



Pasco County Briefing

Basic Brief on Sand Bagging



Briefing Overview:

- **Basic Brief on Sand bagging**

**Sandbagging will not in it's self
protect property.**



Pasco County does not guarantee any method of Sandbagging

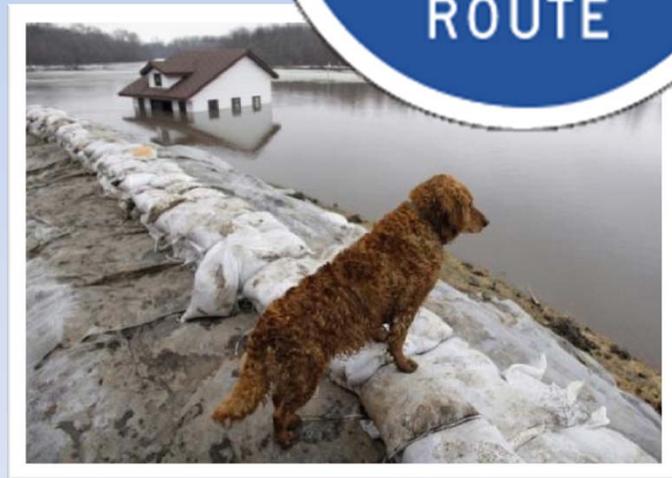
Briefing Objectives:

- **Planning**
- **Safety**
- **Safety equipment needed**
- **Pick up site precautions**
- **How to fill sand bags**
- **How to stack sandbags**
- **After the water**
- **Additional information**



Planning

- Have an evacuation plan.
- Decide in advance when you will abandon a flood fight and save your life.



Planning

- **Flash Flooding**

Flash flooding is the #1 cause of deaths associated with thunderstorms and causes more than 140 fatalities each year.

- **Most flash flood fatalities occur at night and most victims are people who become trapped in automobiles.**
- **Six inches of fast-moving water can knock you off your feet; a depth of two feet will cause most vehicles to float.**



Questions for planning

Do you know if you are in a flood plane?

Have you looked at the county maps?

Did you have water with a past storm?

Have you ever had water?

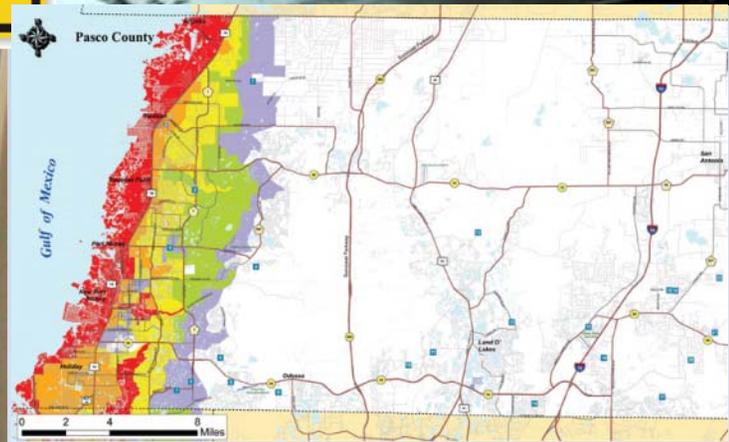
How high was your water?

How many doors were breached?

How long did the water last?



Making a plan



Planning

- When planning a floodwall or other protection system that involves last-minute activity, think about how much time you have to get ready for the water.



- Be sure you can install the system in the amount of time you have to prepare for a flood.

Planning

- A permanent or temporary floodwall is not a complete protection system.
- You must take additional steps to prevent back-flow of floodwater through plumbing, and even through walls that are not sealed.



Planning

- Even good systems leak; water seeps in underground; rain may fall inside your barrier. Have a pump to remove this water.



- Before each flood season, have a practice run: find the materials; test the pumps.

Doing the Math

ESTIMATED NUMBER OF SANDBAGS PER LINEAR FOOT OF WALL.

