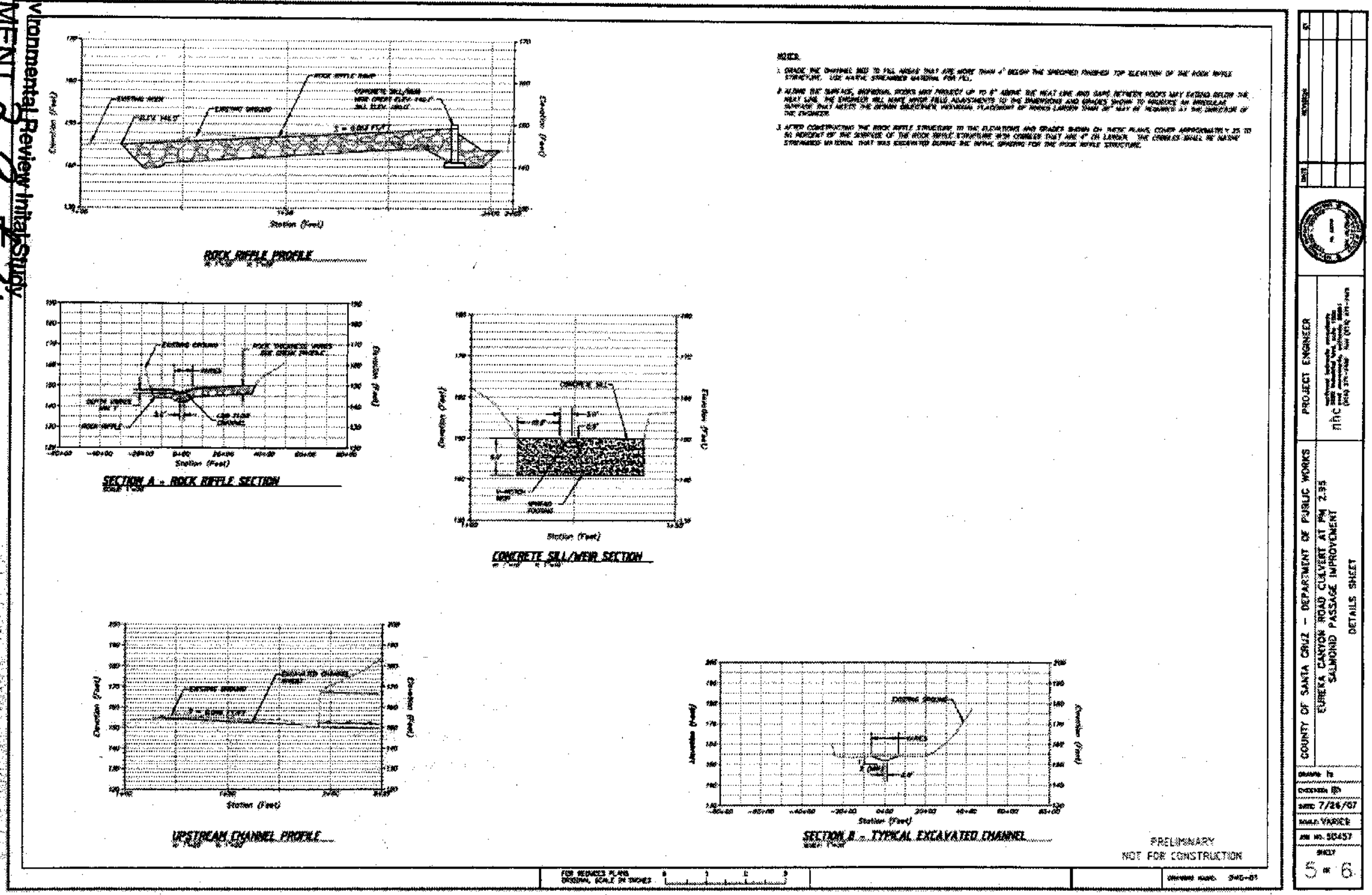


FIGURE 5: Proposed Concrete Weir and Channel Work



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General Hydrology

Corralitos Creek is an incised, perennial stream in the reach above and within the project area, capable of supporting all life stages of steelhead and other native species. Typically, in the late summer and fall the creek bed dries downstream of the City of Watsonville's Corralitos diversion through to below Varni Road, often stranding smolt-sized steelhead and an occasional out-migrant adult. Isolated standing pools may exist in this otherwise dry stream due to perched shallow groundwater replenished by irrigation return flows, and in the vicinity of the Brown's Valley Road bridge, by the City of Watsonville filtration plant's periodic sand-filter back flush freshwater discharges.

Downstream of Varni Road, Corralitos Creek flows into Salsipuedes Creek at the confluence with Casserly Creek in Watsonville at State Highway 152. Flood control levees confine Salsipuedes Creek and the downstream reaches of the Pajaro River from Murphy's Crossing east of Watsonville through the Pajaro River Lagoon, where it drains to Monterey Bay.

Corralitos Creek stream flows are highly variable from year to year. Figure 6. For the period between 1957 to the mid 1980's, annual flows tended to vary from an above average flow to a below average flow every one to two years. From the mid 1980's to the present, the periods with flows above and below the mean annual flow tend to last for approximately 6 years.

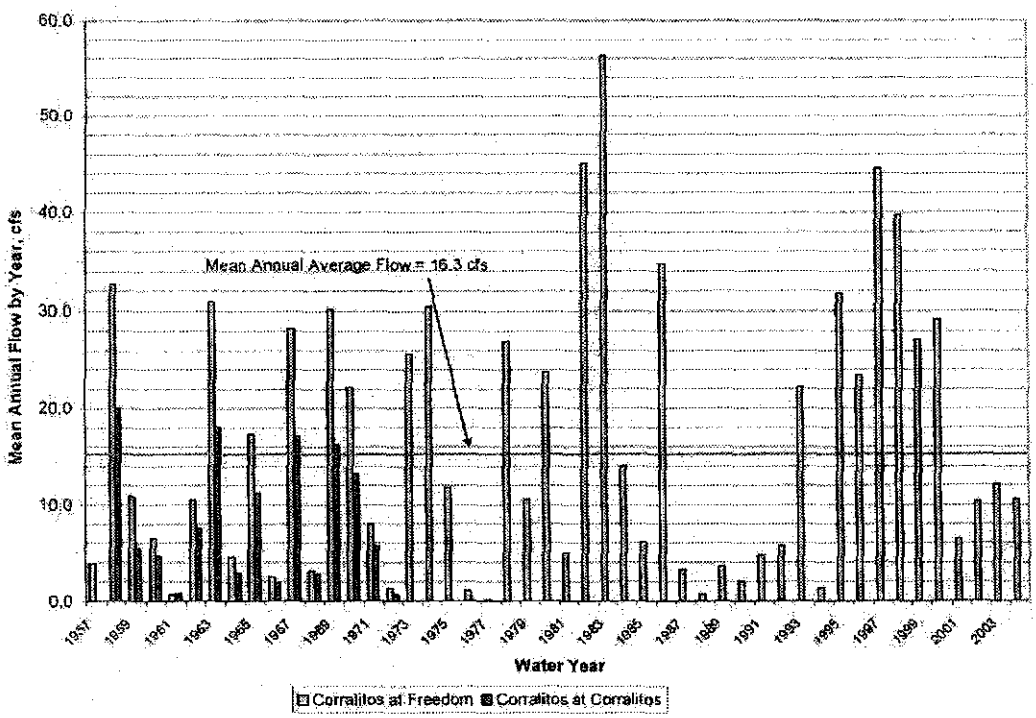

Figure 6. Mean Annual Flow on Corralitos Creek

For the Eureka Canyon Road PM 2.95 culvert retrofit design, peak flows were calculated from an analysis of annual maxima at two USGS gages on Corralitos Creek. One gage is near Freedom Boulevard (Gage 11159200) and has 47 years of record; the other gage was located upstream of Corralitos (Gage 11159150), is now inactive, and has 15 years of record. The Eureka Canyon Road MP 2.95 culvert is approximately 1.5 miles upstream of the gage at Corralitos. Flood frequency statistics

were calculated for the records at the two gages with the procedures recommended by the USGS and described in Bulletin 17B. The watershed areas for the two gages are 27.8 mi^2 at Gage 11159200 and 10.6 mi^2 at Gage 11159150. The watershed area at the Eureka Canyon Road PM 2.95 culvert is about 7.5 mi^2. Flows at the PM 2.95 culvert were estimated by extrapolating the relationship between watershed area and peak flow to the culvert. (See Table 3).

