

Appendix C Erosion and Sediment Control Plan



Department of Planning
and Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No 23/12343

Granted on the 21 November 2023

Signed Z Derbyshire

Sheet No 3 of 19

Erosion and Sediment Control Plan

Snowmaking Upgrades, Bunny Walk to Milk Run

PURPOSE

The purpose of this Erosion and Sediment Control Plan is to outline the intentions and fundamental principles that will be followed in the planning and implementation of erosion and sediment control (ESC) measures for the duration of the project.

OBJECTIVES

To minimise potential impacts from construction works to receiving waters.

To reduce the potential for erosion and sediment moving offsite.

SCOPE OF THIS PLAN

Given the nature and scale of the Development, it is not practicable to specifically locate all erosion and sediment controls on a plan. This document identifies appropriate controls specific to project activities to prevent sedimentation and pollution of receiving waters, and minimise potential impacts on vegetation communities with and adjacent to the site.

GUIDELINES

- Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition (Landcom 2004)
- IECA Best Practice Erosion and Sediment Control
- Erosion and Sediment Control: A field Guide for Construction Site Managers (Catchments & Creeks Pty Ltd, 2012)

EROSION AND SEDIMENT CONTROLS

Implementation of appropriate controls and locations will be the responsibility of the construction contractor. Controls to be installed prior to any construction work (where required) and retain in place until exposed areas of soil or vegetation are stabilised/rehabilitated.

SITE ESTABLISHMENT

- Implement sediment control measures prior to any construction work and retain in place until exposed areas of soil or vegetation are stabilised/rehabilitated.

STOCKPILES AND STORAGE OF MATERIALS

- Soil stockpiles to be managed in accordance with the Soil Stockpile Guidelines.
- Refer **Attachment A** for recommended controls, including installation notes and examples.

TRENCHING

- Installation of services into common trench.
- Schedule trenching works for periods when rainfall is low.
- Minimise the area of soil disturbed and exposed to erosion. Ensure trench widths and depths are the minimum necessary, including installation notes and examples.

- Divert up-slope clean water away from trenches.
- Conserve topsoil for backfilling and rehabilitation works.
- Progressively rehabilitate disturbed land immediately post construction.
- Maintain ESCs during works until the site has been stabilised
- When excavating, place excavation soil on upslope of trench to divert water from away from the trench line.
- Excavation soil is not to be placed on roads, in areas of concentrated runoff.
- Limit the time trenches are left open and avoid trenching when the risk of adverse weather is high.
- Refer **Attachment A** for recommended controls, including installation notes and examples.

EXCAVATION AND BACKFILLING

- Ensure excavation depths and widths are the minimum necessary.
- Leave excavations open for the minimum practical time.
- Divert surface water away from excavation openings.
- Where excavations are to be left open overnight, provision shall be made so that any fauna entering the excavations can escape.
- Clean excavated material may be temporarily stockpiled on-site for reuse for backfilling, landscaping and rehabilitation works. Any unused material must be removed off-site and disposed of at an authorised site.
- Excavations are to be properly guarded and protected to prevent them from being dangerous.
- Refer **Attachment A** for recommended controls, including installation notes and examples.

PROGRESSIVE REHABILITATION AND STABILISATION

- All exposed areas shall be progressively stabilised/rehabilitated as soon as possible in accordance with the Rehabilitation and Monitoring Plan.
- Only weed-free or natural thatch/litter should be used in sediment control activities.
- All ESCs will remain in place until all exposed areas of soil are stabilised and/or revegetated.
- All landscaping and rehabilitation should be undertaken in accordance with the *Rehabilitation Guidelines for the Resort Areas of Kosciuszko National Park* (DECC 2007) (ELA 2022), Rehabilitation Plan and approved Landscape Drawings.

MONITORING AND MAINTENANCE

During construction, all ESCs are to be checked regularly to ensure they remain in good working order at all times (e.g. prior to forecast rain, daily during extended periods of rainfall and after significant rainfall events). Regular monitoring and maintenance will be the responsibility of construction personnel. The Environmental Officer will undertake weekly inspections of controls for the duration of the works.

PERFORMANCE INDICATOR

No significant sediment deposition observed leaving the site.

CORRECTIVE ACTIONS

If sediment is observed leaving the site, identify the source and amend the ESCs on-site to ensure appropriate controls are in place. If required, additional ESCs to be installed.

