

APPENDIX E

Comparison of Design Criteria
for Debris Basins, Elevated Inlets, and Desilting Inlets

	Debris Basin ¹	Elevated Inlet	Desilting Inlet
General Location	N/A	Locate both facilities such that if overflow occurs on a street or other safe path, it is available to convey the water and sediment.	
Horizontal alignment	Locate in the original watercourse, where the dam is perpendicular to the flow path. The longer dimension of the basin shall fall along the flow line.		
Outlet Tower and Conduit	Refer to the section on Outlet Works in the Department's Debris Dams and Basins Design Manual.	A standard concrete outlet tower and conduit is required (see the Debris Dams and Basin Design Manual), except in phased upstream development where corrugated metal pipe (CMP) tower with a concrete base may be substituted. ²	A corrugated metal pipe outlet tower and pipe is required upstream of the desilting wall.
Gage Boards	Gage boards are required on basins under State Jurisdiction. Sediment lines painted on towers, marking from the lowest port invert suffice for all others. See the section on Gage Board Pipe Support in the Department's Debris Dams and Basins Design Manual.	Gage boards or sediment lines painted on towers, marking from the lowest port invert can be used.	
Earth Embankment	Upstream and downstream embankment slopes less than or equal to 3H:1V. Steeper slopes require complete geotechnical stability analysis. Also, refer to the section on Earthen Dam Design in the Department's Debris Dams and Basins Design Manual.	Maximum berm slope is 3H:1V. Steeper slopes require complete geotechnical stability analysis. Also, refer to the section on Earth Dam Design in the Department's Debris Dams and Basins Design Manual.	Protect the earth embankment between the desilting wall and the inlet with reinforced concrete facing slab (air placed concrete is acceptable).
Embankment Crest	The top width of the berm over the inlet shall be 20-feet paved 3 inches of asphalt concrete. A berm width of 15-feet may be approved if geological analysis is provided to support the reduction.		
Facing Slab	6-inch concrete or gunite with No. 5 reinforcing steel at 18-inch spacing each way. See section on Earthen Dam Design, Protection for Dam Slopes in the Department's Debris Dams and Basins Design Manual.	A 6-inch thick reinforced concrete facing slab with reinforcing steel (no wire mesh) extending to the canyon wall is required (air placed concrete is acceptable). Provide facing slabs around the basin wall if cut and fill method is used to obtain the capacity.	
Trash Barriers	Refer to the section on Debris Barrier in the Department's Debris Dams and Basins Design Manual.	A swinging trash rack is required for conduits greater than 48-inches in diameter. A sloping trash rack ³ per LACDPW ⁴ 3089-0 can be used for smaller conduits. Trash posts spaced at 4-feet or 2/3 the diameter of the conduit, whichever is smaller, are also required at all elevated inlets.	A sloping trash rack per LACDPW 3089-0 and trash posts spaced at 2/3 the diameter of the conduit are required.
Access Roads	Access roads with 12 ft wide paving (3-inch asphalt concrete on 4-inch crushed aggregate base) within a 15-ft easement with minimum radius of 40 feet can be used for structures with capacity less than 20,000 cubic yards. See section on Access to Dam and Basin in the Department's Debris Dams and Basins Design Manual.	Provide a vehicular access road into the basin at least 12-feet wide within a 15-feet easement, paved with 3 inches of asphalt concrete over 4 inches of crushed aggregate base.	

	Debris Basin ¹	Elevated Inlet	Desilting Inlet
Access Ramps	Ramps are required. Refer to the section on Access to Dam and Basin in the Department's Debris Dams and Basins Design Manual. Unpaved ramps for slopes less than 10 percent. Paved ramps (3-inch asphalt concrete on 4-inch crushed aggregate base) for slopes up to a maximum of 12 percent.		
Fencing	Refer to the section on Fencing in the Department's Debris Dams and Basins Design Manual. Totally, secure the basin area and inlet by 5-foot high fencing per APWA ⁵ standard drawing 600-0.		
Hydraulic Design	Refer to the section on Design of Rectangular Spillway in the Department's Debris Dams and Basins Design Manual.	Base the hydraulic design of inlet and storm drain on requirements stated in the Department's Hydraulic Design Manual.	
Ponding	Refer to the section on Design of Rectangular Spillway in the Department's Debris Dams and Basins Design Manual.	Maximum allowable ponding at the drain shall be 3-feet above soffit of the conduit inlet.	Maximum allowable ponding at the desilting wall shall be 3-feet above soffit of the drain.
Freeboard	Refer to the section on Design of Rectangular Spillway in the Department's Debris Dams and Basins Design Manual.	Minimum freeboard at the inlet is 2-feet above maximum water surface elevation.	
Drain Size	Refer to the section on Design of Rectangular Spillway in the Department's Debris Dams and Basins Design Manual.	Minimum drain size is 36-inch RCP and maximum drain size is 84-inch RCP or equivalent RC Box.	Minimum drain size is 36-inch and maximum drain size is 48-inch RCP or equivalent RC Box.
Inlet Design Capacity	Refer to the section on Design of Rectangular Spillway in the Department's Debris Dams and Basins Design Manual.	Design inlet and storm drain to convey the burned flow rate or the fully developed watershed flow rate, whichever is higher.	Design the spillway notch and the inlet to pass the burned flow rate or the fully developed watershed flow rate whichever is higher.
Structural Design	Refer to the section on Structural Design in the Department's Debris Dams and Basins Design Manual. Contact Design Division for additional information.		
Sediment Capacity	Refer to the section on Basin Capacity in the Department's Debris Dams and Basins Design Manual.	19,999 cubic yards of sediment is the maximum allowable capacity in DPA 5-11 and 4,999 cubic yards is the maximum allowable capacity in DPA zones 1-4.	4,999 cubic yards of sediment is the maximum allowable capacity in DPA zones 5-11 and 999 cubic yards is the maximum allowable capacity in DPA zones 1-4.
Desilting Wall Height	N/A	N/A	The maximum desilting wall height is 6-feet.
Desilting Wall Design	N/A	N/A	Design the desilting wall to withstand the overflow of the total burned and bulked flow rate.

¹ Criteria listed in this table for debris basins amends the criteria given in the Department's Debris Dams and Basins Design Manual.

² The tower base can be modified to include a cleanout drain with a cover plate to allow flushing of the conduit. Extend the encasement on the conduit to the junction with the mainline or to a point where a 3H:1V slope originating from the intersection of the upstream face and the design headwater elevation meets the conduit, whichever is lesser.

³ Discuss with Design Division prior to using a sloping trash rack especially in locations where organic debris may present a significant problem and may lead to clogging up the trash rack.

⁴ Standard plans designated by an LACDPW number refer to the Department's Standard Plan Manual (1992 Edition).

⁵ Standard plans designated by an APWA number refer to the Standard Plans for Public Works Construction Manual by the American Public Works Association, 1985 Edition.