Flood frequency analyses were also carried out for annual maxima at USGS gages on the nearby Green Valley and Carbonera Creeks to ensure that floods on these nearby watersheds with similar areas were about the same as those predicted from the Corralitos Creek analysis. The results of the flood frequency analyses at these two gages confirm that the basin area to discharge relationship developed from the Corralitos Creek gages is reasonable for the Browns Valley Creek culverts.

Table 3: Summary of Hydrologic Characteristics

Eureka Canyon Road PM 2.95	
Drainage Basin Area	7.5 mi2
100-year peak flow	3,300 cfs
25-year peak flow	2,200 cfs
10-year peak flow	1,500 cfs
2-year peak flow	390 cfs
1% exceedance flow	125 cfs
10% exceedance flow	17 cfs
50% exceedance flow	2 cfs
95% exceedance flow	0.6 cfs
Adult Alt. min flow	3.0 cfs
Juvenile Alt. min flow	1 cfs

The California Salmonid Stream Habitat Restoration Manual identifies the 1%, 10%, 50%, and 95% exceedance flows, based on a duration analysis of mean daily flows, as the upper and lower bounds for fish passage analysis for the target fish species and life stages. The fish migration flows at the two culverts were calculated from a relationship between flow and drainage basin area that was developed using data from 15 USGS streamflow gages in Santa Cruz County. As noted in Table 3, nhc suggests adopting an alternative minimum flow of 1 cfs for Juvenile fish migration analysis instead of 0.6 cfs and 3 cfs for Adult fish migration instead of 2 cfs. (**nhc** Draft Design Summary - Eureka Canyon Road PM 2.95. December 20, 2007)

Mean monthly flows are highest between December and April and are significantly lower between May and November. Figure 7 shows the variation in mean monthly flows over the year at the Freedom and Corralitos gages.

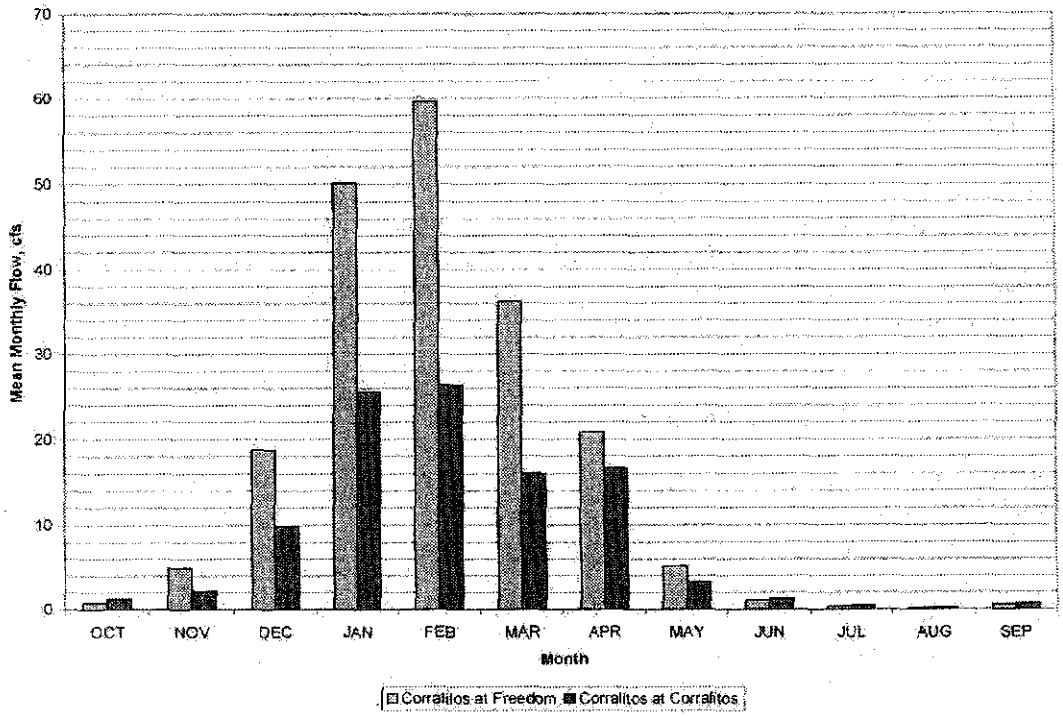

Figure 7. Mean Monthly Flow on Corralitos Creek

During low flows, stream flow records indicate that between Corralitos and Freedom flows infiltrate, leaving portions of the stream bed dry.

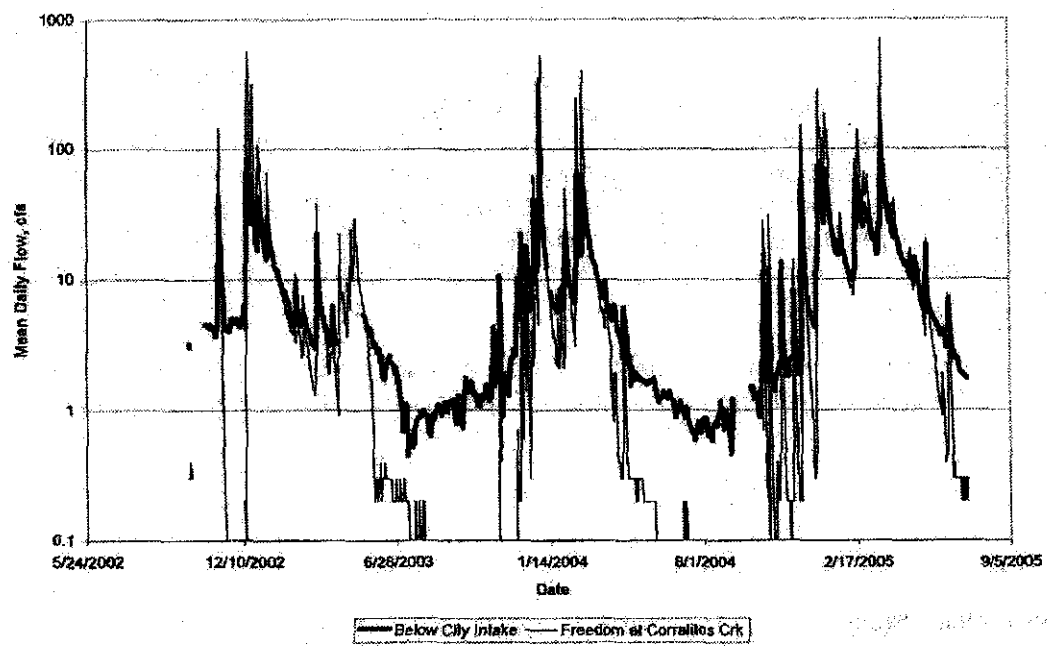

Figure 8. Mean Daily Flows on Corralitos Creek

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nhc completed flow duration analyses based on the mean daily stream flow data from the USGS stream gages at Corralitos and Freedom (Figure 9). Durations were calculated from mean daily flows for the Corralitos and Freedom gages for the period of record at the Corralitos Creek gage at Corralitos (1958-1972) and for the complete record at Freedom (1957-2004). At the Freedom gage, the duration curves are very similar for duration less than 35 percent. The Corralitos duration lies left of the Freedom gage curves, showing lower flows at these durations.

For durations greater than 35 percent, flows are less than 1 cfs at both gages. Note that flows drop very rapidly with increasing duration at the Freedom gage and flows are effectively zero for about 20% of the year.

