Surge Hazard Area

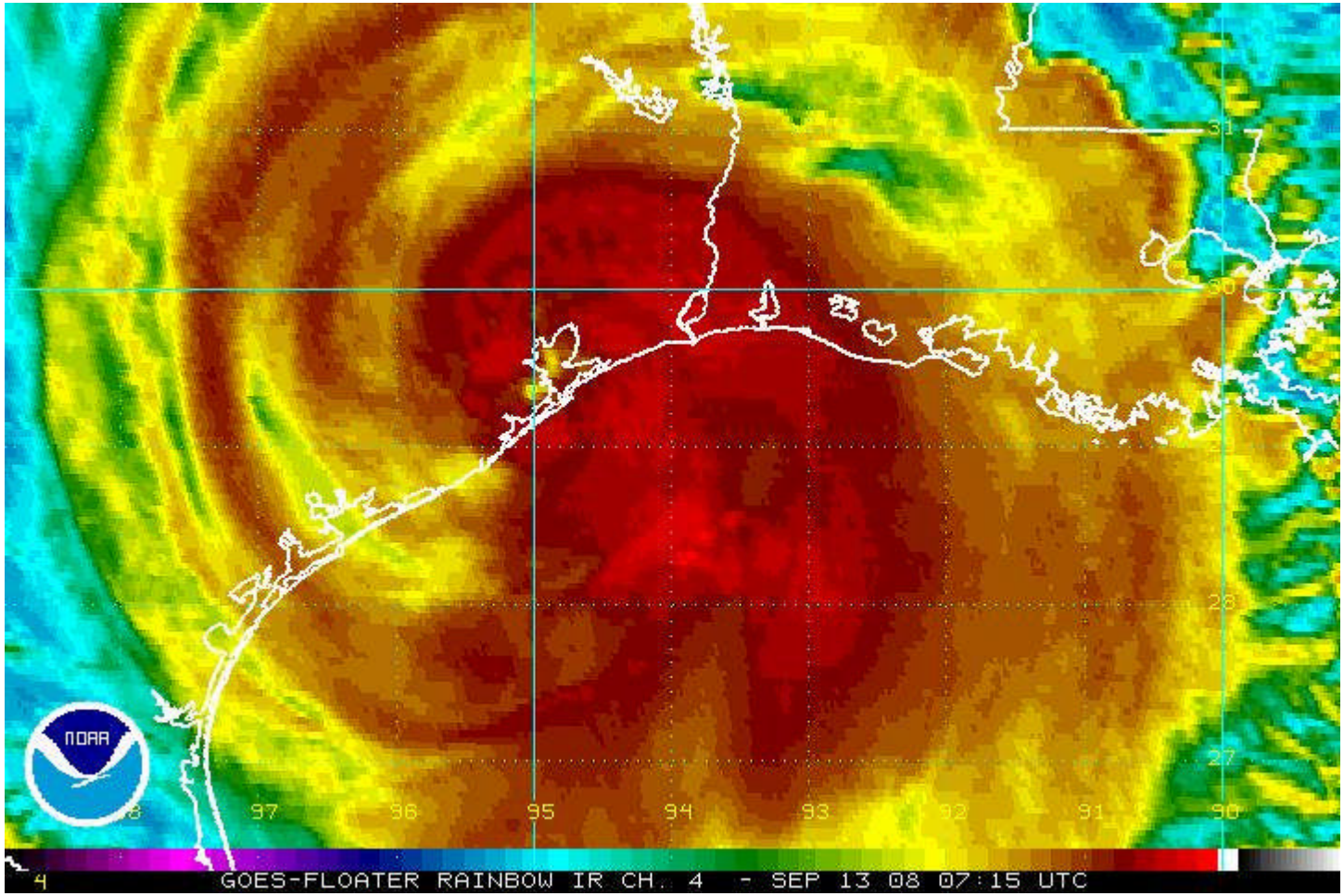
Proposal to Reduce Flooding Risks and Flood Damage to Structures in the Surge Hazard Area by Regulating the Use of Fill.

David K. Stall
Certified Floodplain Manager

City of Shoreacres

Hurricane Ike

Learning From Our Experience



3510 Miramar Dr
September 11, 2008

3510 Miramar Dr
September 13, 2008

Two Days Later

110 Shoreacres Blvd

September 13, 2008

2:37 P.M.

