



## Thurston County Sandbag Priorities

Sandbags are a critical resource during flood situations. They are used to limit water damage to buildings and to protect areas from inundation; however, the number of sandbags may become limited during an emergency.

Therefore, priorities must be established beforehand.

**Thurston County's first priority will always be to protect human life and safety** — Any activities designed to protect citizens from injury will always have first access to sandbag resources.

**The next priority is the protection of county infrastructure** — After life and safety needs have been met, the next priority for sandbag use is to other Thurston County departments to protect county assets. Sandbags will be made available to the departments as needed. Departments will be required to provide personnel for sandbagging activities.

**The county will assist cities and towns within its borders** — Upon request, sandbags will be made available to local jurisdictions within Thurston County to protect their government infrastructure. Priority will be given to areas facing the greatest threat and potential loss.

**The county will provide remaining available sandbags to fire districts for redistribution to private concerns, as the fire districts deem necessary.** The county does not have the capability or authority to provide direct sandbag distribution to individual residents.

### Purpose of Sandbags

Sandbags, when properly filled and placed, will redirect surface stormwater and debris flows away from property improvements.

### Limits to Sandbag Use

- ◆ Sandbags will not seal out water.
- ◆ Sandbags are basically for **shallow**-flow protection (up to two feet). Protection from water depths greater than two feet requires a more permanent structure.

- ◆ Sandbags deteriorate when exposed to continued wetting and drying for several months. If bags are placed too early, they may not be effective when needed. If it is necessary that bags remain durable for a longer time, the addition of cement can lengthen their effective life. In cases where sandbag placement is intended to be semi-permanent, durability can be improved by mixing ten (10) parts of sand or soil with one (1) part of cement. The material can be mixed and placed dry. After all the bags are in place, a light sprinkling of water is desirable.

## Homeowner Hints

- ◆ **Proper planting of slopes prevents erosion.** Keep plants watered but do not overwater. Replant barren areas.
- ◆ **Make frequent inspections during rains.** This is when trouble occurs. Watch for gullying. Correct the problems as soon as possible.
- ◆ **Sandbags, tools and sheets of plastic may come in handy** during heavy rains. Keep them available.
- ◆ **If unusual cracks, settling or earth slippage starts,** consult a qualified civil engineer or geologist immediately.
- ◆ **Do not alter your slopes or drainage without expert advice.** Consult a state-licensed civil engineer.
- ◆ **Do not let conditions on your property** create a problem for your neighbor. Work with neighbors to prevent problems.
- ◆ **It is unlawful to divert flows** from their natural path to the detriment of your neighbor.

## Sandbag Guidelines for Homeowners

Using sandbags is a simple but effective method of preventing or reducing damage from flood or debris. However, sandbags alone should not be relied on to keep water outside the building. Use baffle boards (plywood sheeting) or sheets of plastic tarp with sandbags. To form a sandbag wall, place sandbags tightly against one another to form the first layer of defense. Stagger the second and subsequent layers of bags, much like the patten of bricks in a wall.

Sandbags should never be used to build a fortress around the perimeter of one's property. Doing so can actually trap floodwaters between sandbag walls and structures, leading to further damage. Sandbags will *only* be effective in areas of groundwater flooding *if* used in conjunction with a pump large enough to exceed the inflow. A civil engineer should be consulted regarding the sizing and placement of a pump.

## Benefits of Sandbagging in Groundwater Flooding Areas

- ◆ Maintains access to individual home sites.
- ◆ Perimeter areas should be minimized to limit the amount of water required to be removed near the structure and lower the potential for enclosing on-site septic effluent.
- ◆ Can provide significant flood protection — provided that an adequate pump is used to move recharging groundwater away from protected structures. Pumps must be capable of matching or exceeding the recharge rate.

## Potential Adverse Consequences of Sandbagging in Groundwater Flooding Areas

- ◆ When the area being sandbagged encloses onsite septic systems, there is increased potential for concentrating pathogens such as fecal coliform, e. coli, etc.
- ◆ When the height of the sandbags exceed stability considerations, sudden failure can occur.
- ◆ If a sudden failure occurs, damage to those structures being protected may result.
- ◆ De-watering in the proximity of onsite septic increases the risk of pathogen transmission.