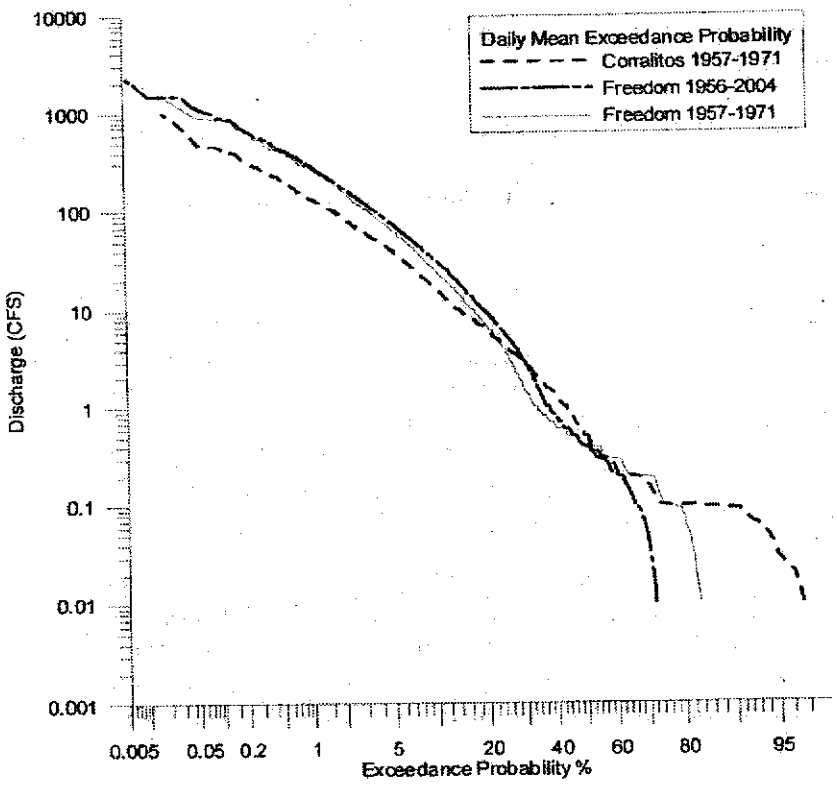

Figure 9. Flow Duration Curve for Corralitos Creek

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General Stream Habitat Characteristics

Corralitos Creek in the project area is a deeply incised perennial stream characterized by typical canyon riparian habitat with a relatively clean sandstone channel and riparian zone limited by slope, rather than clearing. (AMBAG 1983) In the project area Eureka Canyon Road is a two-lane inner-gorge county road through mountainous redwood-Douglas fir forest cover. Project area photos are attached as Appendix A.

Upstream of the culvert, the creek bends at a 90 degree angle. As a result of the abrupt change in direction and the constriction at the culvert entrance, course gravels and cobbles have deposited upstream of the culvert, which formed a large bar. The head of the bar is about 18 feet upstream of the upstream culvert face and about 3 feet higher than the culvert invert. The bar extends about 65 feet upstream and is about 20 to 25 feet wide. During periods of low flow, the bar causes flows to split and flow on both the left and right sides of the bar.

The culvert bottom is pitted concrete, with exposed rebar and the non-functioning remnants of a wood baffle system previously installed by the County of Santa Cruz. Typical low flows pass through the culvert as shallow sheet flow that is insufficiently deep for salmonid passage. The culvert itself does not appear to be capable of supporting salmonids.

The culvert outlet discharges towards a bedrock wall, forming a deep scour pool at the outlet. The crest of the bar that has formed at the outlet of the scour pool is about 16 inches (1.25 feet) below the concrete floor at the culvert outlet, resulting in a considerable jump for upstream migrating salmonids at low flows. The County of Santa Cruz constructed retrofits downstream of the culvert in the 1980s to try to improve passage. Rock work consisted of riprap placed along both banks to about 60 feet downstream of the outlet pool and a rock weir about 35 feet downstream of the outlet, consisting of a single row of very large rocks (4 foot nominal diameter and larger) cabled together. Some additional rocks may also be buried under the bar at the outlet of the pool.

The County's retrofit also includes a log drop structure about 60 feet downstream of the pool, with a log abutment on the left bank, and another similar structure another 60 feet downstream. A habitat structure consisting of a number of logs was built on the left bank between these the two drop structures. The log structures have been damaged by high flows and the log drop structures under scoured. At high flows, however, passage does not appear to be impeded by the log structures (See photo appendix).

Recreational use and vandalism at the scour pool is evident. Graffiti covers the concrete walls and several of the large boulders. Spilled paint is visible on the culvert floor and on much of the upstream sediment bar Paint cans, fire rings, bottles and other human wastes are commonly littered throughout the site.

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Soils

Soils in the project area are mapped by USDA Soil Conservation Service as (Unit 115) Ben Lomond-Felton Complex sandy loam, 50-75% slopes. Ben Lomond-Felton Complex soils are dominantly in concave areas near drainage ways at elevations between elevations 400-3,000 feet. It is considered, slightly acidic, deep and well drained, with a 2" forest duff layer from redwood and Douglas fir forest cover. Due to steep slopes, runoff is very rapid and the hazard of erosion is very high.

Plant Communities

Corralitos Creek in the project area possesses a robust and mature riparian corridor that is notable both for the size of its riparian trees and for its mixture of species. The slopes surrounding the project site are densely covered with second growth redwood (*Sequoia sempervirens*), tanoak (*Lithocarpus densiflorus*) and Douglas fir (*Pseudotsuga menziesii*). Riparian species present include white alder (*Alnus rhombifolia*), sycamore (*Platanus occidentalis*) and big-leaf maple (*Acer macrophyllum*). Upper slopes are drier and support a mixed California coast live oak (*Quercus agrifolia*), madrone (*Arbutus menzelsii*), bay laurel (*Laurus nobilis*), and tanoak hardwood forest. Southern exposures and historically cleared ridges and slopes support maritime chaparral and grassland habitats.

Within the project impact area, mature second growth redwood, tanoak, big-leaf maple and alder create a continuous riparian canopy. Riparian corridor width in the project area is physically limited by the adjacent Eureka Canyon Road corridor, and steep slopes.

Upstream of the box culvert the remains of an old skid road and concrete supports from a former bridge crossing are present. The banks and near-stream habitat support a well established fern, horsetail and sedge understory that is deeply shaded throughout the year. Exposed, vertical mossy bedrock exposure on the left bank underlies a redwood slope upstream of the culvert inlet. On the right bank downstream of the culvert, an exposed bedrock formation underlies a relatively dry upland habitat that supports madrone, bay laurel, tanoak and California live oak. Scattered arroyo willows are present upslope in seeps immediately above the culvert scour pool on the right bank.

The scour pool that has formed at the culvert outfall has long been a swimming hole and habitat quality is adversely affected. Human impacts are visible throughout the project area in the form of a rope swing, graffiti, paint cans and trash. A denuded foot trail is present on the left bank down from the road, and a fire ring with burnt trash is usually present on the left bank gravel bar downstream of the culvert.

Along Eureka Canyon Road and the top of the road shoulder California blackberry (*Rubus californicus*), coyote brush (*Baccharis pilularis*), California hazel, poison oak (*Rhus diversiloba*), ripgut brome (*Bromus diandrus*) and rattlesnake grass (*Briza media*) are dominant understory and perennial grass species.

The understory throughout the project impact area and existing access route is largely covered in redwood duff and is generally sparsely vegetated. Understory plants present include invasive periwinkle (Vinca minor), although scattered native California blackberry, scouring rush (*Equisetum hyemale*), thimbleberry (*Rubus parviflorus*), sword fern (*Polystichum munitum*) and stinging nettle (*Urtica dioica*).

Special Status Species

In the context of this study, special-status species include animals with State or Federal endangered or threatened status, Federal and State proposed or candidate species for listing, State "fully protected" species, California species of special concern, and locally significant species. Eight special-status species may occur or have been observed within the boundaries of the study area; these include: California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylii*), southern Pacific pond turtle, Cooper's hawk (*A. cooperii*), yellow warbler (*Dendroica petechia*), pallid bat (*Antrozous pallida*), San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), and ringtail (*Bassariscus astutus*). A description of the status, natural history and pattern of occurrence for these species is presented below. Table 4.

Several other special-status species were also considered due to their known occurrence within Santa Cruz County, but are not discussed in further detail for one or more of the following reasons: 1) the species is believed to be extirpated from the area; 2) the species is expected to occur in the study area only as a transient; 3) wintering individuals may be present, however, only the breeding population of the species is protected and the study site does not provide nesting habitat; and 4) the study area is outside of known distributional range. These species include California tiger salamander (*Ambystoma californiense*), Santa Cruz long-toed salamander (*A.macrodactylum croceum*), osprey (*Pandion haliaetus*), white-tailed kite (*Elanus leucurus*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus*), California gull (*Larus californicus*), burrowing owl (*Athene cunicularia*), long-eared owl (*Asio otus*), willow flycatcher (*Empidonax traillii*), California horned lark (*Eremophila alpestris actia*), purple martin (*Progne subis*), loggerhead shrike (*Lanius ludovicianus*), tricolored blackbird (*Agelaius tricolor*), yellow-breasted chat (*Icteria virens*), and Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*).

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Table 4. Special-status Wildlife Species Known or Potentially Occurring in the Eureka Canyon Road PM 2.95 Study Area, Santa Cruz County.