Height in feet	Bags Required
1	5
2	10
3**	21
4	36
5*	55

- Five feet is the practical limit of a sandbag wall.
- If a higher wall is needed, alternate means of construction should be considered.

** Preferred limit is 3 feet high.

Planning

- Filling, carrying and stacking them is hard, time-consuming work. The *estimated* number of bags needed for 100 linear feet of a wall is:

1-foot-high wall: 600

2-foot-high wall: 2,100

3-foot-high wall: 4,500

4-foot-high wall: 7,800



Safety

Before preceding to any fill site for sandbags it's important to remember a few personal safety tips.

- Be aware of moving machinery
- Be aware of those around you: shovels moving, shovels digging into sand pile, etc.
- Cars moving in and out of area
- Small children should be left at home; if not possible at least stay in vehicle.

Safety Equipment

- Wear sunscreen that does not leave the skin oily (sand can stick to it)
- Proper clothing Dress appropriately and layer clothing.
- Steel toe boots is recommended for working with shovels
- Remember to hydrate



Filling sandbags

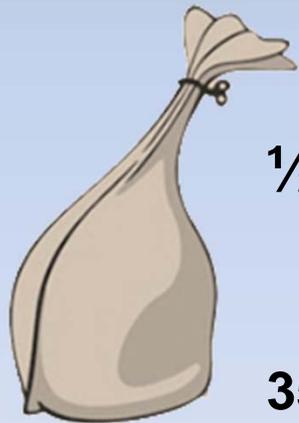
Coarse sand could leak out through the weave in the bag. To prevent this, double bag the material. Gravelly or rocky soils are generally poor choices because of their permeability.



- Team of 2 people with 1 shovel can fill an average of 80-90 sand bags an hour.

Filling sandbags

Fill sandbags 1/2 to 2/3 full, tie at top so bag will lay flat when put in place. A properly filled sand bag should weigh between 35-40 pounds.



1/2 FULL

35-40 lbs.



TOO FULL

70-75 lbs.

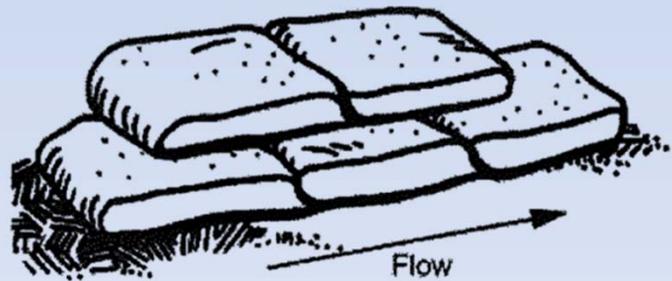
Overfilled bags and bags tied too low leave gaps in sandbag levee allowing water to seep through. An overfilled sandbag can weigh 70 - 75 lbs.

Stack sandbags

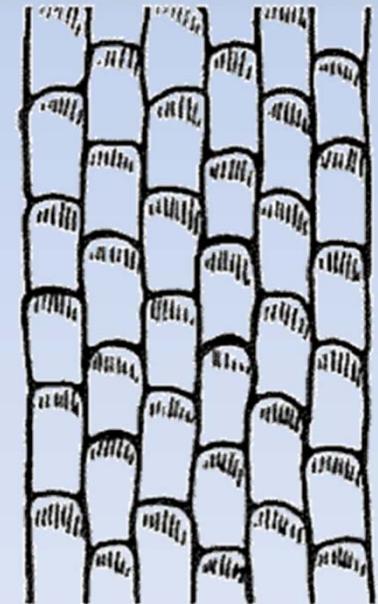
- Bottom set by:
- Lapping the sandbags and
- Staggering the rows.
- Placing the bags parallel to the to the flow of water.



