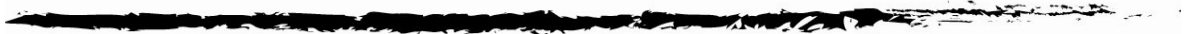




Environment,  
Climate Change  
& Water

**DRAFT**

Minister's Requirements for  
Temporary Coastal Protection Works



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## Note for consultation draft

This document has been prepared to support consultation on the draft *Coastal Protection and Other Legislation Amendment Bill 2010*. The document refers to sections of the *Coastal Protection Act 1979* which this Bill proposes to include and/or amend.

This document has no statutory basis and current statutory requirements relating to the placement of sand or sandbags on beaches by landowners to reduce coastal erosion impacts should be followed. This may include requirements under the *Environmental Planning and Assessment Act 1979*, the *Crown Lands Act 1982*, the *Roads Act 1993*, the *Coastal Protection Act 1979*, the *Fisheries Management Act 1994* and the *Marine Parks Act 1997*. Details of these Acts can be found at [www.legislation.nsw.gov.au](http://www.legislation.nsw.gov.au).

## **Submissions invited**

Please send your submissions on this consultation draft by email to:

[coast.flood@environment.nsw.gov.au](mailto:coast.flood@environment.nsw.gov.au)

or posted to:

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### **Closing date for submissions**

Submissions must be received by **5 pm, Friday 7 May 2010**.

## Explanatory Notes

**Note:** these explanatory notes do not form part of the gazetted Minister's Requirements and are provided for guidance only.

The primary purpose of these Minister's Requirements for temporary coastal protection works is to detail additional requirements for these works under section 55O of the *Coastal Protection Act 1979*. These Minister's requirements were published in the Government Gazette of [date to be inserted when gazetted] by the Minister for Climate Change and Environment for the purposes of section 55O of the Act.

These Minister's Requirements may also be useful for local councils and other public authorities considering the use of temporary coastal protection works, although the statutory requirements relating to these works relate specifically to works by private landowners or their agents.



# Minister's Requirements for Temporary Coastal Protection Works

## 1 Introduction

These Minister's Requirements define the minimum acceptable requirements for placing temporary coastal protection works (the works) under the provisions of section 55O of the *Coastal Protection Act 1979* (the Act). These requirements should be read in conjunction with the provisions of the Act.

The following terms used in these Minister's Requirements have the same meaning as in the Act – *beach* and *public land*.

## 2 Circumstances where the works are permitted

For the purposes of section 55O(2)(a) of the Act, coastal erosion is 'imminent' when either of the following conditions occur:

- significant offshore wave height is forecast to exceed 3 metres in the area where the works are to be placed, coinciding with predicted tides exceeding 1.8 m (at Fort Denison); or
- the Bureau of Meteorology has issued a storm tide or large waves severe weather warning or a tropical cyclone warning or watch which apply to the area where the works are to be placed.

For the purposes of these requirements, a wave height is considered to be forecast to exceed 3 m if the Bureau of Meteorology has issued a strong wind, gale, storm force or hurricane force warning for the coastal waters adjacent to the location where the works are to be placed and the predicted wind direction is on-shore.

In addition to the requirements under section 55O(2) of the Act, the works can only be placed:

- where the distance between the most seaward part of any wall of a dwelling or commercial building and the most landward extent of the sand dune erosion is less than the *trigger distance*. This distance is to be confirmed in writing by a Registered Surveyor or an Authorised Officer under the Act before the placing of works is to commence; and
- where no form of coastal protection (e.g. a seawall) currently exists seaward of the building; and
- without disturbing any fenced and signed dune restoration area, unless prior written approval is obtained from the public authority managing the area; and
- without disturbing any vegetation other than grass, unless prior written approval is obtained from the public authority managing the area.

For the purpose of these requirements:

- the *trigger distance* is 10m for a building founded on ground levels at or above 3 m AHD and 5 m for a building founded on ground levels below 3 m AHD

- *sand dune erosion scarp* means the eroded seaward face of a sand dune which is at or steeper than the natural angle of repose of dry sand (1 vertical to 1.5 horizontal or 34°) and is more than 1 m high where the works are to be placed seawards of a building founded on ground levels below 3 m AHD and more than 2 m high for a building founded on ground levels at or above 3 m AHD.