SPECIES	STATUS	HABITAT	OCCURRENCE
California Red-legged Frog (*Rana draytonii*)	FT, CSC	Lagoons, freshwater marsh, ponds, creeks.	Potential dispersal/aestivation habitat. No known records from the study area. Closest known record in Shingle Mill Creek, Approximately 2 miles upstream of project site (1 call heard by D.W. Alley in CNDDB). Low likelihood of occurrence and impact to species.
Foothill Yellow-legged Frog (*Rana boylii*)	CSC	Riffle habitat with cobble substrate and open sunny areas.	Potential habitat in study area. Recorded from Brown's Valley Creek in the vicinity of Byrne Forest. Moderate likelihood of occurrence and moderate impact potential.
Southern Pacific Pond Turtle (*Actinemys marmorata pallida*)	CSC	Lagoons, freshwater marsh, ponds, creeks.	Potential habitat in study area. No known records from the study area. Low likelihood of occurrence and low impact potential.
Cooper's Hawk (*Accipiter cooperii*)	CSC (Nesting)	Oak woodlands and riparian forests for nesting; various habitats during winter.	Potential nesting habitat in study area. No confirmed nesting records from the study area. Moderate likelihood of occurrence and moderate impact potential.
Yellow Warbler (*Dendroica petechia*)	CSC (Nesting)	Willow riparian for nesting; various habitats in migration.	Historical nesting record from the Corralitos area, but none have been observed in the vicinity of the project site, based on observations over the past 15 years by KEC. Low likelihood of occurrence and low impact potential.
Pallid Bat (*Antrozous pallida*)	CSC	Roosts in buildings, large hollow trees, rock outcrops and under bridges.	Potential habitat in large mature trees. No known records from the study area.
San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)	CSC	Oak woodlands, chaparral and riparian corridors.	Known to occur in the study area (G. Kittleson, pers. obs). Moderate likelihood of occurrence and low impact potential due to minimal riparian disturbance.
Ringtail (*Bassariscus astutus*)	FP	Various wooded habitats with rock outcrops and talus formations.	Potential habitat along study area. No known records from the study area. Low likelihood of occurrence and low impact potential.

Key: FT = Federal threatened species; CSC = State species of special concern; FP = State Fully Protected species.

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Note: Occurrences are based on observations by Gary Kittleson (KEC)during this study and during a four year period of residence on an abutting residential property, as well as other sources (CNDDB, personal communications and literature review).

Within the project area, only *Oncorhynchus mykiss irideus* has been observed. California red-legged frog has not been observed in the Corralitos watershed, although local fisheries biologist Don Alley reported hearing a calling RLF in the upper watershed in 1994. (DW Alley, personal communication, 2002)

California tiger salamander and Santa Cruz long-toed salamander (SCLTS) are known to occur in south Santa Cruz County, but not within the immediate project area or the Eureka Canyon/Corralitos Creek watershed. Known SCLTS breeding populations exist approximately 4 miles southwest in privately-owned ponds in the sandy hills west of Freedom Boulevard, in Larkin Valley and Valencia Lagoon. Western snowy plover is known only from the Pajaro lagoon and beach. Dusky-footed wood rat (*Neotoma fuscipes*), a state species of special concern has been observed in the vicinity of the project site, upslope. (Kittleson, personal obs.)

No special status plant species have been previously recorded in or adjacent to the study area, and there is no potential for special status plant species in the project area.

California red-legged frog. The California red-legged frog (*Rana aurora draytoni*) is a federally listed threatened species, and is a California species of special concern. Historically, the California red-legged frog occurred from northern California to Baja California in Mexico and was found in the Sierra Nevada and Coast Ranges. Its current range is much reduced, and most remaining populations are found in central California along the coast from Marin County south to Ventura County.

The project vicinity is located within the range of the California red-legged frog, and the species likely historically occurred in the vicinity. However, there are only a few recent or historic records of the frog from the lower Pajaro River watershed and no records in the lower reaches of Corralitos Creek. The project vicinity does not occur within proposed Critical Habitat for California red-legged frogs.

> ***Impact Analysis*** Recent surveys in the Corralitos Creek watershed by Kittleson Environmental Consulting for the City's 2004 Corralitos Creek Diversion Screen Upgrade, the County's 2002 Brown Valley Road Bridge Replacement Project, IWRP Eureka Canyon Road PM 2.95 Culvert Retrofit, IWRP 2006-7 Browns Valley Road PM 3.3 and 3.4 Culvert Retrofits and various road slip-out emergency repairs (on Rider Road, Redwood Road, Eureka Canyon Road) have concluded that there is a very low likelihood that California red-legged frogs occur within or near the project area, and, thus, potential impacts to this species are considered *less-than-significant*.

Foothill Yellow-legged Frog. Foothill yellow-legged frog (*Rana boylii*) is a CA State Species of Special Concern that favors riffle habitat with cobble substrate and open sunny areas. Foothill yellow-legged frog ranges from the coast ranges of California and Oregon to the foothills of the Sierras. It occurs in freshwater habitats from sea level up to 6,000 feet.

This species is known from Browns Creek in the vicinity of Byrne Forest, a 322 acre redwood forest in the Corralitos area owned and managed by the Santa Cruz Land Trust. Browns Creek is a tributary of

Corralitos Creek and has similar habitat characteristics as the project site. This species has not been observed within the project site during the past 15 years of periodic observations by KEC.

Recent surveys in the Corralitos Creek watershed by Kittleson Environmental Consulting for the City's 2004 Corralitos Creek Diversion Screen Upgrade, the County's 2002 Brown Valley Road Bridge Replacement Project, IWRP Eureka Canyon Road PM 2.95 Culvert Retrofit, IWRP 2006-7 Browns Valley Road PM 3.3 and 3.4 Culvert Retrofits and various road slip-out emergency repairs (on Rider Road, Redwood Road, Eureka Canyon Road) have concluded that there is a very low likelihood that foothill yellow-legged frogs occur within or near the project area, and, thus, potential impacts to this species are considered *less-than-significant*.

Steelhead. Coastal rainbow trout (*Oncorhynchus mykiss*) is the only salmonid species present in Corralitos Creek, although both resident and sea-run populations are known to occur. The sea-run or anadromous life-history form is commonly known as steelhead and is frequently mistaken to be a different species than resident coastal rainbow trout.

The general life-history of a steelhead is as follows:

- Adults enter freshwater from the ocean for spawning between November and April during or after rainstorms in response to increased stream flow.
- Adults lay eggs in a nest (called a redd) typically constructed on pool-tails or riffle crests.
- These areas have appropriate sized substrate (gravel to small cobble) and adequate depths and velocities for incubation.
- Unlike Pacific salmon, steelhead do not necessarily die after spawning and may return to the ocean to repeat spawn in later years.
- Eggs incubate within interstitial spaces of the substrate where stream flow provides a reliable source of oxygen and a means to transport away metabolic wastes.
- Time to hatching is approximately 100 days in 50°F water and is related to temperature where cooler temperatures result in longer development times.
- After hatching the young fish are called alevins. They stay within the streambed substrate for an additional three to seven weeks absorbing their yolks sacs prior to emerging as free-swimming fry.
- In California watersheds, juvenile steelhead typically rear in freshwater for one to two years prior to out-migrating to the ocean where they grow rapidly. Preferred juvenile habitat is typically riffles and run, as well as pools (especially in the absence of competing species such as coho salmon and coastal cutthroat trout).

As their name implies, resident coastal rainbow trout, complete their entire life-cycle within the freshwater environment. However, these fish often seasonally migrate widely within a stream system to take advantage of different habitats based on flow, temperature, available food sources, and/or spawning requirements.

Steelhead populations within the Pajaro River watershed were listed by the National Marine Fisheries Service (NMFS) on the federal endangered species list as threatened in 1997. Population estimates for spawning adults in the Pajaro watershed range from 1,500 (1964); 1,000 (1965); 2,000 (1966); to less than 100 (1991).

Pajaro River steelhead were classified within the South-Central California Coast (SCCC) evolutionarily significant unit (ESU). Data provided on NMFS Southwest Region website states that the Pajaro River is one of eight CALWATER Hydrologic Units (HU's) within the SCCC ESU and encompasses a

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drainage area of approximately 1,311 square miles. NMFS divided the Pajaro River HU into five Hydrologic Sub Areas (HSAs) and the HSA's were then rated on conservation value for spawning and rearing habitat and potential for restoration. Corralitos Creek is located within the Watsonville and Santa Cruz Mountain HSAs, which were both rated as "high" in conservation value.

Discussions with NMFS personnel during a March 21, 2006 project site visit re-iterated the importance of Corralitos Creek as a high-priority steelhead stream within the Pajaro River and the entire SCCC ESU. This verbal assessment was based on the relatively good habitat conditions still available in Corralitos Creek, as well as the current presence of steelhead.