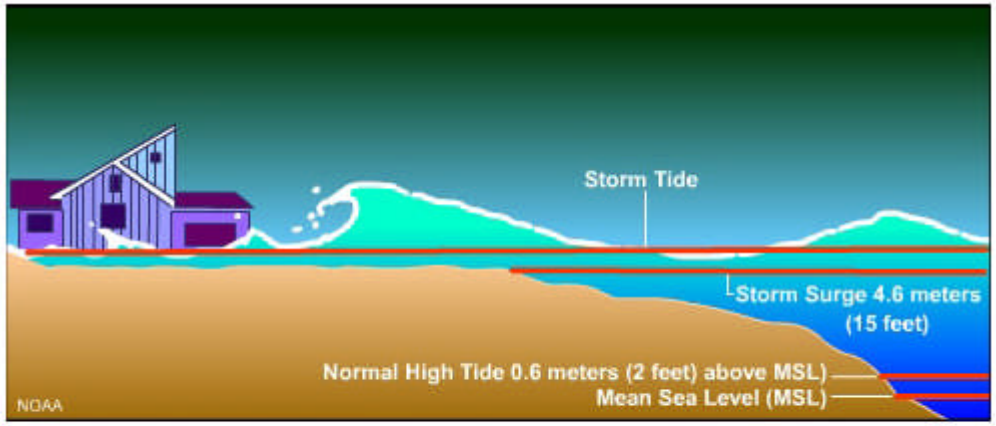

09/13/2008 14:37

3542 Miramar Dr
September 13, 2008
2:34 P.M.

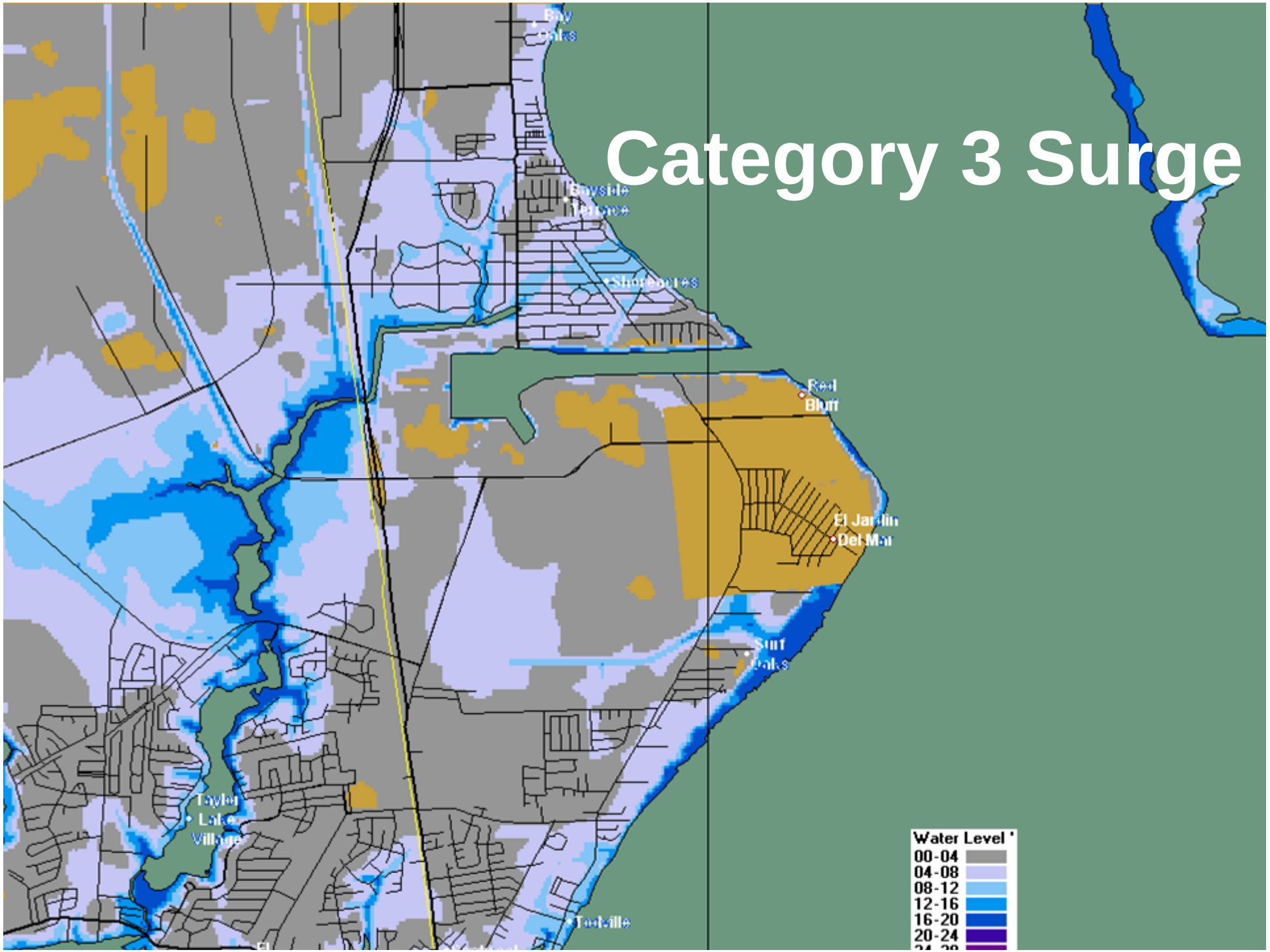
Two Minutes Earlier


09/13/2008 14:34

Storm Surge

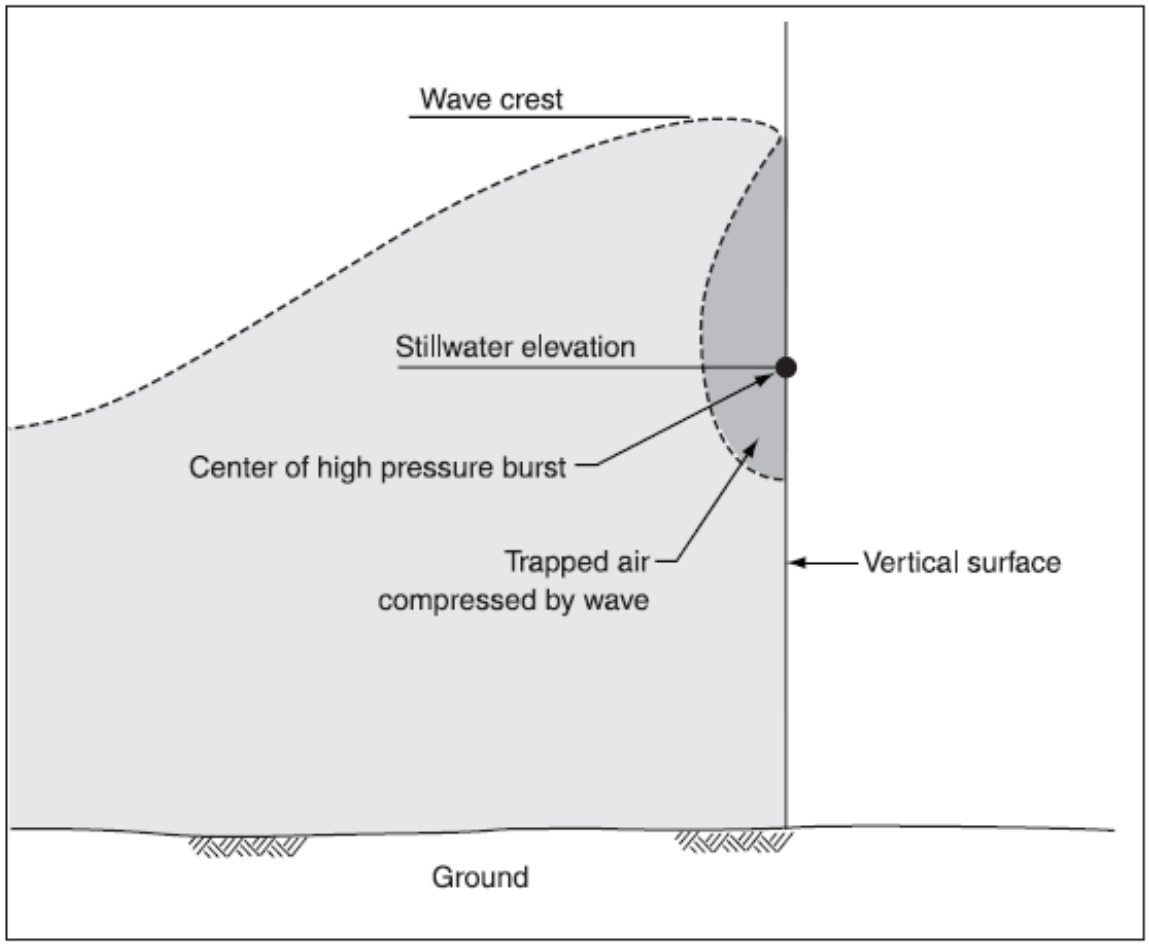


Storm surge is a large dome of water, often 50 to 100 miles wide, that sweeps across the coastline where a hurricane makes landfall. The storm tide is the combination of the storm surge and the astronomical tide.