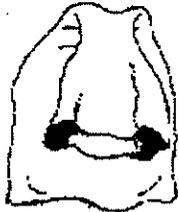
## Suggested Pumping Guidelines

- ◆ **Pumping should only be undertaken when sufficient commitment exists** to ensure continuous operation for extended periods of time.
- ◆ **Pumps must be adequately sized** to ensure successful dewatering.
- ◆ **Water quality considerations should precede** the decision to pump.
- ◆ Care must be taken that the pump's discharge does not damage the outfall area through severe erosion or displacement of soils.
- ◆ **Pumps should be located at low points.**
- ◆ **Pump intake locations should be selected to minimize** the risk of solids transmission to the pump intake.
- ◆ **Pump failure should be considered prior to pump activation.**
- ◆ **Electrical pumps must be safely grounded.**
- ◆ **Power cables and connections should be located** in areas away from possible disturbance or accidental disconnection and contact with water.
- ◆ **Cable and electrical control installations** of permanent electrical pumps must meet permit requirements under state Department of Labor and Industries rules.
- ◆ **Store gasoline or diesel fuel for pumps in proper containers** and in well-ventilated areas.
- ◆ **Pumps require regular maintenance.** A standby pump or extra parts may be needed.

### Filling Sandbags

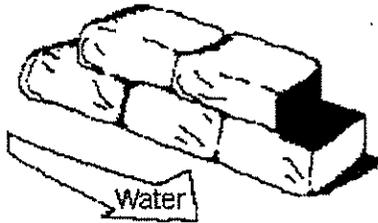


Fill sandbags one-half full. Sand is suggested if readily available, however, sand is not mandatory and soil may be used.

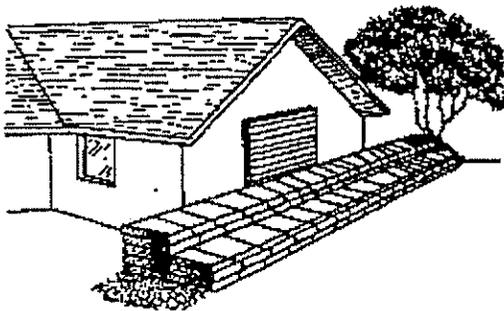


Fold top of sandbag down, do not stitch or tie, and rest the bag on its folded top.

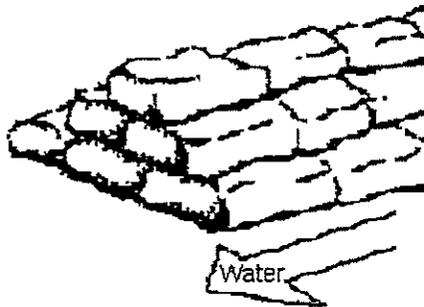
### Stacking Sandbags



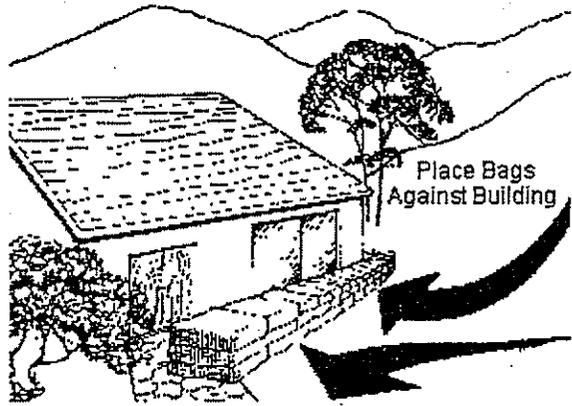
Care should be taken to stack the sandbags in accordance with the illustration (left). Place each sandbag as shown, completing each layer before starting the next layer.