Steelhead spawning in the Corralitos Creek typically begins in December and continues into April, with a peak between late December and March. Upstream migration occurs slightly later during dry year. The downstream out-migration for smolts and juvenile steelhead is from early April through mid-June. Typically 90% of the out-migration is completed by the end of May; however, the outmigration is dependent on stream flows and is often earlier in dry years. The project area provides important summer rearing habitat for juvenile steelhead.

Steelhead have been quantitatively sampled and studied in the Corralitos watershed several times since 1981. The most recent data is included in the following table from D.W. Alley's sampling efforts in September 2007. Table 5.

To quantify steelhead numbers within the project impact reach, KEC conducted snorkel surveys in the five pool habitats associated with the existing log and boulder structures and the inlet and outlet scour pools in summer 2006. Total steelhead abundance in the proposed project reach during July in the typical summer construction period was low, with only 16 juvenile steelhead observed. Distribution was thinly spread throughout the reach in all pools. Heavy recreational use, including trash and graffiti, appears to adversely affect habitat conditions.

Table 5. Tally of Juvenile Steelhead Captured in the Corralitos Creek Watershed in 2007 by D.W. Alley and Associates.

Date	Stream	Site #	Number of Steelhead Captured	Number of YOY's Captured	Feet of Stream Sampled	*Approx. YOY Density (fish/100 ft)* (Assuming all juveniles were captured.)	Number of Steelhead Mortalities
9-25-07	Corralitos Ck. Below City Diversion	1	85	61	230	27	1
9-25-07	Corralitos Ck. Above Colinas Drive	3	113	80	280	29	0
9-26-07	Corralitos Ck. Below Eureka Gulch	8	99	80	191	42	2
9-27-07	Corralitos Ck. Above Eureka Gulch	9	61	49	165	30	1
9-27-07	Shingle Mill	1	17	2	105	2	0
9-27-07	Shingle Mill	3	17	8	134	6	0
9-28-07	Browns	1	65	32	186	17	1
9-28-07	Browns	2	115	67	154	44	2
Totals			**572**	**379**	**1,445**	**26**	**7**

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Table 6. Steelhead densities per 100 feet of stream for south Santa Cruz County streams from 1981, 1994 and 2006 from J. Smith and D.W. Alley and Associates.

Sample Site	1981	1994	2006	Avg
Aptos #3- in County Park	35.2*	-	26.2	30.7
Aptos #4- above steel Bridge Xing (Nisene Marks)	43.8	-	38.6	40.8
Valencia #2- below Valencia Road Crossing	33.1	-	28.3	30.7
Valencia #3- Above Valencia Road Crossing	29.8	-	33.4	31.6
Corralitos #3- Above Colinas Drive	39.1	18.6	35.5	31.1
Corralitos #8- Below Eureka Gulch	81.9	28.6	49.0	53.2
Corralitos #9- Above Eureka Gulch	86.1	29.9	87.1	67.7
Shingle Mill #1- Below 2nd Road Crossing	24.5	30.0	33.9	29.5
Shingle Mill #3- Above 2nd Road Crossing	32.6	-	22.9	27.8
Browns Valley #1- Below Dam	54.3	22.5	101.6	59.5
Browns Valley #2- Above Dam	71.6	18.5	99.5	63.2

* Density in number of fish per 100 feet of stream.

Table 7. Average Juvenile Steelhead Densities per 100 ft. of Corralitos Creek Nearest D.W. Alley Sampling Locations for All Available Sample Dates

Year	Site 3	Site 8	Site 9
1981	39.1	81.9	86.1
1994	18.6	28.6	29.9
2006	35.5	49	87.1
2007	40.4	51.8	37.0
Average	30.6	50.4	58.3

Impact Analysis Surveys in the Corralitos Creek watershed by Kittleson Environmental Consulting and D.W. Alley and Associates have concluded listed steelhead occur within the project area, and, thus, potential impacts to this species are considered *potentially significant.*

- Construction activities would temporarily affect the fisheries in this reach by construction of two coffer dams, dewatering approximately 290 feet of stream, placement of rip rap and fish ladder construction. A qualified fisheries biologist would be onsite to remove any fish during the water diversion process and to provide daily monitoring during construction activities.

- The preliminary construction concept proposes the use of a temporary coffer dam for isolating the work areas at the upstream and downstream extent of the project. Installation and removal of the temporary coffer dams will be monitored by a qualified fisheries biologist.

- The dewatering process would include placing a coffer dam structure upstream of the existing diversion structure. Standing water would be removed by incrementally drawing down water from the work area and pumping it onto adjacent vegetated terraces or back into the creek, if turbidity is not elevated more than 10% of background, or upstream, turbidity levels.

- Dewatering would be done with the oversight of a qualified fisheries biologist. During this time, a qualified fisheries biologist would immediately remove any fish trapped during the dewatering process.

- The fisheries biologist would be onsite during placement of the dam and dewatering activities to monitor the site for the presence of steelhead and to implement translocation of fish to another location of the creek not affected by construction activities, if needed. Pumps used to draw water out of the secured area would be installed with fish screens.

- The installation and removal of the coffer dam structures would be controlled to minimize turbidity in the water. The use of best management practices would be implemented to reduce the probability of sediment and/or contaminated material from entering the creek.

Other Wildlife

Wildlife effects associated with the proposed project are expected to be temporary. Wildlife species that use the Corralitos Creek riparian corridor are mobile species that would leave the area during construction and return when construction is completed. Birds that may live in and around the project sites would also likely leave during construction and return when construction is completed.

Western pond turtles are considered rare in the Corralitos Creek area, although observations on the mainstem Pajaro River and nearby Struve Slough are relatively common (Kittleson, pers. obs., Allaback, pers. comm.). No impacts to western pond turtles are anticipated.

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Limited riparian vegetation will be removed during the culvert retrofit project. Access from the roadway surface elevation to the streambed will be made by existing access roads on the left bank.

Water Circulation, Fluctuation, and Salinity Impacts

Corralitos Creek is a freshwater stream that flows into Salsipuedes Creek and the mainstem Pajaro Rive. The Pajaro River remains fresh until it reaches the estuarine area downstream of the Highway 1 Bridge. The project site is located in exclusively freshwater habitat.

The proposed project is not expected to significantly change the water chemistry of the creek. As conceived, work will be conducted in the wetted perimeter of the low-flow channel. Installation and removal of the coffer dam and dewatering system will result in minor temporal disturbance and turbidity. This is not expected to change the chemistry of the creek of Pajaro River.

During construction, flow may be altered temporarily by diverting the water around the construction site. The general pattern and flow of the river would not change. Therefore, these temporary changes during construction activities would not be considered a significant adverse effect.

Cumulative Effects on the Aquatic Ecosystem

There would be no significant cumulative effects on the aquatic ecosystem due to this project. All of the effects described in this evaluation would be primarily temporary, minor in nature, or within acceptable limits.

Two other fish passage improvement projects are currently proposed for county-owned culvert crossings in Corralitos Creek, as well as a fish ladder replacement at the City of Watsonville Diversion, downstream of the PM 2.95 site. These projects are also IWRP/Prop. 40-funded projects and have been developed with NOAA/NMFS and CDFG consultation and review.

Summary

As proposed, approximately 290' of Corralitos Creek would be temporarily affected during construction. Due to the beneficial nature of improving fish passage through the culvert site, potential adverse impacts to listed species and their essential habitat are considered temporary and preventative measures would be taken to ensure that fish and wildlife are avoided, relocated and unharmed at all times.

As, proposed, state water quality standards would not be violated. The proposed action would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

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Avoidance and Mitigation Measures:
EUREKA CANYON ROAD PM 2.95
CULVERT RETROFIT PROJECT

Suggested Wildlife Avoidance and Mitigation Measures

- All work will be done during the low flow season.
- The project impact area will be identified with high visibility orange construction fencing to minimize disturbance to habitat and neighboring properties.
- A preconstruction survey for California red-legged frog and western pond turtle will be conducted within 72 hours of project initiation at each site. Prior to construction, all vertebrate species including salmonids, will be removed from the project site by a qualified biologist and relocated to suitable nearby habitat.
- Prior to any dewatering activities, a qualified fisheries biologist will clear the project site of salmonids and other aquatic species present.
- During initial dewatering activities, a qualified biologist will be on-site to relocated any stranded organisms and to monitor bypass flows.
- A coffer dam bypass system will maintain flows around the project site.
- During bypass operations, the project biologist will check the project site to monitor flows and turbidity.
- Following construction, native plant seeding and revegetation will be done on each of the sites' access routes and disturbed areas. Locally collected willow and dogwood stakes will be installed.