Lapping sandbags



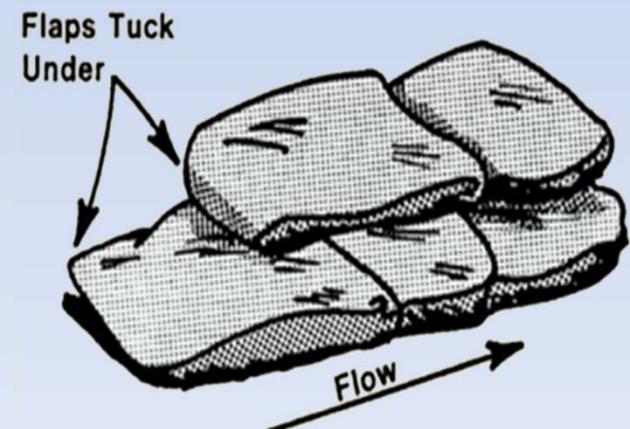
Place bags parallel to the flow of water



Plan of bottom layer

Stack sandbags

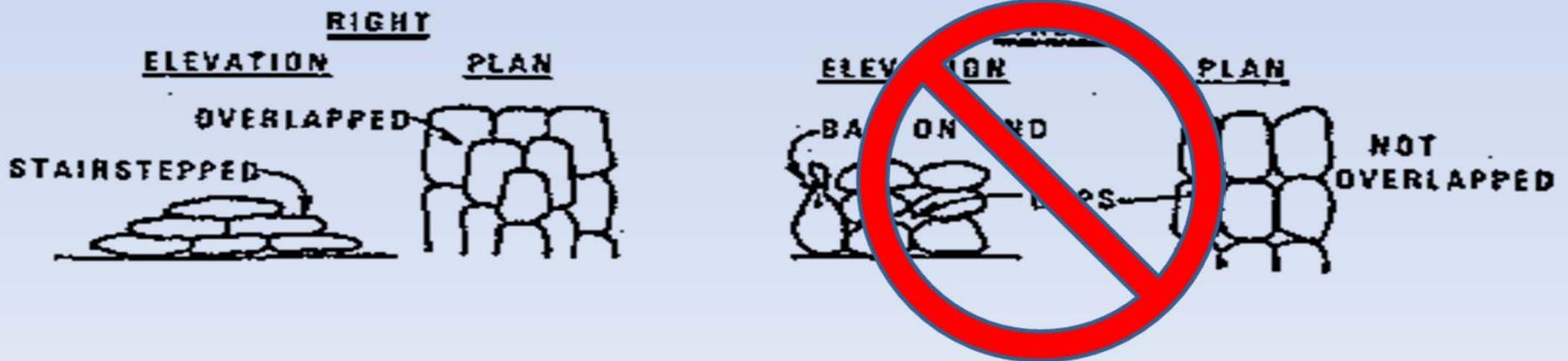
- Wall width should be 3 times the height
- Remove debris
- Tamp down the bags after placing them to
- Lay them as flat to the ground as possible.
- Overlap the bags lengthwise and parallel to the water flow.
- Stagger and stair step the filled bags to eliminate gaps.



Stack sandbags

Sandbags should be placed flat on ground.
Remove any debris from the area where the bags are to be placed.

The bags will need to be overlapped, tamped into place and stairstepped.



Stack sandbags

Polyethylene (plastic) comes in rolls 20 feet wide by 100 ft long. It is used to wrap sandbag walls to prevent seepage. Plastic should be placed on downstream portion of wall first, then worked upstream with a two to three foot overlap. Plastic is held in place with sandbags.