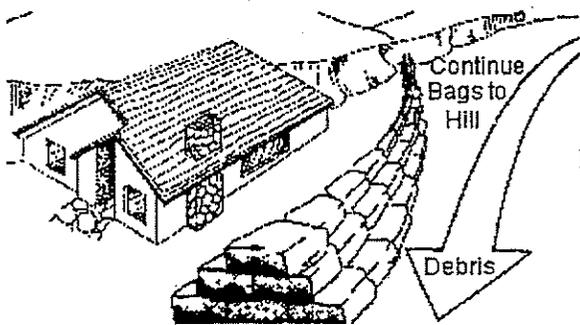
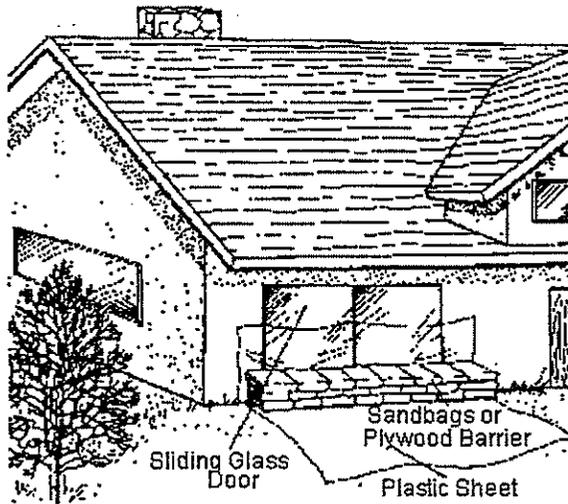
Limit the placement to two layers unless a building is used as a backing (left) or sandbags are pyramided as shown below.



Placing Sandbags



Sealing a Sliding Glass Door



Directing Debris Away from Buildings

*The following tips from the National Flood Insurance Program are given as suggested guidelines.*

## **Steps to Take Today, Before a Flood**

- **Make an itemized list of personal property**, including furnishings, clothing, and valuables. Photographs of your home – inside and out – are helpful. These will assist your insurance adjuster in settling claims and will help prove uninsured losses, which are tax deductible.
- **Learn the safest route from your home** or place of business to high, safe ground if you should have to evacuate in a hurry.
- **Keep a portable radio**, emergency cooking equipment, food supply, and flashlights in working order, and keep extra batteries on hand.
- **Buy flood insurance.** You should contact your property/casualty agent or company about flood insurance, which is offered through the National Flood Insurance Program. Effective March 1, 1995, there is a 30-day waiting period (with two exceptions) for this policy to become effective, so don't wait until a flood is coming to apply.
- **Keep your insurance policies** and a list of personal property in a safe place, such as a safe deposit box. Know the name, phone number, and location of the agent(s) who issued your policy.
- **Persons who live in frequently flooded areas** should keep on hand materials such as sandbags, plywood, plastic sheeting, and lumber, which can be used to protect property. *(Remember, sandbags should not be stacked directly against the outer walls of a building, since, when wet, the bags may create added pressure on the foundation.)*
- **If you are a parent:**
  - ⇒ Know your local emergency phone numbers.
  - ⇒ Know the emergency plans for your children's school.
  - ⇒ Prepare an evacuation plan for your family.
  - ⇒ Know ahead of time where emergency evacuation centers will be located.
  - ⇒ Keep a supply of sandbags handy. By filling them with either sand or soil, you can direct moving water away from your property.
  - ⇒ Make sure your children know their school's and family's emergency plans.

## **During a Flood**

Safety is the most important consideration. Since floodwaters can rise very rapidly, you should be prepared to evacuate before the water level reaches your property. Keep the following in mind:

- Have a battery-powered radio tuned to local station and follow emergency instructions.
- Be prepared to evacuate if necessary.

- Stay away from all flood control facilities
- Be extremely cautious when driving. Do not attempt to drive through moving water. Follow all emergency traffic instructions.

**If you are caught in your home** by rising waters, move to the second floor and, if necessary, to the roof. Take warm clothing, a flashlight, and a portable radio with you. Then wait for help...don't try to swim to safety. Rescue teams will be looking for you.

