

GROSS SOLIDS REMOVAL DEVICES

What are Gross Solids Removal Devices

Gross solids removal devices (GSRDs) are structural best management practices (BMPs) designed to remove trash, vegetative material, and other particles of relatively large, gross size from storm water runoff. These GSRDs were developed to comply with strict new rules for controlling trash discharges to Southern California water bodies. Under the regulations, no trash is allowed to be discharged up to a design storm event.

Gross Solids Removal Devices Origin and Uses

The non-proprietary GSRD designs were developed by the California Department of Transportation (Caltrans) in early 2000 with assistance from researchers at the Office of Water Programs, California State University Sacramento and consulting engineers from Camp Dresser and McKee, Montgomery Watson-Harza, and Burns and McDonnell. Full-scale GSRDs were operated and monitored over a two-year study period. Since this successful test, many GSRDs have been constructed adjacent to Southern California freeways, and evaluation on several more GSRD projects are either in the construction or planning phase. In addition to Southern California, Caltrans anticipates deploying GSRDs anywhere within its right-of-way where trash is a regulatory concern.

Why are Gross Solids Removal Devices Innovative

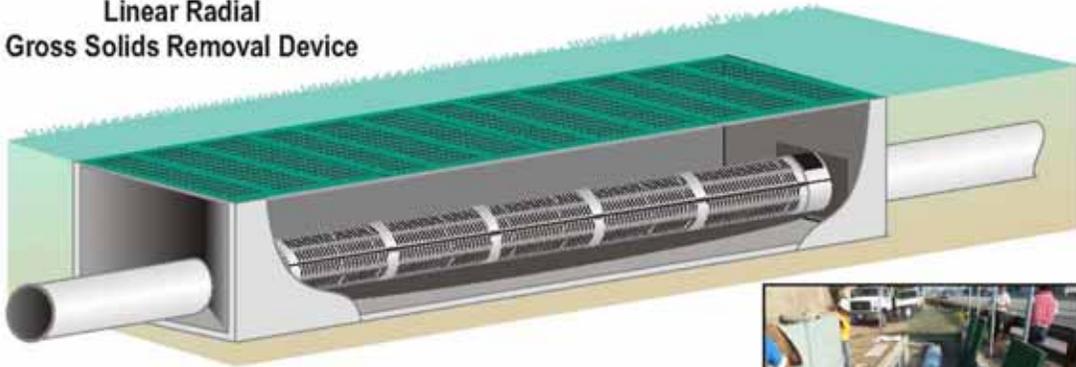
- The GSRDs are innovative adaptations of technology from other arenas. The linear radial GSRD takes a well casing and lays it on its side. The inclined screen GSRD utilizes parabolic wedge-wired screen used in the food processing and other industries.
- The GSRDs minimize maintenance by storing the estimated annual load of gross solids. Unlike many other BMPs for trash that require multiple cleanings throughout the storm season, the GSRDs are expected to need cleaning only once per year under normal circumstances.
- The GSRDs are designed to drain between storm events to eliminate standing water which prevents mosquito breeding. Many other BMPs for trash, such as the vortex separation systems, incorporate a permanent pool of water which can allow mosquito breeding.

What have Gross Solids Removal Devices Changed or Replaced

The Caltrans GSRDs are highly effective, low maintenance BMPs that can replace existing trash BMPs that: (1) require special equipment to maintain, (2) require multiple cleanings through the storm season; and (3) contain permanent pools of water which can promote mosquito breeding.

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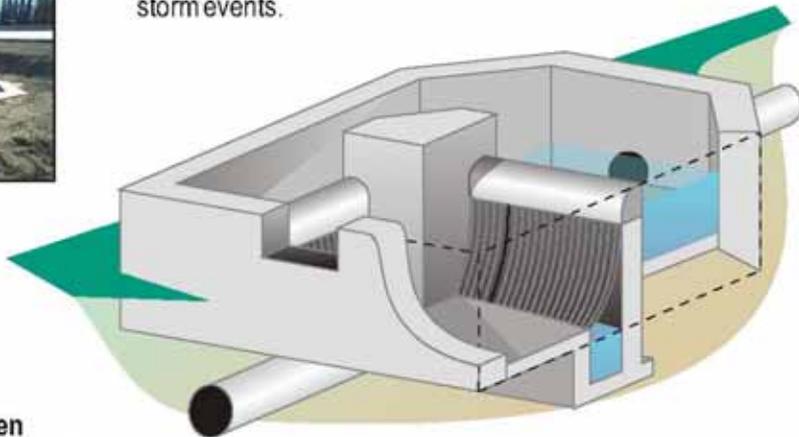
**Linear Radial
Gross Solids Removal Device**



This GSRD utilizes a modular well-casing with 5 mm x 64 mm (0.2 in x 2.5 in nominal) louvers to screen out gross solids. The modular well-casing is placed on a 2 percent slope. Runoff flows into the device and exits radially through the louvers.



This GSRD utilizes a 3 mm (0.125 in nominal) spaced parabolic wedge-wire screen. Runoff enters the device and flows into a trough where larger gross solids settle out and the runoff is distributed. The distributed runoff flows over weirs and falls onto and through the screen. The gross solids are captured on the surface of the screen and slide down the screen to the storage area. Weep holes are provided to drain water between storm events.



**Inclined Screen
Gross Solids Removal Device**