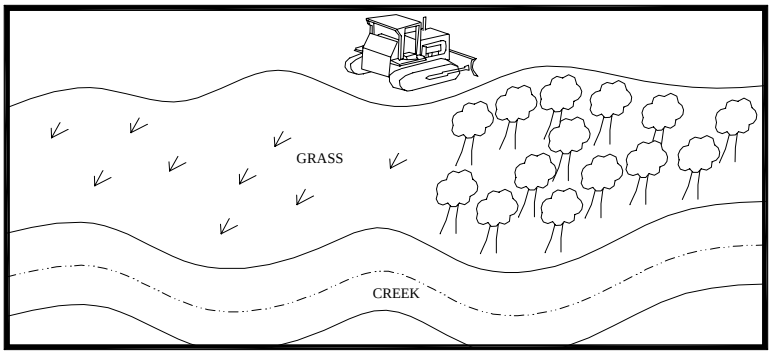
ACTIVITY: Filter Strips

TCP – 23



Targeted Constituents				
● Significant Impact	◗ Partial Impact	○ Low or Unknown Impact		
● Sediment	◗ Heavy Metals	◗ Floatable Materials	◗ Oxygen Demanding Substances	
◗ Nutrients	◗ Toxic Materials	◗ Oil & Grease	○ Bacteria & Viruses	○ Construction Wastes

Implementation Requirements				
● High	◗ Medium	○ Low		
○ Capital Costs	○ O & M Costs	○ Maintenance	○ Suitability for Slopes >5%	○ Training

Description

Prevent or reduce the discharge of pollutants to the storm system or to watercourses as a result of construction activity by utilizing vegetation to protect soils from erosion and to slow the velocity of runoff to allow the removal of sediment through filtering and settling.

This management practice is likely to create a significant reduction in sediment and a partial reduction in nutrients, heavy metals, toxic materials, floatable materials, oxygen demanding substances, and oil and grease.

Suitable Applications

Sodding and plugging are appropriate for areas that contained turf prior to construction, or for any graded or cleared area that might erode and where a permanent, long-lived plant cover is needed immediately. Filter strips are particularly effective on flood plains, adjacent to wetlands or other sensitive water bodies, and on steep, unstable slopes.

It is strongly encouraged to use filter strips in temporary or permanent buffer areas.

- A buffer may be a planned feature and/or a requirement of MDPW. It is preferred that the buffer include all of a floodplain. However, a buffer must at least include the floodway plus 50 feet (15.2 m) perpendicular to the floodway. If a floodway has not been determined, the buffer must be at least 25 feet (7.6 m) perpendicular from each side of the stream bank, creek, or unnamed waterway under "bank-full conditions." See Volume 1 Section 5.9 for additional descriptions of the required buffer.

- Any area within a buffer required by the regulation presented in Volume 1 Section 5.9, SHALL NOT BE CLEARED. They should be surveyed, flagged, and delineated by a colored temporary construction fence. This should be explained to all construction employees and supervisors.

Installation/ Application Criteria

Sodding and plugging is the placement of permanent grass cover that has been grown elsewhere and brought to the site. Sodding stabilizes an area by immediately covering the soil surface with grass, thereby protecting the soil from erosion, enhancing infiltration, filtering sediment and removing other pollutants, and slowing runoff velocities. Plugging stabilizes an area by planting clumps of grass material, which then grow and spread to provide complete covers. Plugging is generally used for hybrid grasses that cannot be established from seed.

Sodding and plugging should only be performed if permitted under regulations presented in Volume 1 Section 5.9.2.

A vegetative filter strip is a vegetated strip of land that is either created with new vegetation as part of a project, or may be a strip of existing vegetation left undisturbed or reinforced on a construction site. The purpose of a vegetative filter strip is to achieve temporary or permanent water quality benefits by slowing the velocity and filtering certain pollutants from stormwater runoff.

- Sod shall be protected with tarps or other protective covers during delivery and shall not be allowed to dry out between harvesting and placement.

- All weeds and debris shall be removed before cultivation of the area to be planted and shall be disposed in accordance with local ordinances.

- After cultivation, installation of irrigation systems, and excavation and backfilling of plant holes are completed, areas to be planted with sod shall be fine graded and rolled. Topsoil may be needed in areas where the soil textures are inadequate. Areas to be planted with sod shall be smooth and uniform prior to placing sod. Areas to be planted with sod adjacent to sidewalks, concrete headers, header boards, and other paved borders and surface areas shall be 1.5 in. - 0.25 in. (38 mm - 6 mm) below the top grade of such facilities after fine grading, rolling, and settlement of the soil. Sod shall be placed so that ends of adjacent strips of sod are staggered by half the width or length. All edges and ends of sod shall be placed firmly against adjacent sod and against sidewalks, concrete headers, header boards, and other paved borders and surfaced areas.

- Prepare a good, firm seed bed by adding soil amendments such as fertilizer as needed. After seeding, apply a mulch to protect the vegetation during establishment. Select a seed mixture appropriate to the site conditions, remembering that dense grasses are the most effective in slowing flow velocities and removing pollutants such as sediment. A thick root structure is needed to control erosion.

- After placement of the sod, the entire sodded area shall be lightly rolled to eliminate air pockets and to ensure close contact with the soil. After rolling, the sodded areas shall be watered so that the soil is moistened to a minimum depth of 4 in. (100 mm). Sod shall not be allowed to dry out. Sod should not be planted during very hot or wet weather. Sod should not be placed on slopes that are greater than 3:1 (H:V) if they are to be mowed.

- If irregular or uneven areas appear before or during the plant establishment period,

such areas shall be restored to a smooth and even appearance.

- Plant during the best time for the particular grass or vegetation selected.
- Use planting equipment and methods that provide uniform distribution and proper placement of seed.
- Water or irrigate the vegetation as needed to supplement rainfall until established.
- Avoid using the buffer strip for vehicular traffic as it will damage the vegetation and reduce its effectiveness as a buffer.
- Application of fertilizer, lime, or other soil amendments shall follow state, county, and/or local guidelines and label instructions.

Maintenance

- Inspect sod installations weekly and after significant storm events, until the turf is established.
- Maintenance shall consist of "tall" mowing, weeding, and ensuring that the irrigation system is operating properly and as designed to sustain growth.
- Fertilize in accordance with label instructions and the needs of the grass and soil as indicated by soil tests.
- Overseed, repair bare spots, or apply additional mulch as necessary.

Limitations

The purchase and placement of sod is more expensive than growing vegetation from seed. Additionally, sod is generally more expensive to maintain than other types of vegetation because of the need for irrigation, weeding, and mowing. Sod will not survive unless properly maintained. Plugging is more expensive than seed but less expensive than sod. Plugging requires a longer establishment period than for sod before effective control is provided.

Primary References

Caltrans Storm Water Quality Handbooks, Construction Contractor's Guide and Specifications, CDM et.al. for the California Department of Transportation, 1997.

Inspection Checklist

- Is there evidence of vehicular traffic over the filter strip?
- Are there any dead areas that require seeding, plugging, or resodding?
- Is there evidence of under wash that requires turf compaction?
- Is the strip receiving more flow then it can sustain without eroding?