### 3 Acceptable types of works

There are four (4) types of acceptable works:

- geotextile sand container revetment (Option 1)
- sandbag revetment (Option 2)
- sandbag toe protection (Option 3)
- beach nourishment (placed sand) (Option 4).

## 4 Material specifications

### 4.1 Sand

Sand for works is to be imported from an off-site, external source. However, if the threatened property has sufficient sand volume landward of the dune crest, property owners may alternatively excavate sand from their own property for use in the works. Use of sand from public land or beach scaping of foreshores is not permitted for the works.

Where sand is imported for use in the works, it is to have the following properties:

Sand origin	marine (riverine is acceptable)
Main constituent	silica (in the form of quartz)
Median sieve size (d50)	0.15 to 0.5 mm
Fines Content (< 75 µm)	≤ 5 %
Colour	resemblance to existing dune sand

Grading curves for sand are to Australian Standard AS 2758 (1996-2009).

### 4.2 Geotextile material

Geotextile material used in the works should have the following minimum characteristics to the Australian Standard (AS 3706 Series, 2000-2004):

Thickness	5 mm
California Bearing Ratio (CBR) Burst Strength	5.5 kN
Tensile Strength in Machine Direction	20 kN/m
Tensile Strength in Cross-Machine Direction	45 kN/m.

Non-woven, staple fibre, needle punched geotextile is to be used. For 'open coast' locations, a geotextile container with a nominal volume of 0.75 m<sup>3</sup> is to be used. For embayment or estuarine regions, containers with a nominal volume of 0.35 m<sup>3</sup> can be used.



### 4.3 Sandbags

Sandbags used in the works are to be made of woven polypropylene and comply with the following requirements:

Nominal length	825 mm
Nominal width	350 mm.
Tensile Strength in any direction	≥3 kN/m to AS 3706
Nominal weight when filled with dry sand	18 kg

## 5 Construction specifications

### 5.1 Geotextile sand container revetment (Option 1)

Option 1 involves the construction of a revetment (or wall) of single-layer sand-filled geotextile containers.

Prior to placing the containers, the erosion escarpment is to be trimmed using earthmoving equipment (not manual labour) to a batter angle of approximately 1 m (vertical) to 1.5 m (horizontal). If possible, the toe should be further excavated to allow a double-layer of geotextile containers to be 'buried' as the bottom course. Batter trimming is not to impact on any adjacent private property.

Containers should be filled as close as possible to 100 per cent capacity for maximum hydraulic stability. The containers are to be placed with the long axis perpendicular to wave action in a single-layer stretcher bond pattern against the trimmed slope. A double-layer of geotextile containers should be placed seaward of the bottom course of the revetment (where this is practicable). It is not necessary to have a geotextile underlayer between the containers and the backing slope for these works.

### 5.2 Sandbag revetment (Option 2)

Option 2 involves the construction of a revetment (or wall) of single-layer 18 kg standard plastic sandbags.

Prior to placing the sandbags, the erosion escarpment is to be trimmed by earthmoving equipment (not manual labour) to a more stable batter angle of approximately 1 m (vertical) to 1.5 m (horizontal). A competent excavator operator may trim the slope to the correct angle from either the crest or toe of the sand dune. Any sand trimmed during this stage from within the bounds of the owner's property may be stockpiled for sandbag fill. If possible, the toe should be further excavated to allow a double-layer of sandbags to be 'buried' as the bottom two courses.

Sandbags should be filled with either the assistance of a mechanical filling machine or a hand-filling device. Sandbags are to be filled to approximately two-thirds of their capacity. The sandbag revetment is to be made using alternate courses of 'headers' and 'stretchers' against the trimmed slope, similar to English Bond brickwork. 'Headers' are sandbags placed end-on to the wave direction, with the neck facing away; 'stretchers' are placed side-on, with the seam opposite the wave direction. The bottom course of sandbags is to be laid as 'headers', with the necks folded over and facing away from the direction of wave action. A double-layer of sandbags should be placed seaward of the bottom two courses of the revetment.