Category 3 Surge
Bay Oaks
Bayside Terrace
Shorecrest
Red Bluff
El Jardin
Del Mar
Surf Oaks
Taylor Lake Village
Tedville
Water Level '
00-04
04-08
08-12
12-16
16-20
20-24

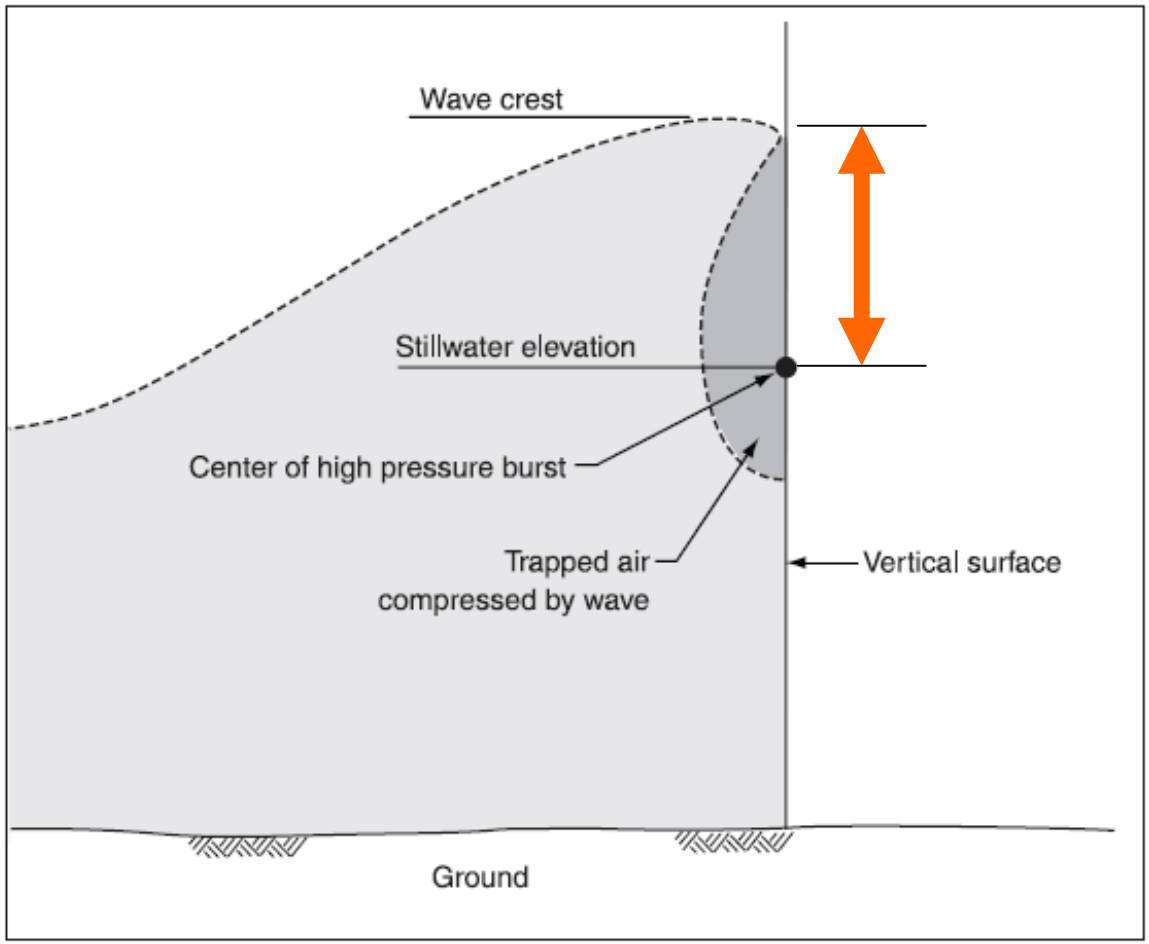
Wave Action

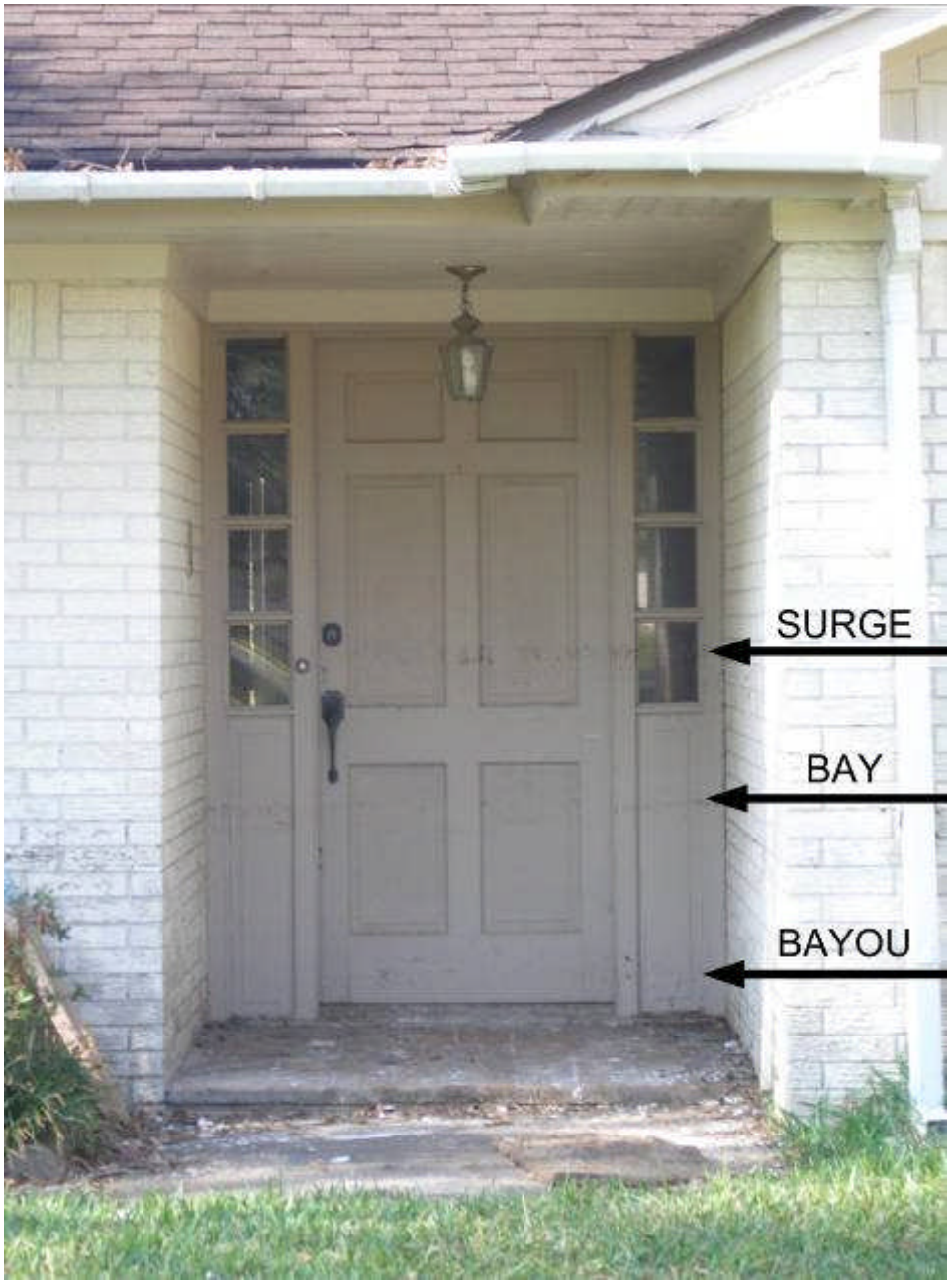
Figure 2. Impact of a breaking wave on a vertical surface



