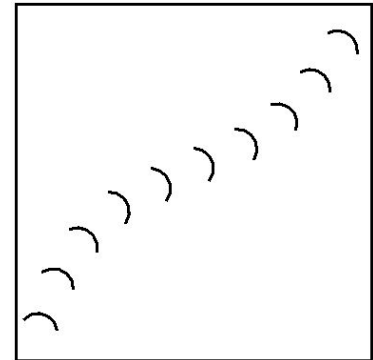


SC-1 DIKES AND BERMS

Refer to: ITD Standards and Specifications for Highway Construction, Section 212
ITD Standard Drawings P-1-E



Standard Symbol

Definition and Purpose

A temporary dike or berm is a ridge constructed of compacted soil, composted material, gravel, crushed rock, sandbags, gravel bag barriers, or straw bales that intercepts and prevents runoff from entering a disturbed area, and diverts or directs the water to a controlled or stabilized drainage outlet. Dikes or berms can be located or placed immediately along cut or fill slopes, along the perimeter of a disturbed area, or adjacent to streams to prevent water from a construction site from entering a body of water.

Dikes or berms can also be used to direct water to slope drains, ditches, channels, sediment basins, or sediment traps.

Appropriate Applications

- Prevent runoff from entering or overflowing onto newly-constructed slopes, or intercept or divert runoff coming off the slope.
- Intercept runoff from upland undisturbed areas, and divert or direct runoff to a sediment basin or specified location.
- Intercept runoff and sediment from exposed disturbed areas, such as a newly-constructed road or slope, and filter sediment or redirect water to a slope drain, sediment basin, or other specified location.
- Install a perimeter around a disturbed area to protect adjacent undisturbed areas and prevent off-site runoff from entering the area.
- Still the water in larger sediment basins, allowing more sediment to settle.

BMP Objectives	
<input checked="" type="checkbox"/>	Perimeter Control
<input type="checkbox"/>	Slope Protection
<input checked="" type="checkbox"/>	Borrow and Stockpiles
<input checked="" type="checkbox"/>	Drainage Areas
<input checked="" type="checkbox"/>	Sediment Trapping
<input type="checkbox"/>	Stream Protection
<input checked="" type="checkbox"/>	Temporary Stabilizing
<input type="checkbox"/>	Permanent Stabilizing

- Prevent high water from streams, ponds, or lakes from entering a project.
- Prevent runoff from entering into bodies of water.
- Divert runoff from a roadway under construction with a waterbar to a roadside ditch.

Limitations

- Do not use dikes and berms in streams or channels.
- Space, degree of slope, and access can be limiting or prohibitive factors for installing a dike or berm.
- The dike or berm must be designed and constructed to avoid causing erosion or washout due to diverting the water and creating concentrated flow runoff.
- Dikes or berms should be used for small drainage areas and must be properly keyed and compacted to avoid washout.
- Sandbags or gravel bag barriers can be used to construct dikes or berms in more restricted or hard-to-access areas. See SC-3 and SC-5.
- Straw bale sediment barriers are to be used in emergencies only and require constant maintenance and repair. Straw bales, properly installed and anchored, can be placed uphill of a silt fence to act as a sediment barrier prior to water passing through a silt fence.

Design Parameters

- If soil is used for dikes or berms, the soil should consist of clayey material.
- Compaction of the dike or berm material (if soil or rock) is required per the project specifications.
- The height of dikes or berms comprised of soil or rock should be sufficient to prevent water from overtopping the structure.
- Compost dikes or berms may be left as a permanent filter or part of the natural landscape and may include a permanent seed mix.
- Geosynthetic liners should be placed on the uphill or upstream side and properly anchored to prevent erosion or washout of the dike or berm.
- If used as an interceptor/diversion structure, the berm should be built on the contour with a consistent and gradual gradient to a stabilized outlet.
- Dikes and berms shall be graded in order to divert runoff to a stabilized outlet or other area using a gradient as flat as possible to prevent erosion.
- Straw bales shall be installed in a trench and anchored properly. The straw bales shall be laid on the sides opposite the bale twine, and any holes or gaps shall be plugged tightly with wedged straw. A geosynthetic liner, properly anchored, shall be used to increase the effectiveness of the straw bale dike or berm.
- Field adjustments shall be made as necessary to ensure proper performance.

Maintenance and Inspection

- Conduct inspections as required by the NPDES permit or contract specifications.
- Remove sediment retained by the berm once it has reached one-half of the exposed height of the berm, and dispose of properly to an approved site. Remove channel or ditch obstructions and dispose in an approved location.
- If temporary, remove the dikes or berms only after other permanent BMPs are in place and the site is stabilized. Sometimes the dike or berm may be left in place and continue operating after final acceptance of the project, or the maintenance section for that area may be required to remove the dikes or berms at a later date.
- If straw bales are used during emergencies, check for failure, damaged bales, undercutting or end runs. Replace or repair as necessary.
- Straw bales shall be removed from the site after permanent BMPs are in place and the site is stabilized.