Suggested Best Management Practices

The following best management practices are suggested:

- Control of site runoff through during construction.
- Installation of temporary erosion and sedimentation control devices.
- Location of equipment and spoils in designated staging areas.
- Control of dewatering process to limit turbidity.
- Construction equipment would be maintained in proper operating condition to prevent leaks of oil or grease.

Species-Specific Minimization and Mitigation Measures: Steelhead

- Regulatory Agency Consultation - State Fish and Game Department, National Marine Fisheries Service

- Species-Specific Mitigation measures are discussed in detail in the would include:

1. Removal and relocation of all fish from the site, using electro fishing, dipnets and block nets.

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2. After fish removal, either construct dams up and downstream of the site and running flow through culverts or channel the stream on the west side to avoid the project area.

3. Dams should be made of washed gravel with visquine or sandbags that will be removed from the streambed at the end of the project.

4. The water diversion should be done in one day during the daylight hours. Smolting steelhead migrate at night only.

5. Use silt fencing or straw wattles to prevent sediment from entering the flowing channel.

6. No heavy equipment should enter the flowing channel or left on the dry streambed over night. Use vegetable oil based hydraulic fluid and prevent leaks from heavy equipment by proper maintenance.

7. Properly revegetate the bank or the top of bank with appropriate riparian trees. Mulch all bare soil.

8. Construction period from June 15 to October 15 at the latest. After the fish relocation, a fish monitor should be present during dam and culvert placement and removal. Any missed fish during the removal process can be removed during the dewatering phase.

9. Fish removal, potential impacts, mitigation measures and monitoring would be the same for resident rainbow trout as for steelhead.

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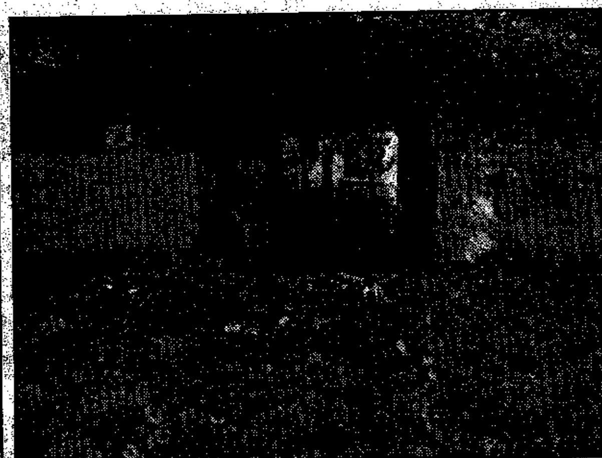
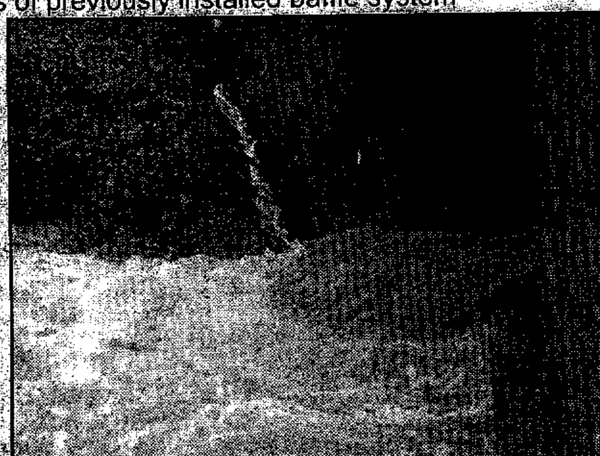
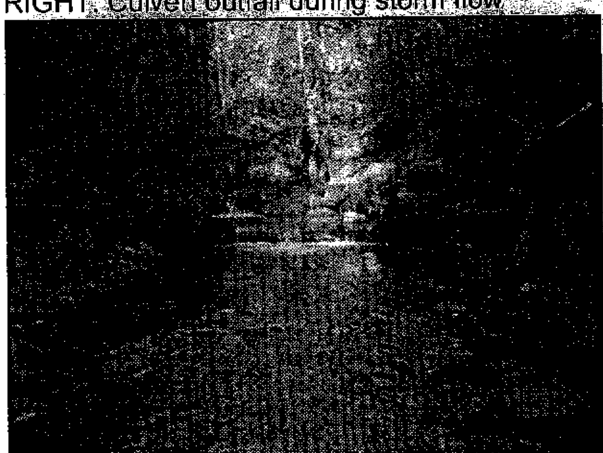
Views of the Site



LEFT: E.C. 2.95 box culvert inlet and upstream sediment bar during low flow
RIGHT: E.C. 2.95 box culvert bore and remnants of previously installed baffle system



LEFT: E.C. 2.95 box culvert outlet and scour pool during low flow
RIGHT: Culvert outfall during storm flow



LEFT: Looking upstream to project site at low flow
RIGHT: Looking upstream to project site at high flow, approximately 300 cfs

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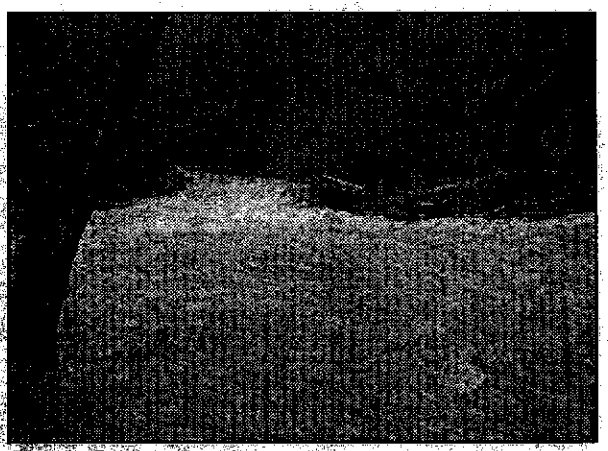
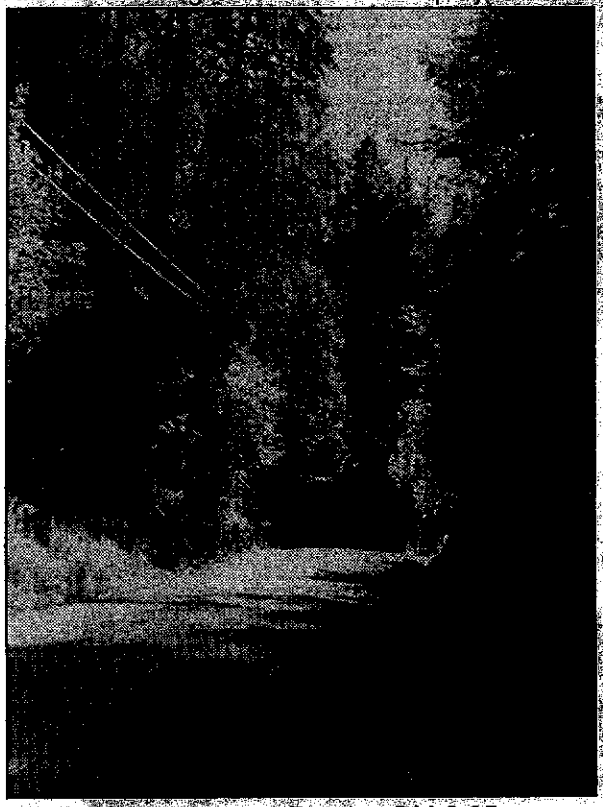
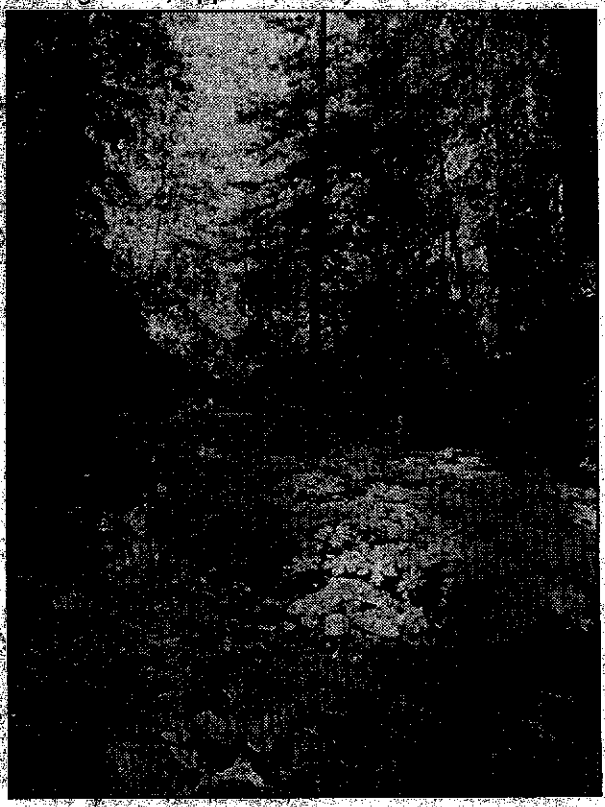