ELEVATION



PLAN



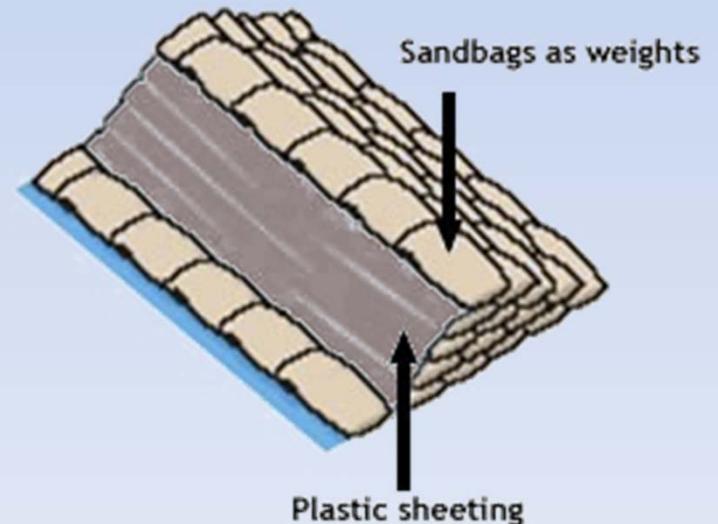
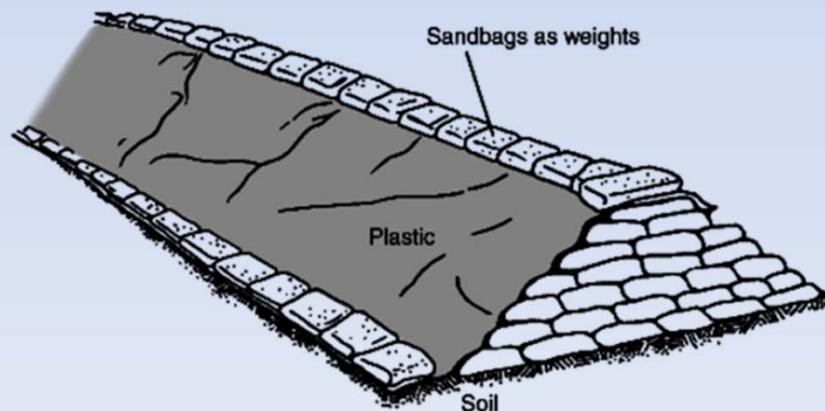
Stack sandbags

- **Polyethylene sheeting**

(heavy plastic sheeting, rolled vinyl)

There are different ways to use or not use heavy plastic sheeting with sand bags

Using the plastic on the side of the water flow can add additional water proofing.



Filling sandbags

Fill bags approximately $\frac{1}{2}$ full.
Bags do not need to be tied.
Lay flat with the flap folded
under the bag. They will weigh
approx 35 to 40 lbs

Stack sandbags so the seams
between bags are staggered.

Tuck the top of each bag under
so the bag is sealed by its own
weight.



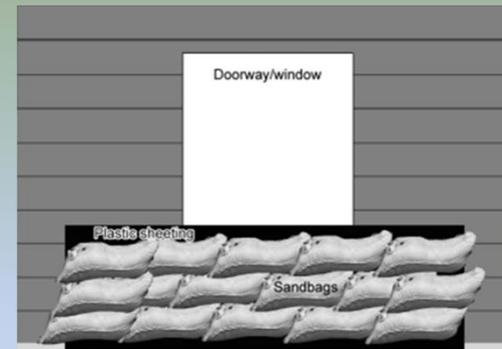
Fill sandbags one-half full.
Sand is suggested if
readily available, however,
sand is not mandatory and
soil may be used.



Fold top of sandbag down
and rest the bag on its
folded top.