### **5.3 Sandbag toe protection (Option 3)**

Option 3 involves the ad-hoc addition of sandbags to protect the toe of a scarped sand dune without trimming of the sand dune face. Toe protection may be a suitable option if the criteria for placing the works were not satisfied until part-way through an erosion event.

Due to the time constraints under which this work is carried out, it is not necessary to trim the sand dune face to a more stable batter angle as required for Options 1 and 2. Sandbags should be filled and tied to close, in accordance with the procedures for Option 2.

The filled sandbags are then lifted and dropped into place manually. There is no required placement pattern. The greater the number of sandbags dropped into the toe area of the escarpment, the greater the likelihood that coastal erosion might be reduced or limited.

### **5.4 Beach nourishment (Option 4)**

Option 4 involves the addition of a large volume of sand to the dune to act as a sacrificial 'buffer' against erosion processes. Sand imported or excavated from the owner's property is placed directly on the erosion escarpment. Sand may be tipped onto the slope by a truck or progressively placed by an excavator.

## **6 Survey requirements**

Within seven (7) days of commencing construction of the works, the property owner is to lodge plans prepared by a Registered Surveyor with the local council and the Land and Property Management Authority (where works are fully or partially located on public land) detailing:

- the location and extent of works, and
- the location of the sand dune erosion scarp for 100 m on both sides of the works; and
- the location of the dwelling or commercial building which the works are intended to protect from erosion.

## **7 Maintenance requirements**

The landowner is to maintain the works to meet the following criteria:

- For options 1 or 2, the geotextile sand containers and sand bags are to remain on or within 2 m of the base of the trimmed erosion escarpment and directly seaward of the landowner's property.
- For option 3, the sand bags are to be located as close as practical to the toe of the erosion scarp (maximum distance from the scarp of 2 m) directly seaward of the landowner's property.
- Any bags that do not meet the above criteria are to be removed as soon as practical, including bags located elsewhere on the beach.
- For options 1 and 2, there is no evidence of structural failure of the works (e.g. slumping) which presents a public safety risk.
- Any split bags are to be repaired or replaced.
- Any dislodged bags are to be moved back to their originally placed location.

The works are to be removed within seven (7) days if the alignment of the sand dune erosion scarp adjacent to the works:

- Is located more than 1 m landward of the works; or
- Has moved onto private property (other than the property benefiting from the works) from public land; or
- Has moved within the trigger distance of an adjacent property.

## 8 Use of public land

A person may use public land to access the location where works are to be placed for the purpose of placing or maintaining the works under the following conditions:

- Notify the local council by telephone that the public land is first used for the purpose of placing the works as soon as practical after the use has commenced<sup>1</sup>.
- Only existing access routes to any beach are to be used; and
- Where existing access routes are blocked by a gate or similar structure, prior arrangements are to be made with the relevant public authority to unlock the gate to utilise the access routes; and
- Any damage to assets on public land is rectified to the satisfaction of the relevant public authority within thirty (30) days; and
- The location where the works are being placed and any associated earthmoving equipment or other vehicles are operating for the purpose of placing the works is to be surrounded by an effective safety fence until the placement is complete; and
- Public safety risks from the use of earth moving equipment and other vehicles involved in placing the works are to be minimised. Where equipment or vehicles travel on a beach between a public road and the location of the works, a person must walk in front of the equipment.

For the purpose of these requirements, *as soon as practical* means:

- where placing of works commences during the relevant council's business hours, the notification is to occur during these business hours; or
- where placing of works commences outside council's business hours, the notification is to occur in the morning of the next council working day during business hours.

## 9 Removal of works and rehabilitation of site

Prior to the expiration of the twelve (12) month limit or earlier if directed under the Act, all geotextile containers or plastic sandbags are to be opened up and removed from the site with the sand returned to the beach system. Areas disturbed during the removal of the works, including access to the site for the purpose of removing the works, are to be rehabilitated, as near as possible, to their pre-existing condition. Where pre-existing condition was unstable, the site is to be made stable and revegetated.

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<sup>1</sup> Note: Other notification requirements are specified in section 55Q of the Act