Spider Logs

Log, root wad, and boulder combination

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Downstream-V boulder weir

Vortex boulder weir, cross section view (Rosgen, 1993)

Project Location: SF District
Project Name: Fisheries Restoration Grant Program
Applicant: Department of Fish and Game

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Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Vortex boulder weir, plan view (Rosgen, 1993)

Vortex boulder weir, profile view (Rosgen, 1993)
Boulder cluster

Single and opposing boulder wing-deflectors

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Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Straight log weir with low-flow notch

Downstream-V log weir
Diagonal log weir

Upstream-V log weir

Upstream-V log weir with a low-flow notch

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Opposing log deflectors over a sill log

Log constrictors over planks

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Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Upsurge weir

Opposing log wing-deflector

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Hewitt ramp

Step-and-pool fishway

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Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Denil fishway

Alaskan steep-pass

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Back-flooding weirs

Washington baffles with a separator wall

Washington baffles

Corrugated metal pipe steel ramp baffles

*Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)*
Riprap

Boulder wing-deflector

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Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Log Cribbing

Live Vegetative Crib Wall (Scheichtl and Stern, 1996)

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Log bank armor

Log wing-deflector

Project Location: SF District
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Applicant: Department of Fish and Game

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Tree revetment

Plan view of native material revetment (Rosgen, 1993)

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Project Location: SF District
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Applicant: Department of Fish and Game

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Native material revetment (Rosgen, 1993)

Willow sprigging (Prunuske, 1987)

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Willow Wall Revetment (L. Prunuske, 1997)

Brush Mattress Cross Section (L. Prunuske, 1997)
Checkdam placement (Prunuske, 1987)

Brush and Rock Checkdam (Kraebel and Pilsbury, 1934)
Redwood board checkdam (Prunuske, 1987)
Post Checkdam (Kraebel and Pillsbury, 1934)
Tree Checkdam (Kraebel and Pillsbury, 1934)

Brush and Rock Mattress (Kraebel and Pillsbury, 1934)
Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Stream simulation design option

- Cuvert Slope same as Channel Slope
- Stream Flow
- Culvert Embedded 30 to 50% for Full Length

- Natural Channel Cross-Section
- Culvert Width ≥ Bankfull Channel Width
- Native Streambed Material or Engineered Fill
- Culvert Embedment
Ripping or decompaction of the road surface and outsloping to approximate original grade


**Condition**
- Diversion potential
- Road surface and ditch flows drain to stream
- Undersized culvert high in fill with outlet erosion and elevated plugging potential

**Treatment**
- Road surface decompacted
- Cross road drains on old road
- Stream crossing fill completely excavated
- Excavated spoil used to outslope adjacent road

Stream crossing excavations for decommissioning
**Common Problems**

A - Diversion potential

B - Road surface and ditch flows drain to stream

C - Undersized culvert high in fill with outlet erosion

**General Standards**

A - Road surface and ditch "disconnected" from stream

B - No diversion potential

C - 100 year culvert set at base of till

Typical upgraded stream crossing

**Project Location:** SF District  
**Project Name:** Fisheries Restoration Grant Program  
**Applicant:** Department of Fish and Game

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Typical armored fill stream crossing

**Project Location:** SF District

**Project Name:** Fisheries Restoration Grant Program

**Applicant:** Department of Fish and Game

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Installation and specification of typical armored fill crossing
Removal of unstable sidecast materials

Project Location: SF District
Project Name: Fisheries Restoration Grant Program
Applicant: Department of Fish and Game

Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Techniques for dispersing road runoff

- Waterbars (seasonal roads)
- Cross-road drain and decompression (decommissioned roads)
- Rolling dips

Rolling dip spacing dependent on road grade, soil erodibility, and proximity to stream.

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Source of Drawings: California Salmonid Stream Habitat Restoration Manual, (Flosi et al., 1998)
Utilizing road shape to reduce surface runoff rates
Specifications and use of rolling dips to reduce ditch erosion and surface runoff

Typical ditch relief culvert installation

Cross sections of typical installations

Poor  OK  Best
Typical stream crossing culvert installation on non fish-bearing streams