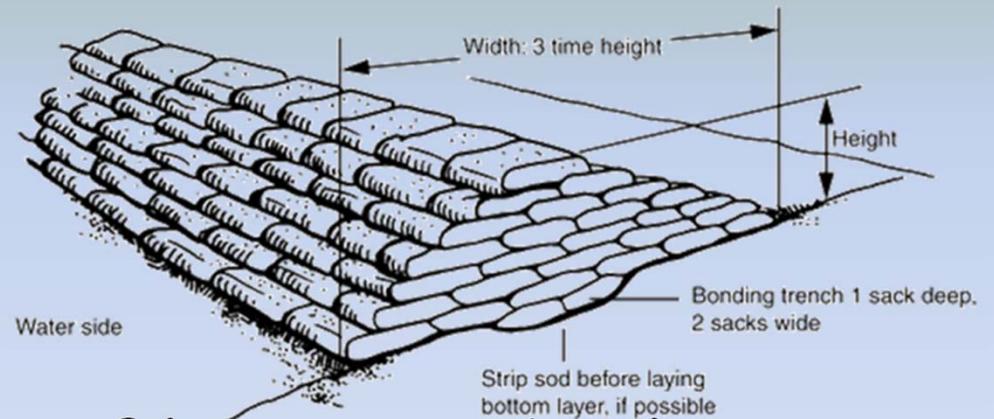
Stack sandbags

- Polyethylene sheeting and sand bags at doorways or window can provide protection from water flow and pressure at the opening.



Stack sandbags

- Remember width is as important as height
- $N = (3 \times H) + (9 \times H \times H) / 2$
N -- Number of bags required per linear foot of wall
- H -- Wall height (feet)



- **Example:**

Estimate the number of bags required per linear foot for a wall 3 feet tall.

$$N = (3 \times 3) + (9 \times 3 \times 3) / 2 = 45 \text{ bags}$$

Exercise Drill



Safety Equipment

Safety gear to include:

- Safety goggles
- Gloves
- Proper clothes & boots
- Sandbags
- Shovel (pointed shovel makes it easier to fill)
- Polyethylene (heavy plastic sheeting, rolled vinyl)
- Water for staying hydrated



Safety

- Safety goggles should be used on dry and windy days
- After handling treated bags, avoid contact with your eyes and mouth. Dress appropriately and layer clothing.



Safety

- **Wear gloves**
- **TIP: Always use gloves to protect your hands during the filling operation. After handling treated bags, avoid contact with your eyes and mouth.**



Site Precautions

- Shovel (pointed shovel makes it easier to fill)