ATTACHMENT A – CONTROL INSTALLATION AND CONSTRUCTION NOTES

Control	Project Activity	Location	Purpose	Timing	Standard Drawing Reference ¹
Sediment fence	Excavation, trenching for pipe laying and stockpiling	Downslope side of any excavations; wetter areas; downslope of earth stockpiles; need to be placed following contours where possible.	To prevent sediment run-off by filtering medium to coarse-grained sediment from runoff	Install prior to, or in conjunction with earthworks. Retain in place until exposed areas of soil are stabilised.	Sediment fence (SD 6-8)
Straw bale filter fencing ²	Excavations and trenching for pipe laying	Drier areas of excavation, across or at the toe of slope, where required.	To prevent sediment run-off (suitable for low flows of water)	Install prior to, or in conjunction with earthworks. Retain in place until exposed areas of soil are stabilised.	Straw bale filter (SD 6-7)
Straw bales ²	Cross-slope excavations	To be installed on the uphill side of excavations running cross-slope, where required.	Divert water around and away from excavation works. Suitable for low flows of water to reduce water velocity.	Install prior to, or in conjunction with earthworks. Retain in place until exposed areas of soil are stabilised.	Straw bale filter (SD 6-7)
Earth bank/ flow diversion banks	Excavation and trenching for pipe laying	Running across grade (parallel with surrounding contours). Upslope or downslope of the trench or excavation, where required.	Prevent polluted stormwater from accumulating by directing water around and away from the excavation.	Install prior to, or in conjunction with excavation works. Excavated topsoil can be stripped and used to form flow diversion banks either upslope and/or downslope of soil disturbance.	Earth bank (low flow) (SD 5-5)
Trench breakers (such as sand bags)	Trenching for pipe laying	Across the trench invert during trenching, where required.	Reduce erosion and flow velocity	During trenching, where required.	-
Temporary geofabric filter pond	Dewatering excavation	Where required, on flat area away from drainage lines/watercourses and native vegetation. Equipment and pumping operation to be confined to construction corridor.	To capture sediment and pollutants and prevent them leaving the filter pond	In the event water enters an excavation and its required to be pumped out prior to recommencement of works	Control installation notes provided below. Refer best practice guidelines such as IECA.

¹Landcom 2004; NSW DECC 2008 & IECA Best Practice Erosion and Sediment Control (BPESC) document

²All straw bales used for sediment and erosion control or rehabilitation must be weed free.

CONTROL INSTALLATION NOTES

Cross Drainage and Sediment Barriers

The recommended spacing for cross drainage and sediment barriers is provided below:

Slope Grade (%)	Cross Drain / Sediment Barrier (m)
5-10	15-20
10-15	10-15
15-25	8-10
>25	5-8

Source: NPWS 2007; Parr-Smith and Polley (1998)

Note: To calculate the grade of a slope: (rise/run) x 100 = slope grade

Trench breakers

Construction notes:

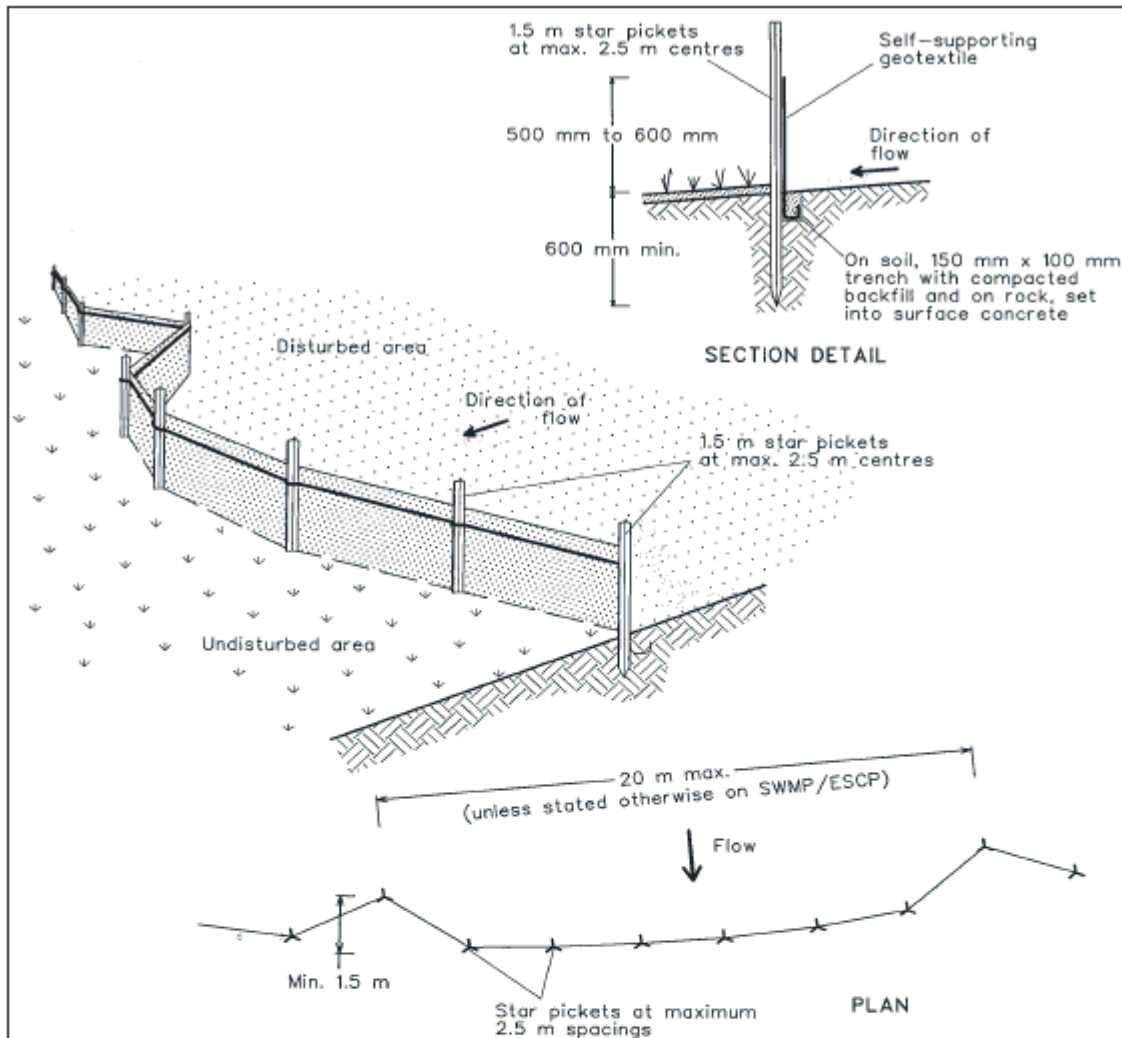
- Trench breakers may comprise soil or straw bales (or a combination).
- The recommended spacing of trench breakers to be determined on-site according to the slope and potential for subsurface flow, refer to table above for recommended spacing.

Temporary geofabric filter pond

Construction notes:

- 1) Where practicable, locate the filter dam at least 50 m from the edge of a waterbody.
- 2) Suitably clear and prepare the surface where the filter dam will be installed.
- 3) Arrange straw bales to form an enclosure and securely anchor each bale with at least one (1) star picket or stake.
- 4) Securely attach the filter fabric to the straw bales and reinforce with stakes. If more than one sheet of fabric is used, then overlap within a minimum of 600 mm at all joints.



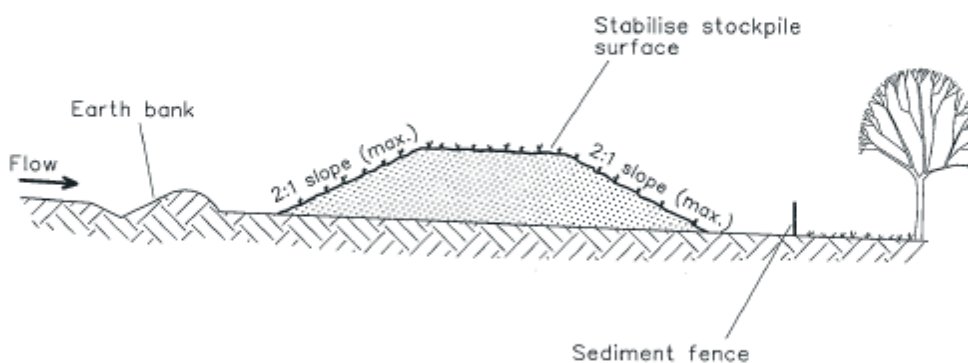


Construction Notes

1. Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
2. Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE

SD 6-8

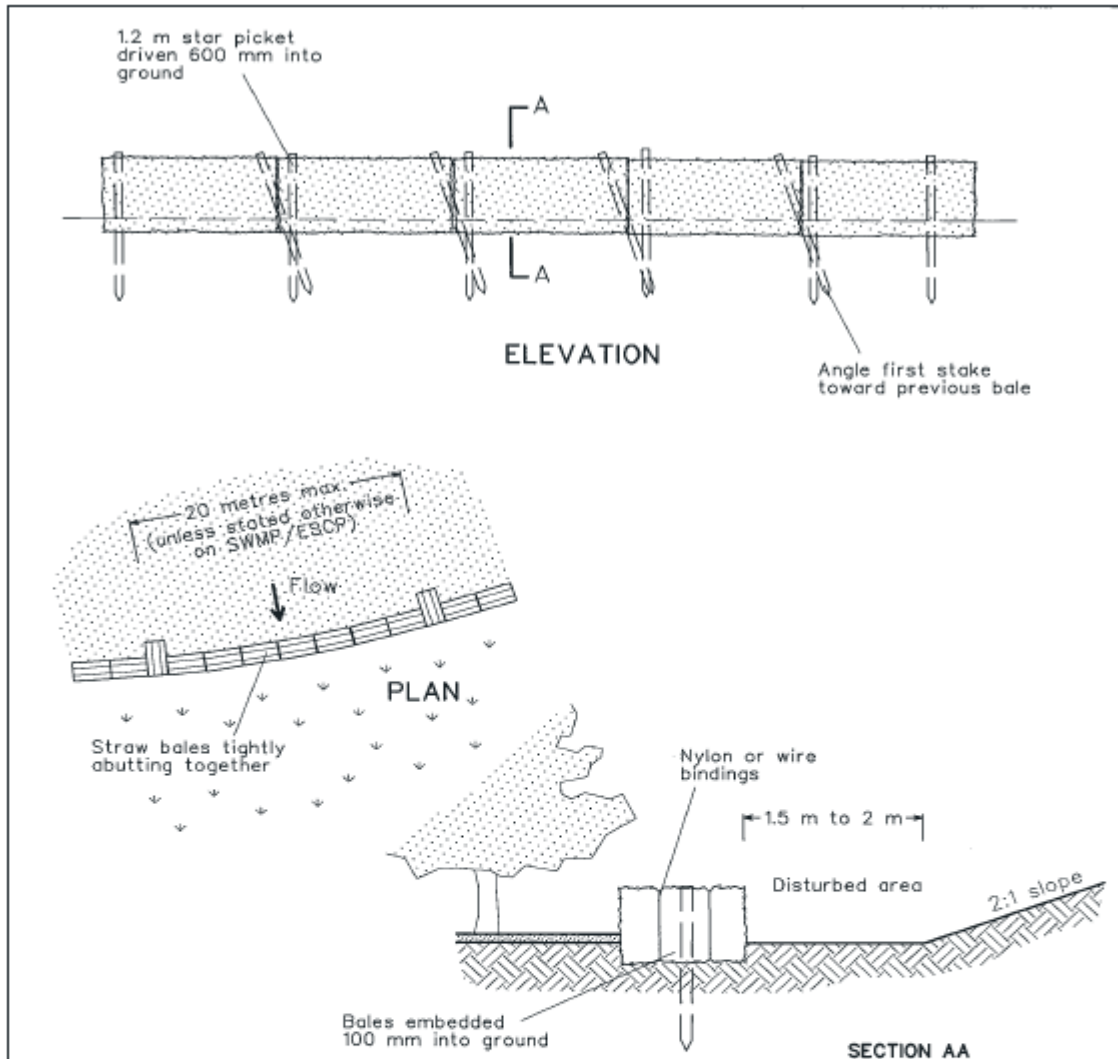


Construction Notes

1. Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
2. Construct on the contour as low, flat, elongated mounds.
3. Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
4. Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
5. Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES

SD 4-1



Construction Notes

1. Construct the straw bale filter as close as possible to being parallel to the contours of the site.
2. Place bales lengthwise in a row with ends tightly abutting. Use straw to fill any gaps between bales. Straws are to be placed parallel to ground.
3. Ensure that the maximum height of the filter is one bale.
4. Embed each bale in the ground 75 mm to 100 mm and anchor with two 1.2 metre star pickets or stakes. Angle the first star picket or stake in each bale towards the previously laid bale. Drive them 600 mm into the ground and, if possible, flush with the top of the bales. Where star pickets are used and they protrude above the bales, ensure they are fitted with safety caps.
5. Where a straw bale filter is constructed downslope from a disturbed batter, ensure the bales are placed 1 to 2 metres downslope from the toe.
6. Establish a maintenance program that ensures the integrity of the bales is retained - they could require replacement each two to four months.

STRAW BALE FILTER

SD 6-7