LEFT: Looking downstream from project location at low flow.
RIGHT: Looking downstream from project location at high flow, approximately 300 cfs

LEFT: Eureka Canyon Road at PM 2.95
RIGHT: Corralitos Creek riparian zone upstream of project site

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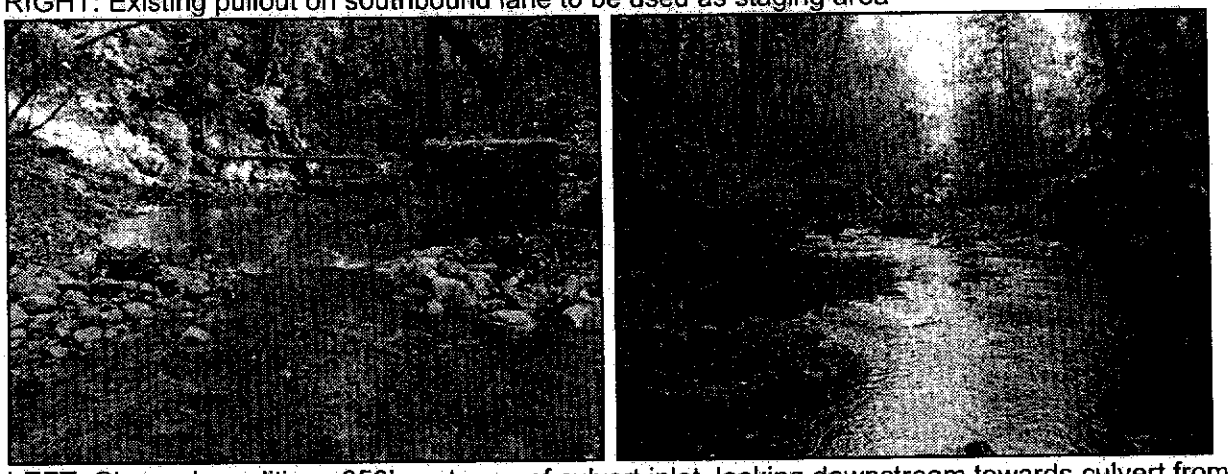
LEFT: Existing access route to Eureka Canyon Road with single 6" redwood to be removed.
RIGHT: Existing pullout on southbound lane to be used as staging area



LEFT: Channel conditions 350' upstream of culvert inlet, looking downstream towards culvert from former skid road crossing location.
RIGHT: Channel conditions 300' downstream of culvert outlet, looking upstream towards culvert

LEFT: Channel conditions 400' downstream of culvert outlet, looking upstream
RIGHT: Channel conditions 700' downstream of culvert outlet, looking upstream

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Avoidance and Mitigation Measures:
EUREKA CANYON ROAD PM 2.95
CULVERT RETROFIT PROJECT

Suggested Wildlife Avoidance and Mitigation Measures

- All work will be done during the low flow season.
- The project impact area will be identified with high visibility orange construction fencing to minimize disturbance to habitat and neighboring properties.
- A preconstruction survey for California red-legged frog and western pond turtle will be conducted within 72 hours of project initiation at each site. Prior to construction, all vertebrate species including salmonids, will be removed from the project site by a qualified biologist and relocated to suitable nearby habitat.
- Prior to any dewatering activities, a qualified fisheries biologist will clear the project site of salmonids and other aquatic species present.
- During initial dewatering activities, a qualified biologist will be on-site to relocated any stranded organisms and to monitor bypass flows.
- A coffer dam bypass system will maintain flows around the project site.
- During bypass operations, the project biologist will check the project site to monitor flows and turbidity.
- Following construction, native plant seeding and revegetation will be done on each of the sites' access routes and disturbed areas. Locally collected willow and dogwood stakes will be installed.

Suggested Best Management Practices

The following best management practices are suggested:

- Control of site runoff through during construction.
- Installation of temporary erosion and sedimentation control devices.
- Location of equipment and spoils in designated staging areas.
- Control of dewatering process to limit turbidity.
- Construction equipment would be maintained in proper operating condition to prevent leaks of oil or grease.

Species-Specific Minimization and Mitigation Measures: Steelhead

- Regulatory Agency Consultation - State Fish and Game Department, National Marine Fisheries Service

- Species-Specific Mitigation measures are discussed in detail in the would include:

1. Removal and relocation of all fish from the site, using electro fishing, dipnets and block nets.

2. After fish removal, either construct dams up and downstream of the site and running flow through culverts or channel the stream on the west side to avoid the project area.

3. Dams should be made of washed gravel with visquine or sandbags that will be removed from the streambed at the end of the project.

4. The water diversion should be done in one day during the daylight hours. Smolting steelhead migrate at night only.

5. Use silt fencing or straw wattles to prevent sediment from entering the flowing channel.

6. No heavy equipment should enter the flowing channel or left on the dry streambed over night. Use vegetable oil based hydraulic fluid and prevent leaks from heavy equipment by proper maintenance.

7. Properly revegetate the bank or the top of bank with appropriate riparian trees. Mulch all bare soil.

8. Construction period from June 15 to October 15 at the latest. After the fish relocation, a fish monitor should be present during dam and culvert placement and removal. Any missed fish during the removal process can be removed during the dewatering phase.

9. Fish removal, potential impacts, mitigation measures and monitoring would be the same for resident rainbow trout as for steelhead.

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TRAFFIC CONTROL REQUIREMENTS

ORDER OF WORK.

Order of work shall conform to the provisions of Section 5-1.05, "Order of Work," of the Caltrans Standard Specifications and these special provisions. Attention is directed to "Maintaining Traffic" of these special provisions.

A minimum of one eleven foot wide north bound lane on North Rodeo Gulch at the construction site shall be kept open to public traffic at all times.

Before a lane closure will take place, warning signs for road closure shall be installed at road intersections identified elsewhere in these special provisions, with the specific locations determined by the Engineer. Coordination with the County Traffic Engineer is mandatory at least 72 hours in advance of all road closures.

The installation of temporary railings shall be complete at each required location before existing facilities are disturbed or before excavation or other work is begun. Temporary railings shall consist of Type 'K' rails per Section 12-3.08 of the Standard Specifications and shall be placed along the full length of the construction site including the staging area on North Rodeo Gulch. Temporary railings shall not be removed until such hazards no longer exist and until such removal is approved by the Engineer.

CONSTRUCTION AREA SIGNS.

Construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions of Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these special provisions.

Full compensation for furnishing, installing, maintaining and removing Construction Area Signs, shall be considered as included in the contract price paid for Traffic Control System and no separate payment will be made therefor.

MAINTAINING TRAFFIC.

Attention is directed to Sections 7-1.08, "Public Convenience," 7-1.09, "Public Safety," 12-2.02, "Portable Delineators," of the Standard Specifications and these special provisions.

Lane closures shall conform to the provisions in the section of these special provisions entitled "Traffic Control System".

Personal vehicles of the Contractor's employees shall not be parked on the traveled way at any time, including any section closed to public traffic.

The Contractor shall notify local authorities of the intended date when work is to commence at least one week before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make arrangements relative to keeping the working area clear of parked vehicles.

The provisions in this section may be modified or altered if, in the opinion of the Engineer, public traffic will be better served and work expedited. Said modifications or alterations shall not be adopted until approved in writing by the Engineer.

The Contractor shall be responsible for installing and maintaining adequate temporary traffic control per the California MUTCD (lane markers, pavement markings and temporary traffic signs to replace existing traffic control devices removed by construction).

TRAFFIC CONTROL SYSTEM.

The traffic control system shall consist of closing the south bound traffic lane only and controlling traffic in the remaining north bound lane continuously for the full term of the construction contract in accordance with the details shown on the plans, the provisions of Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under Section 10-1.05, "Maintaining Traffic," of these special provisions, these special provisions and an approved Traffic Control Plan.

Existing traffic control signing that is in place prior to the award of this contract shall be the full responsibility of the Contractor.

Signs for traffic control system shall conform to the provisions under Section 10-1.03, "Construction Area Signs," of these special provisions.