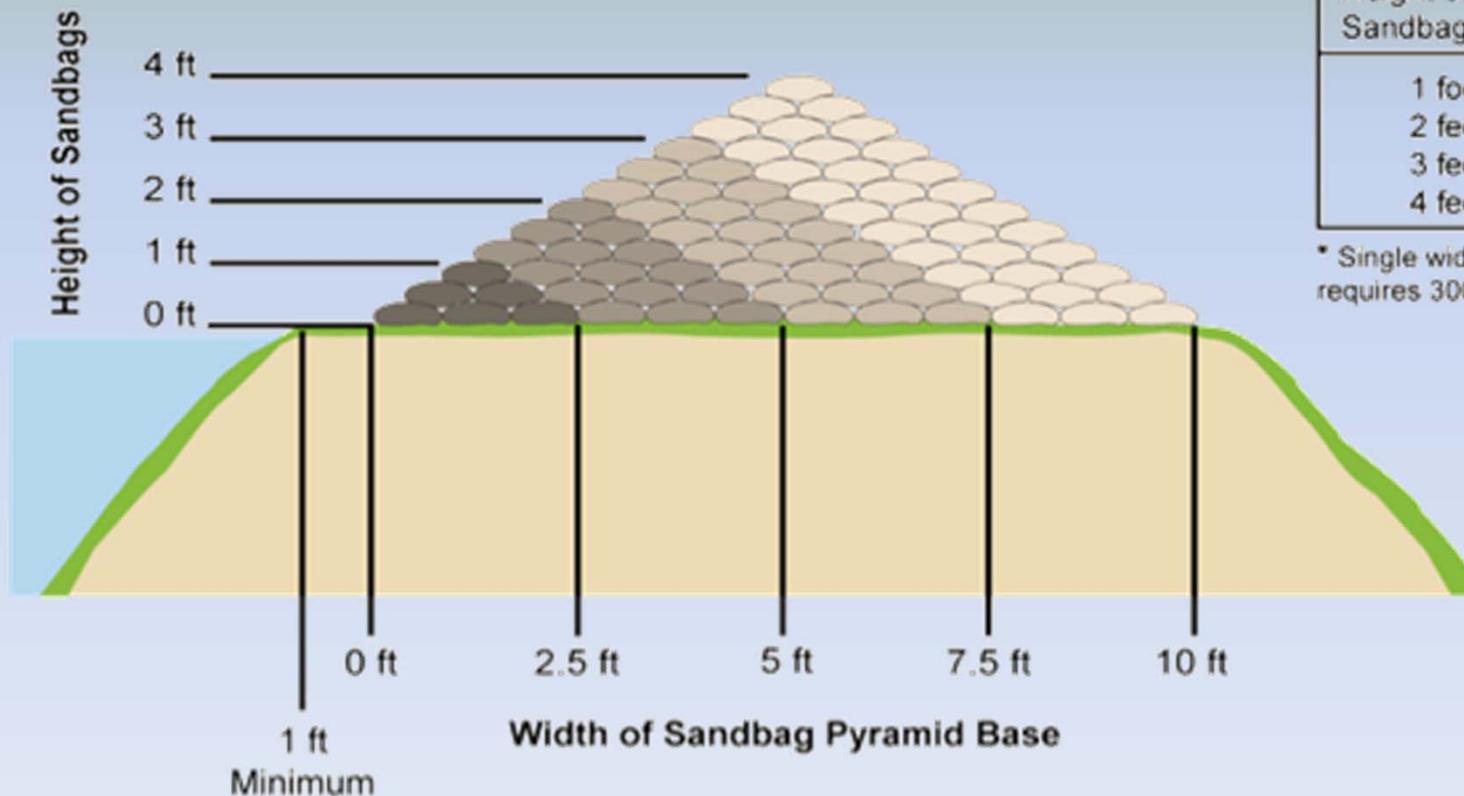


Doing the Math

Typical Pyramid Sandbag Placement

Bags Required Per 100 Linear Feet of Levee	
Height of Sandbag Levee	Bags Required
1 foot	600 *
2 feet	2100
3 feet	4500
4 feet	7800

* Single width course 1 foot high requires 300 bags per 100 linear feet.



After the Water

- When the water has receded, bags and plastic should be removed. Sunlight will disintegrate the bags over time.
- Sand from sandbags discarded after or burst during the flood can block drains and cause further flooding.. Check with your local landfill on the possibility of disposing the filled, used bags there.



After the water

- Sandbags can be emptied, stacked and reused.
- Mitigate the water problem issues to avoid future issues.
- When the water has receded, bags and plastic should be removed. Sunlight will disintegrate the bags over time.



After the water

The floodwater affecting your home or other property may be contaminated with sewage, animal waste and other contaminants. Any bags that have come in contact with flood waters are considered contaminated.

- The sand can not be used in sandboxes, playgrounds or any place where it will come in contact with humans.



After the flood water

- Don't allow children to play in flood water areas and wash children's hands frequently (always before meals). Wash floodwater-contaminated toys with hot water or disinfect before allowing them to be used;
- Keep any open cuts or sores clean and prevent them from being exposed to flood water, wear waterproof plasters;

After the flood water

- Harmful bacteria may be present in sewage and animal slurry, and this can pass into flood water, although there is likely to be substantial dilution. If anyone does develop a stomach upset following direct flooding or contact with sewage ensure they seek medical advice;

After the flood water

- **If the flood water contained oil, diesel etc this should in the main be removed with the floodwater and silt. Any remaining oil / diesel contamination, in areas that are accessible, can be removed by using a detergent solution and washing the surface down. In inaccessible areas such as under floor boards, it may present an odor problem but it is not necessarily a health hazard**

Remember

- Sandbags are popular but they have disadvantages:
- During an emergency, sufficient quantities may be difficult to obtain.
- They are time-consuming and require two people to fill.
- They can be difficult to handle, particularly for the elderly.

Remember

- **When sandbags come into contact with floodwater they tend to retain contaminants such as sewage.**
- **Sacking material is biodegradable, and will disintegrate if left in place for long periods of time.**
- **Flood boards can avoid some of these drawbacks.**

- There are programs available through the office of Emergency Management to teach you how to help both yourself and your neighbors.



