

If your day-to-day activities involve the collection, processing or storage of materials such as oils, solvents, acids, paints, foodstuffs and other chemicals, please consider how your activity could potentially pollute the environment.

What causes pollution?

Poor storage and handling of materials at your site may be causing some of these common problems:

- Discolouration of, or an oily sheen, on stormwater run-off
- A messy storage area where lids have been left off drums and chemicals have overflowed leading to stains on the yard, ground contamination and contamination of stormwater run-off
- A constant flow of oily or discoloured water from a drain valve on a bunded area
- Old drums rusting, leaking or rupturing on the yard
- Bunded areas overflowing with accumulated stormwater
- Wastewater flowing out factory doors onto the yard and into a storm water sump.

You can prevent spills and leaks from causing stormwater pollution

- Store material in appropriate labelled containers making sure they are sturdy, not corroded and not liable to leak
- Store containers inside in locations where leaks and spills will not cause stormwater pollution
- Where two or more liquids are stored on-site, where possible each should be stored in a separate bunded area to allow for the collection and reuse of uncontaminated spilled liquid.
- If inside storage is not possible, storage tanks and drums should be located in a covered and bunded area that will contain spills and leaks.
- Have a regular checking schedule for all areas of storage.

Bunded areas

Bunds can range from major facilities able to contain all the liquids stored in the containers inside them, to low nib walls that stop spills from indoor workspaces escaping into yards.

A bund lets you detect and control any small or slow leaks and will contain spills from sudden ruptures of tanks and drums.



Photo 1: Large quantities of chemicals should be stored in bunded areas

Secondary containment of common contamination sources

Pumps, valves, flanges, connections and loading hoses associated with bulk tank storage facilities commonly drip or leak thereby contaminating any stormwater in these areas. To contain this contaminated stormwater situate all pumps, valves, flanges, connections and loading hoses in a secondary bund within the main bunded area. Contact the district council to see if this secondary bund can be drained to the sewer.



Photo 2: Secondary bunding within a bunded area

How big should a bund be?

The size of a bund depends on how much is stored in it.

Tanks – a bund around a tank or tanks must be big enough to contain:

- 100% of the capacity of the largest tank

- **plus** 10% of capacity of the second largest tank
- **plus** 100% of the other major volumes displaced inside the bunded crest
- **plus** room for 175mm of rain (unless the bund is covered).

Drums – a bund around a drum or drums must be big enough to contain:

- 25% of the volume stored (if less than 10,000 litres)
- **plus** 10% of any volume over 10,000 litres
- **plus** room for 175mm of rain (unless the bund is covered).

In addition:

- Make sure the bund can cope with a spill from associated pumps, pipes and decanting vessels
- Locate loading points within the bund
- Make sure bund floors and walls and joints on pipe work are impervious to and compatible with the material stored
- Store incompatible substances in separate bunds
- Separate tanks and drums from the inner edge of the bund by a distance of half the height of the tank or stack of drums
- Ensure that if empty drums are stored, the bund is sized as if all drums are full – this will benefit you if your operations change, or will assist future leasers or purchasers of the site
- Consider having separate or compartmentalised bunds for different materials – this will help you collect spilled material for reuse.

Stormwater control

If you can't roof your bund, grade the floor towards a collection sump. Fit a drain valve to the sump and keep it closed and locked until you need to drain away any accumulated water. Before unlocking and opening the valve, make sure the water is not contaminated and will not pollute the stormwater system.

If the water is contaminated, call your waste disposal contractor to remove it or call your district council's trade waste officer to see if you can pump it to the sewer.

Make a reliable staff member responsible for managing inspection and drainage of outdoor bunds.

Roofing – a simple solution

Roofing your bunds avoids human error and dispenses with the need for stormwater valves altogether.

Further benefits include:

- Stopping rainfall coming into contact with contaminants and washing them into the stormwater system
- Preventing accidents from valves being left open after stormwater has been drained
- Avoiding the need for intensive staff supervision
- Providing a safer and more pleasant work environment in all weather conditions
- Reducing weather damage to valuable supplies and equipment.

