Stiff Grass Barriers

SEDIMENT CONTROL TECHNIQUE

Type 1 System		Sheet Flow	✓	Sandy Soils	✓
Type 2 System		Concentrated Flow	✓	Clayey Soils	
Type 3 System		Supplementary Trap	✓	Dispersive Soils	

Symbol SGB

Photo 1 – **Photo 2 –**

Key Principles

1. Stiff grass barriers typically provide with dr benefits.
2. As a drainage control techniq stiff grass barriers effectively dam.
3. As a sediment control techni , reas d a in minor drainage channels.
4. Best used as long-term lim as the progressive backfilling and stabilisation gullies.

Design Information

Typical plants include the sterile form of can also be used; however, suitability and weed-potential of each species **must** be checked on a region-by-region, site-by-site basis.

Vetiver grass is hand planted plants metre.

Planting is normally in rows along .

Spacing of barriers down a slope depends on the need to control flow velocity down the slope.

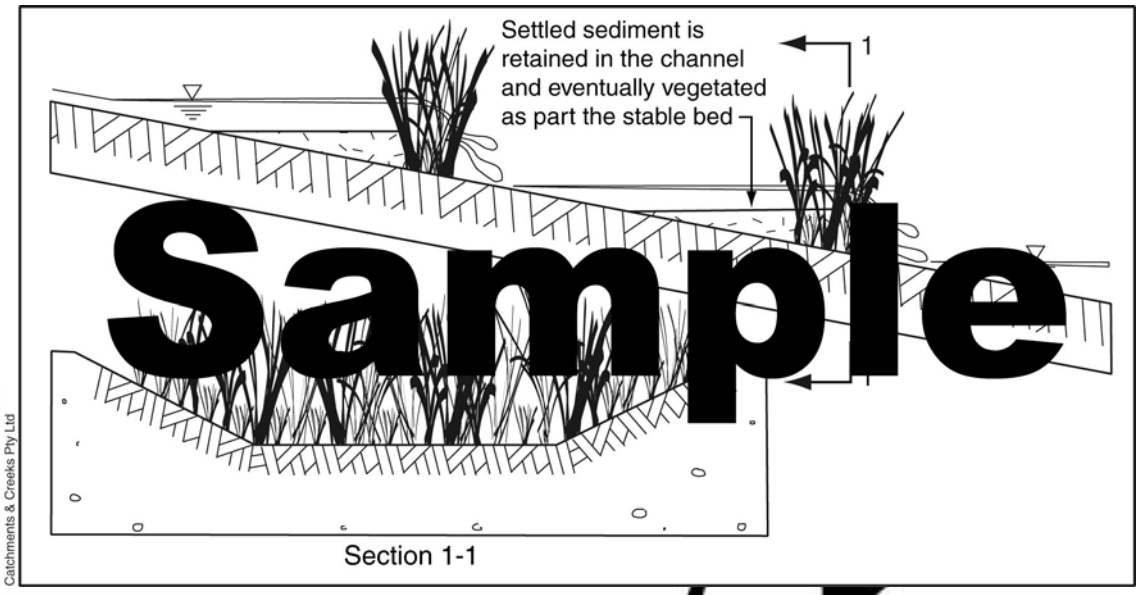

Figure 1 – Typical placement of stiff grass barriers within a drainage channel

An alternative to the vetiver grass, suitable flow-restricting vegetation can be used in partnership with ... structures ... drains.

Photo 3 – Vegetated ... of a ...

Photo 4 –

Description

The establishment of a row or several rows of tall, stiff grass plants across a drainage channel or overland flow path.

Initially the stiff grass barrier slows passing flows sufficiently to allow settlement of coarse sediments. The settled sediment can then act as a filtration system collecting finer sediments during periods of low flow.

Purpose

Stiff grass barriers may be used to:

- control flow velocities (similar to Check Dams);
- reduce the potential for channel erosion
- stabilise eroded gullies and drainage channels;
- act as minor sediment traps in low velocity channels;
- stabilise areas prone to shallow land slips;
- spread surface runoff when planted along the contour.

Limitations

Only suitable as a coarse sediment trap.

Vetiver grass does not appear to tolerate freezing, but it can take a mild freeze.

Advantages

Highly erosion resistant.

Certain plant species, such as vetiver grass can be non-invasive depending on variety of vetiver grass.

Vetiver grass is extremely drought tolerant (5 months without rain for mature plants) due to its deep root system.

Vetiver grass has been known to trap sediment to depths of around 0.5m, plus.

Disadvantages

Initial installation is labour intensive.

During high flows, break-out points (locations of concentrated discharge) may occur at random location along the barrier causing the discharge of concentrated flow down the slope.

Common Problems

The grass can grow to a significant height (2m) which can result in unexpected problems.

Location

Typically used in rural areas as a permanent sediment trap.

Used as a sediment trap at the end of table drains in rural areas.

Site Inspection

Check for flow bypassing or potential break-out points within the barrier.

Planting specifications vary from site to site. Always obtain local expert advice.

Installation

1. Refer to approved plans for location, extent, and application details. If there are questions or problems with the location, extent, or method of application contact the engineer, landscape architect or responsible on-site officer for assistance.
2. Ensure all necessary soil testing (e.g. soil pH, nutrient levels) and analysis has been completed, and required soil adjustments performed prior to planting.
3. Apply soil conditioners and fertiliser as specified on the approved plans. Ensure the soil pH is within the specified range.
4. Where possible, there should be sufficient soil depth to provide an adequate root zone.
5. Place tube stock at intervals of 3 to 4 tillers (shoots) per plant, and 6 to 7 plants per metre.

Maintenance

1. During the construction phase, inspect the treated area fortnightly and after runoff-producing rainfall. Make repairs as needed.
2. Watering the vegetation periodically is essential, especially in the first 7 days after establishment. Use low-pressure sprays because high-pressure jets can wash away the seed and mulch cover.
3. Watering should start immediately after planting. Watering should comply with specifications provided with the approved plans. Generally watering should vary according to weather and soil conditions. A typical watering schedule may consist of the following: 25mm every second day for the first three watering days; 25mm twice a week for the next three weeks; and 25mm once weekly for a further two weeks.
4. Monitor site revegetation, particularly after rainfall, and appropriate maintenance and/or amendment to ensure that the revegetation is controlling erosion and stabilising soil slopes as required.
5. Where practicable, fill in, or level out, any rill erosion between plants. If excessive erosion occurs, then consider increasing the planting density, applying appropriate erosion control measures, or introducing alternative, non-clumping plant species.
6. If the permanent vegetation should fail to establish or to adequately restrain erosion for any reason during the construction or maintenance period, the area should be revegetated or protected with other erosion control measures as appropriate.
7. Replace dead or severely retarded plants.
8. Dispose of cleared vegetation in an appropriate manner such as chipping or mulching, on-site burial, or off-site disposal. Cleared vegetation should not be dumped near a watercourse or on a floodplain where is could be removed by floodwaters. Vegetation should not be burnt on-site without specific approval from the local authority.