It's important for us to remember that protecting our property and belongings from natural disasters is our personal responsibility not that of our local or national government.

- For more information contact the office of Pasco Emergency Management

Additional Information

Web Sites

- <http://www.floodsmart.gov/floodsmart/>
 - <http://www.youtube.com/watch?v=rj7aUwIHylw&feature=related>
 - <http://www.mvs.usace.army.mil/conops/emergency/sandbag.htm>
 - <http://www.youtube.com/watch?v=-hQPAIFMVtM&feature=related>
- Corps-made sandbag video, good but it's old.
- <http://www.youtube.com/watch?v=9sZ2aBQr-gQ>
- Not corps, but a good resource.

Pasco County

Does Not guarantee any method of sandbagging

Additional Information

Sand Bag locations

- Westside Government Center State Street at the Public Works
- Pasco County Fire Station 10 7918 Rhodes Road Hudson
- Pasco County Fire Station 17 2951 Seven Springs Road New Port Richey
- City of New Port Richey Public Works Department Pinehill Road
- City of Port Richey Port Richey Police Department 6633 Ridge Road
- Central Pasco County Land O Lakes Recreation Center 3032 Collier Parkway
- County C-Barn East Fleet 30906 Warder Road

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Home Depot Locations

- **Holiday, Fl. 1315 US HWY 19N 34691 727-943-5048**
- **Clearwater, Fl. 2495 Gulf To Bay 33759 727-669-5995**
- **Palm Harbor, Fl. 30144 US HWY 19N 33761 727-784-3800**
- **East New Port Richey, Fl. 8445 Little Rd 34654 727-847-4606**
- **Port Richey, Fl. 10017 US HWY 19N 34668 727-869-2711**
- **Spring Hill, Fl. 4765 Commercial Way 34606 352-596-7699**
- **Tyrone, Fl. 2070 Tyron Blvd. St. Pete 33710 727-347-1833**
- **Pinellas Park, Fl. 4040 Park Blvd. 33781 727-541-3606**
- **St. Pete, Fl. 2300 22nd Ave 33713 727-898-1100**
- **Seminole, Fl. 10550 Park Blvd. 33772 727-399-9959**
- **Largo, Fl. 10689 Ulmerton Rd 33771 727-581-2093**

LOWES LOCATIONS

- 8312 Little Rd. Port Richey (727) 859-9450
- 7921 Gall Blvd. Zephyrhills (813) 838-9000
- 4780 Commercial Way Spring Hill (352) 592-0176
- 7117 Broad St Brooksville (352) 754-6320
- 12901 N. Dale Mabry Hwy. Tampa (813) 313-1321
- 11101 Ulmerton Rd. Largo (727) 588-1200
- 6201 Commerce Palms Dr. Tampa Palms
(813) 558-6760
- 13841 W. Hillsborough Ave. Oldsmar (813) 343-9010
- 6275 W. Waters Ave Central Tampa (813) 249-6001

LOCAL HARDWARE STORE LOCATIONS

- **Ace Hardware 5371 Village Market Wesley Chapel
(813) 973-2000**
- **Ray's Cabinet Shop 6335 Massachusetts Ave. New Port Richey
(727) 849-2508**
- **AKS Solutions 6731 Industrial Blvd. Port Richey
(727) 845-1350**
- **Harbor Freight Tools 6435 US Hwy. 19 New Port Richey
(727) 849-4904**
- **All Metal Specialties 18431 US Hwy. 301 Dade City
(352) 521-0346**
- **Central Fl Tractor & Equip. 13630 US 98 Byp. Dade City
(352) 567-6414**
- **Dade City Hardware 14320 7th St. Dade City (352) 567-3362**

Briefing Summary:

We have discussed:

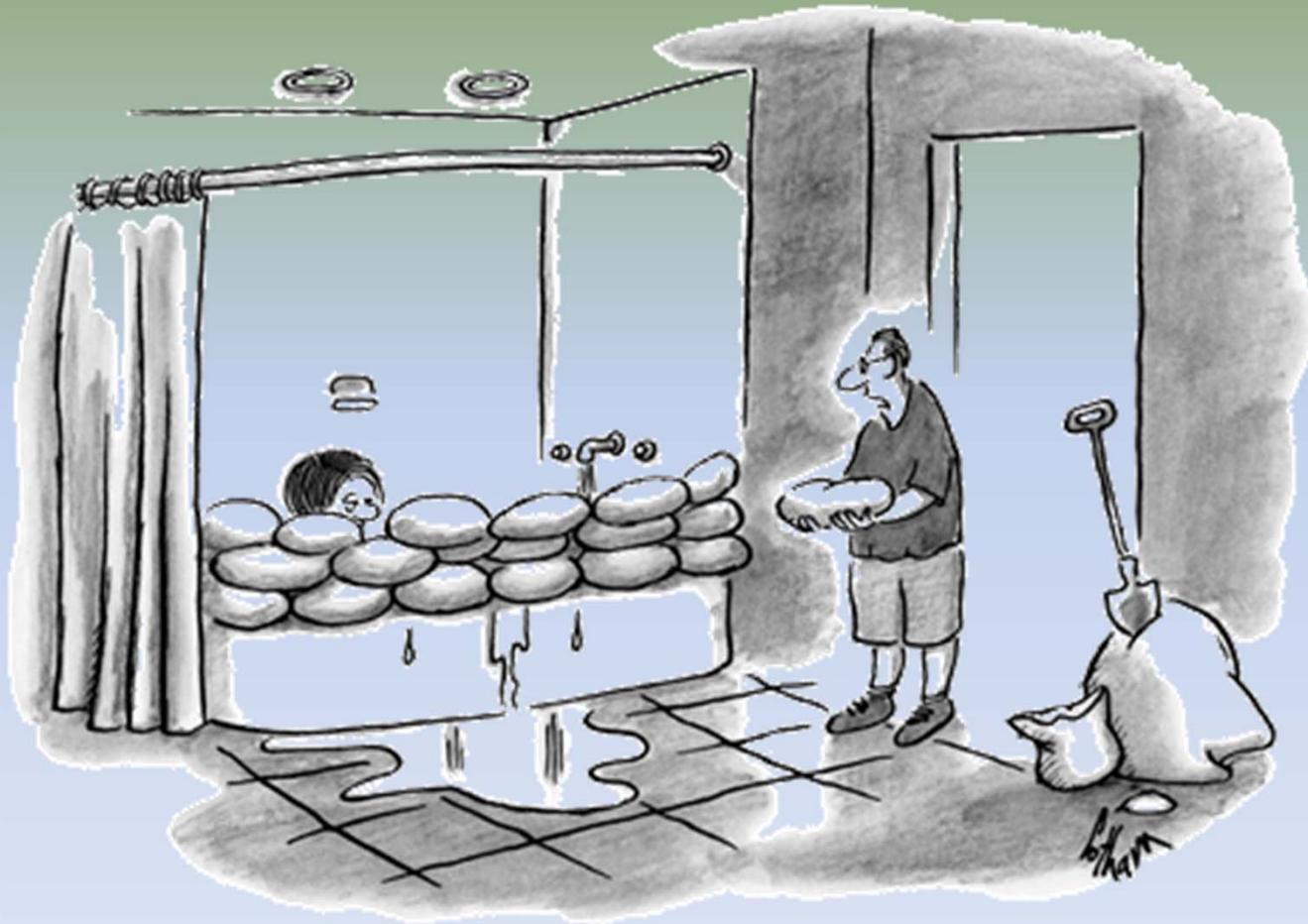
- **Personal Safety**
- **Equipment needed**
- **Planning**
- **Pick up Site Precautions**
- **How to fill sand bags**
- **How to stack sandbags**
- **After the water**
- **More information**



QUESTIONS



Questions



"Turn off the water, hon. I can't keep sandbagging forever."

CLICK TO ADD TITLE