**If, and only if, time permits...**there are several precautionary steps that can be taken:

- **Turn off all utilities** at the main power switch and close the main gas valve if evacuation is likely. Do not touch any electrical equipment unless it is in a dry area and you are standing on a piece of dry wood while wearing rubber gloves and rubber-soled boots or shoes.
- **Move valuable papers, furs, jewelry, clothing, and other contents** to upper floors or high elevations.
- **Fill bathtubs, sinks, and jugs with clean water** in case regular supplies are contaminated. You can sanitize these items by first rinsing with bleach.
- **Board up windows** or protect them with storm shutters.
- **Bring outdoor possessions inside the house** or tie them down securely. This includes lawn furniture, garbage cans, tools, signs, and other moveable objects that might be swept away or hurled about.
- **When outside the house, remember...**floods are deceptive. Avoid flooded roads, and don't attempt to walk through floodwaters.
- **If it is safe to evacuate by car,** you should consider the following:
  - **Stock the car with nonperishable foods** (like canned goods), a plastic container of water, blankets, first aid kit, flashlights, dry clothing, and any special medication needed by your family.
  - **Keep the gas tank at least half full** since gasoline pumps will not be working if the electricity is cut off.
  - **Do not drive where the water is over the roads.** Parts of the road may already be washed out.
  - **If your car stalls in a flooded area,** abandon it as soon as possible. Floodwaters can rise rapidly and sweep a car (and its occupants) away. Many deaths have resulted from attempts to move stalled vehicles.

## After a Flood

If your home, apartment, or business has suffered flood damage, immediately call the agent or company who handles your flood insurance policy. The agent will then submit a loss form to the National Flood Insurance Program. An adjuster will be assigned to inspect your property as soon as possible.

- **Prior to entering a building**, check for structural damage. Make sure it is not in danger of collapsing. Turn off any outside gas lines at the meter or tank. If you smell gas, call your utility company immediately.
- **Upon entering the building**, do not use an open flame as a source of light since gas may still be trapped inside - use a battery-operated flashlight.
- **Watch for downed electrical wires.** Make certain that the main power switch is turned off. Do not turn on any lights or appliances until an electrician has checked the system for short circuits.
- **Cover broken windows** and holes in the roof or walls to prevent further weather damage.
- **Proceed with immediate clean-up measures** to prevent any health hazards. Perishable items pose a health problem and should be listed and photographed before discarding. Throw out fresh food and medicines that have come in contact with flood waters.
- **Water for drinking and food preparation** should be used only if the public water system has been declared safe. In an emergency, water may be obtained by draining a hot water tank or melting ice cubes.
- **Take pictures of the damage to your building and contents.** Refrigerators, sofas and other hard goods should be hosed off and kept for the adjuster's inspection. Use a household cleanser to clean items to be kept. Any partially damaged items should be dried and aired; the adjuster will make recommendations as to repair or disposal.
- **Take all wooden furniture outdoors to dry**, but keep it out of direct sunlight to prevent warping. A garage or carport is a good place for drying. Remove drawers and other moving parts as soon as possible, but do not pry open swollen drawers from the front. Instead, remove the backing and push the drawers out.
- **Shovel out mud while it is still moist** to give walls and floors a chance to dry. Once plastered walls have dried, brush off loose dirt. Wash with household cleanser and rinse with clean water; always start at the bottom and work up. Ceilings are done last. Special attention must also be paid to cleaning out heating ducts and plumbing systems.
- **Mildew can be removed from dry wood** with a solution of 1 cup liquid chlorine bleach in 1 gallon of water.
- **Clean metal at once** then wipe with a kerosene-soaked cloth. A light coat of oil will prevent iron from rusting. Scour all utensils, and, if necessary, use fine steel wool on unpolished surfaces. Scrubbing with a solution of vinegar, cream of tartar, and hot water may brighten aluminum.
- **Quickly separate all laundry items** to avoid running colors. Clothing or household fabrics should be allowed to dry (slowly, away from direct heat) before brushing off loose dirt. If you cannot get a professional cleaner, rinse the items in lukewarm water to remove lodged soil. Then wash with mild detergent; rinse and dry in sunlight.
- **Flooded basements should be drained** and cleaned carefully. Structural damage will occur if water is pumped out too quickly. After the floodwaters around your property have subsided, begin draining the basement in stages, about one-third of the water volume each day.