

Small Bunds - Method of Installation

Restoration Technique 3

(This method of installation should be read in conjunction with Peatland Re-wetting Design [Specification Sheet – 03 – Small Bunds](#))

Small bunds are a re-wetting technique installed usually in upland peatlands. The most common application of a small bund is where the peat surface has a wide but shallow gully or similar natural feature, which leads to water loss (sometimes they have a small ditch or drain in the bottom). These features often drain areas which connect to an adjacent ditch network. The small bunds create small scale re-wetting features typically installed alongside other techniques such as peat or plastic piling dams. They differ from other bunds in that they are typically a single feature rather than being a long linear bund. The installation process is similar to the deep trench technique. Small bunds are useful to create isolated standing water areas and often benefit other species on site. The ultimate aim of the small bund is to raise water levels in the gully and push water out to the sides and reverse the drying effects of the gully or ditch.

Small Bund Location

The site location and surface conditions will determine the exact shape and size of the bund. Most gullies or natural features are shallow but wide. They may also link in to adjacent ditch network and may have a small grip drain cut in the bottom. These features have dry sides and the water loss from the peat surface is broad. Some natural features, such as old peat hags, may have been slightly modified by cutting a channel which increases water flow and the effects of water erosion. The small bund is to be installed at the most appropriate location to achieve water retention. On some sites there may be an opportunity to install a series of small bunds.

Typically, the small bund is about 4-8m wide with a finished height of about 50cm. The bund uses the deep trench technique but the trench is usually at shallow depths of 0.5m – 1m. If a series of small bunds are installed the aim is to raise general water levels to push water uphill to the next bund.

Installation Procedure

- Once the location has been chosen the operator should inspect the ground conditions to identify if the small gully/natural feature has a small ditch or side cracks.
- The excavator first removes the vegetation ensuring the line of the bund is 90 degrees the gully sides. The any vegetation is placed to one side to be re-used later.
- The excavator next digs down and along the bund line to create a trench. The peat is dug up and the trench inspected to investigate if there are peat crack and if wet 'putty' peat is exposed. If the peat is considered degraded it is dug up and placed to one side for use later.
- The width of the trench should be at least 80-90cm wide to ensure there is some structural strength to the bund and improve water retention.
- The newly exposed trench bottom with wet 'putty' peat is then dug up and the peat turned over. This is pressed with force and squashed by the excavator bucket as this is essential

to create a seal to create the core of the bund below ground level. The aim is to reduce sub-surface water loss.

- The core of the bund is to be built up to a height of about 20cm above the gully side. NOTE – Some bunds may only be placed in the bottom of the gully and therefore they do not go to the top of the gully/natural feature sides.
- To obtain additional wet ‘putty’ peat a borrow pit is created upstream of the bund. This provides a source of fresh wet peat.
- The vegetation and/or degraded peat is scraped off the borrow pit and placed to one side for use later. Wet ‘putty’ peat is exposed and this is dug up and placed in to the core of the bund. Each bucket full must be pressed and squashed down to ensure the peat is joined together to create a seal.
- It is crucial the core of the bund has a finished height of at least 20cm above ground level to allow for settling later.
- To complete the bund, the degraded peat is placed on top of the dam core. This is pressed and squashed down firmly. Finally the vegetation put to onside is placed on top of the degraded peat and pressed down firmly using the back of the excavator bucket. Finished bund height is between 30-50cm. This will allow for settlement in a few months.
- Finally, the borrow pit must be finished off by placing the degraded peat back in to the borrow pit. The pit sides are pulled in to create shallow sides and the previous vegetation placed back in. This is pressed down firmly to finish off the bottom of the borrow pit and leave it as shallow as possible.



Fig.1

Small bund installed in a small gully on upland moorland. The feature had a small ditch running down the middle creating a dry slope.

NOTE: the finished bund is wider than the ditch and protrudes above ground level (up to 50cm). The bund length at this location is about 4m. The borrow pit (open water area) is upstream of the dam.

Machinery & Equipment

All machinery must be low ground-pressure tracked machines with a PSI below 3.5. Bio-hydraulic oils must be used and the machines should be clean and free of oil/fuel leaks. Some locations may require the use of bog mats to work on very wet ground. Digger buckets should be chosen appropriately, according to the size of the bund required