24 hour traffic control for the duration of the construction work is mandatory.

Stop signs or photo voltaic powered signal system may be used at either end of the construction site to provide 24 hour traffic control. If relocated stop signs are utilized, then flaggers shall be required when the line of sight from the relocated south bound stop sign to relocated north bound stop sign will be obstructed.

The provisions of this section will not relieve the Contractor from his responsibility to provide such additional devices or take such measures as may

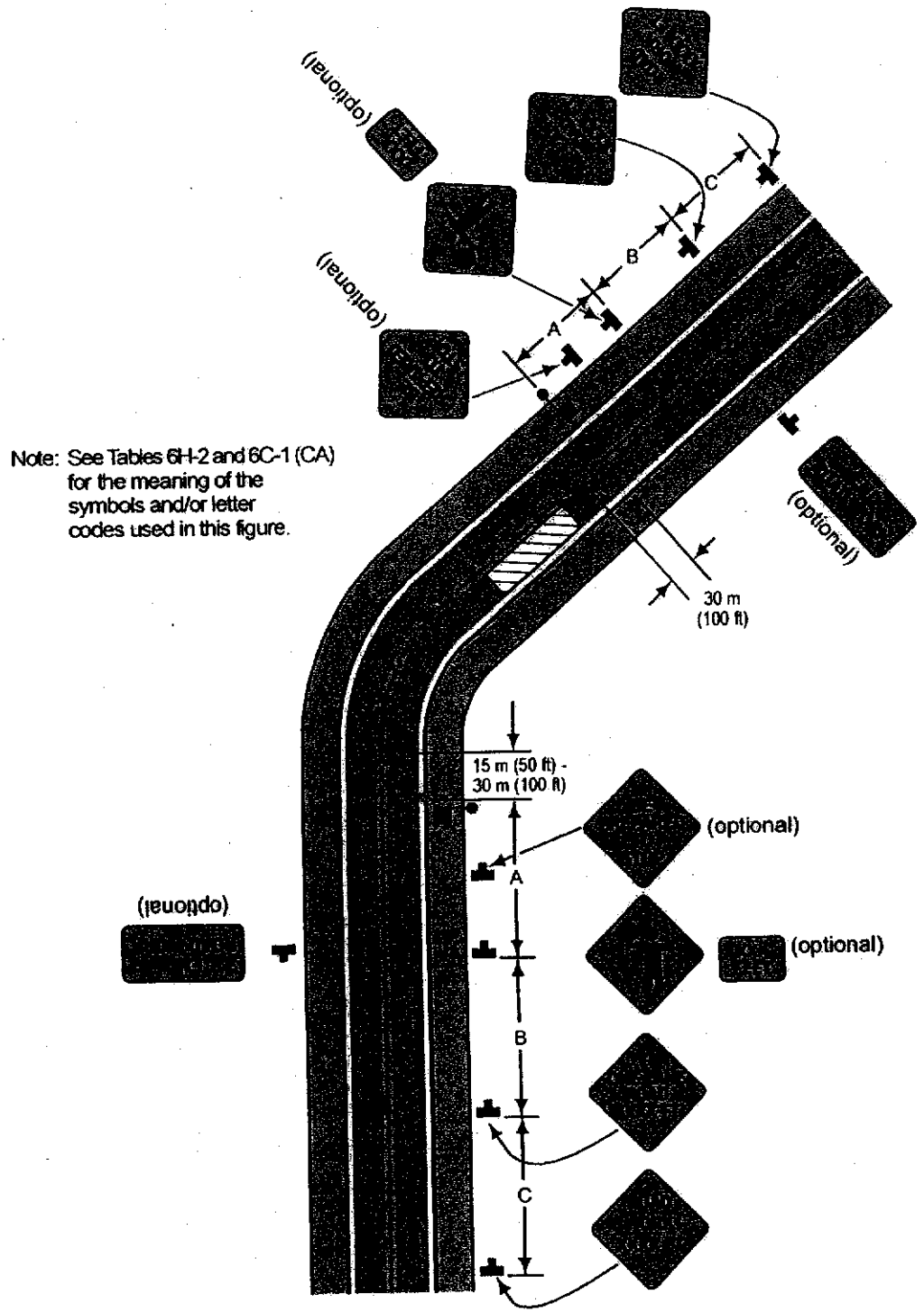
be necessary to comply with the provisions of Section 7-1.09, "Public Safety," of the Standard Specifications.

The Contractor shall immediately repair or replace any component in the traffic control system that is damaged, displaced, or ceases to operate or function as specified.

Upon completion of the work requiring lane closure, all components of the traffic control system that are the responsibility of the Contractor to install and maintain shall be removed from the site of the work and shall become the property of the Contractor.

The contract lump sum price paid for Traffic Control System shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, repairing, moving to new locations, replacing and disposing of the components of the traffic control system as shown on the plans, including temporary 'K' rail, photo voltaic powered traffic control signal system, in accordance with the provisions of the Standard Specifications and these special provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)



Typical Application 10

Table 6H-2. Meaning of Symbols on Typical Application Diagrams


Arrow panel


Arrow panel support or trailer
(shown facing down)


Changeable message sign or support trailer


Channelizing device


Crash Cushion

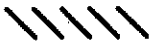

Direction of temporary traffic detour


Direction of traffic


Flagger

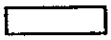

High level warning device
(Flag tree)


Luminaire


Pavement markings that should be
removed for a long term project


Sign (shown facing left)


Surveyor


Temporary barrier


Temporary barrier with warning lights


Traffic or Pedestrian signal


Truck mounted attenuator


Type III Barricade


Warning lights


Work space


Work vehicle

Table 6H-3. Meaning of Letter Codes on Typical Application Diagrams

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	30 (100)	30 (100)	30 (100)
Urban (high speed)*	100 (350)	100 (350)	100 (350)
Rural	150 (500)	150 (500)	150 (500)
Expressway / Freeway	300 (1,000)	450 (1,500)	800 (2,640)

* Speed category to be determined by highway agency

** Distances are shown in meters (feet). The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The third sign is the first one in a three-sign series encountered by a driver approaching a TTC zone.)

Table 6H-4. Formulas for Determining Taper Lengths

Speed Limit (S)	Taper Length (L) Meters
60 km/h or less	$L = \frac{WS^2}{155}$
70 km/h or more	$L = \frac{WS}{1.6}$

Speed Limit (S)	Taper Length (L) Feet
40 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in meters (feet)

W = width of offset in meters (feet)

S = posted speed limit, or off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in km/h (mph)

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ATTACHMENT 4.6a16
APPLICATION 03-0128

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

WATER POLLUTION.

Attention is directed to the provisions of Section 7-1.01G, "Water Pollution," of the Standard Specifications.

Prior to beginning any construction work, the Contractor shall submit a water pollution control plan in conformance with the provisions of Section 7-1.01G for approval by the Engineer that details all methods and facilities to be implemented for control of surface, underground waters related to the Contractors construction activities. No soils nor silt laden or polluted waters generated from the Contractor's construction activities shall be allowed to be released untreated into Rodeo Creek.

Full compensation for conforming to the provisions of this section, not otherwise provided for, shall be considered as included in prices paid for the various contract items of work involved and no separate payment will be made therefor.

CONTRACTOR RESPONSIBILITY FOR CONTAMINATION.

If, as a result of working on this project, any land, waterway, or stream becomes contaminated, including any land, waterway, or stream that contains an endangered or threatened species, the Contractor shall immediately contact the County inspector on the job and immediately act to mitigate and limit the reason for the contamination. The Contractor shall also notify the following agencies as soon as possible of the discharge or spill: The California Office of Emergency Services, National Oceanic and Atmospheric Administration, Department of Fish and Game, and Regional Water Quality Control Board. It will be the responsibility of the Contractor to remedy the situation and monitor all cleanup activities, including all efforts to mitigate the resultant damage. In addition the contractor shall limit further damage. The Contractor shall develop a response and mitigation plan and coordinate all cleanup and remediation efforts with the appropriate regulatory agencies by acquiring all permits, clearances and consents necessary to facilitate the remediation effort. The Contractor shall supply the equipment and personnel needed to implement the response and mitigation plan.

The Contractor shall assume full responsibility for and immediately undertake the cleanup and mitigation described above even if the Contractor claims the contamination was a result of differing site conditions or any other cause for which the Contractor may dispute its liability.

Full compensation for any costs occasioned by compliance with this section shall be considered included in the contract price and no separate payment shall be made therefor unless the Contractor establishes entitlement for reimbursement pursuant to a Claim made in accordance with the provisions of this Contract.