Many liquids may also be classified as hazardous

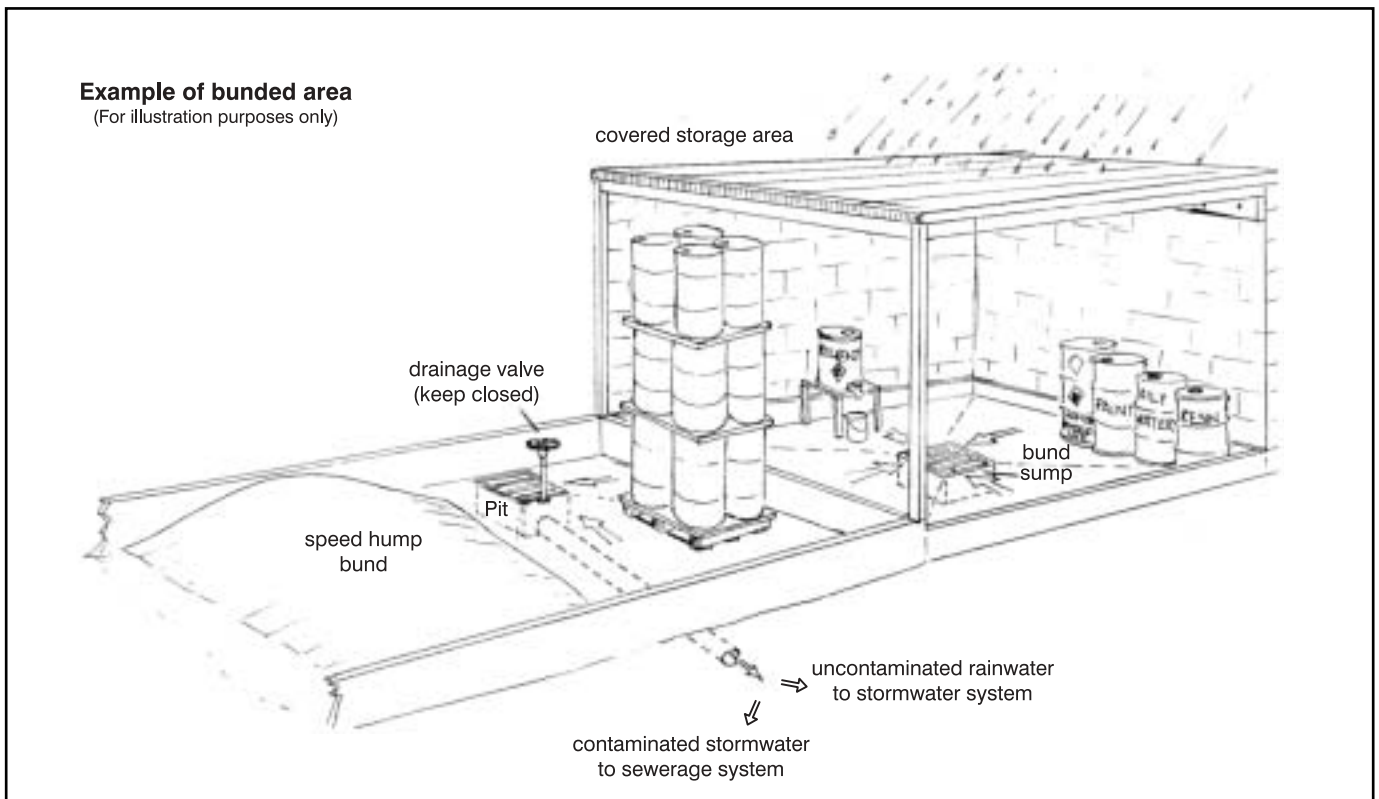


Figure 1: An example of a bunded area

substances. Contact Occupational Safety and Health (OSH) for any additional requirements for your stored chemicals.

How can different materials pollute the environment?

Any material that is spilt onto the ground outside or left uncovered can flow or be washed by rainwater into the ground or a nearby storm water drain where it will result in the pollution of the local stream, harbour or groundwater supply.

Everyday substances can harm the plants and animals that live in our environment, for example:

Fuels

Poison animals, burn plants and damage fish gills so that they are unable to breathe. Fuels contain compounds that can accumulate in living tissues and cause cancer. When discharged into underground pipes or streams they also present a significant fire and explosion hazard.

Oil

In large quantities can have dramatic effects on birds and sea life. A small quantity of oil too can cause serious environmental damage. One litre of oil can create a very thin film covering 100m² of water surface (the surface area of an Olympic swimming pool). This can create a barrier preventing essential oxygen getting to plant and animal life. Other poisonous substances in waste oil, such as heavy metals, sulphur and acids can dissolve in water and also cause damage.

Paint

Poisons creatures that come into contact with it and prevents light from entering the water making it difficult for plants to get the energy they need to live, and for animals to find food.

Foodstuffs

Cause all of the oxygen in the water to be used up as the substance rots and is broken down by bacteria. This can cause the 'suffocation' of animals that live in the stream.

Detergents

Even those claiming to be "bio-degradable" or "environmentally friendly" can be poisonous to fish, promote weed growth or can remove oxygen from a water body as the substance is broken down.

A very small quantity of a pollutant or just one accidental discharge can drastically alter the quality of a stream. Fish, insects and plant life can be killed and their habitats destroyed. The affected stream can take many years to recover.

It is illegal to cause pollution

In New Zealand the Resource Management Act (1991) is the law that protects our environment. It clearly states that every person is responsible for ensuring that their activities and those of their employees do not contribute to pollution of our environment.

Specifically, it is illegal to allow any substance to enter water either directly, through the stormwater system or via the contamination of land without authorisation.

By making a few simple changes to your site and your daily practices you will be contributing to a pollution free environment for us all to enjoy both now and in the future.

**For further advice or information contact:
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