Wave Action

Figure 2. Impact of a breaking wave on a vertical surface





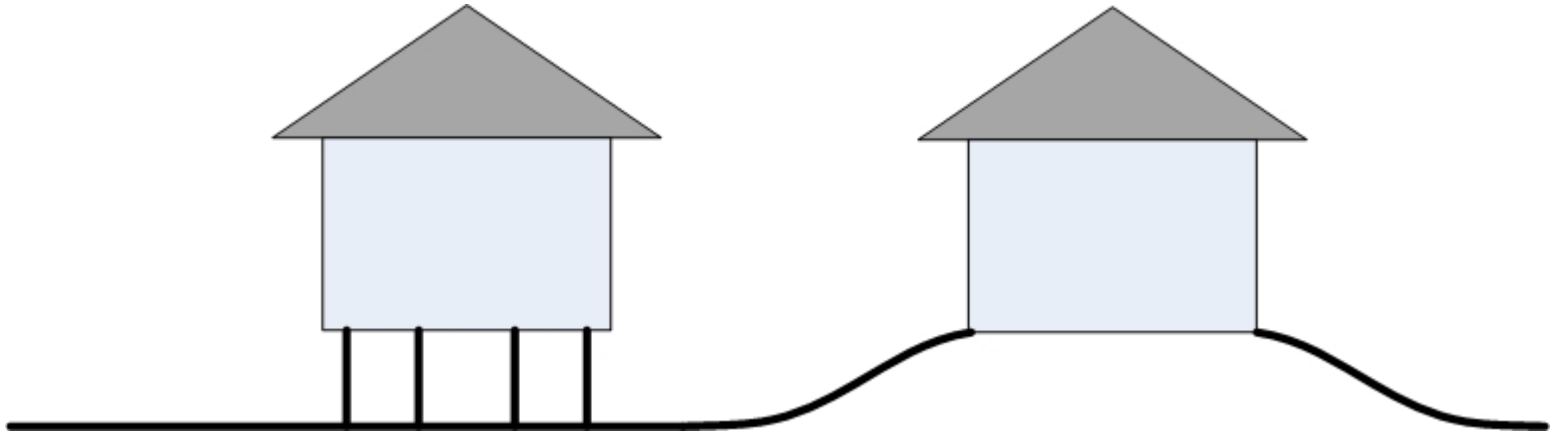
Sunrise

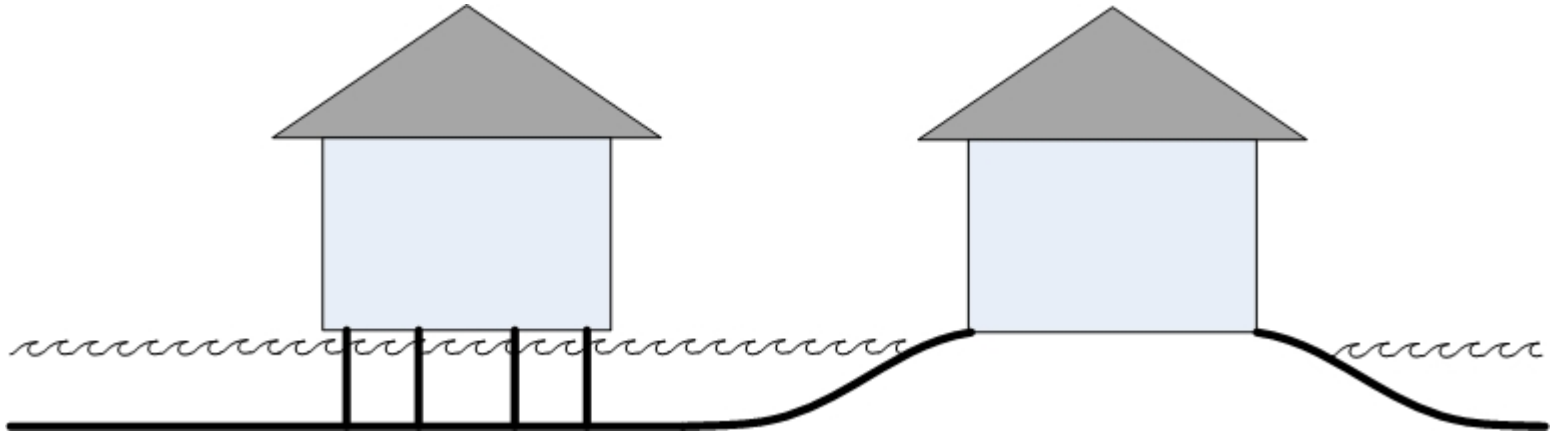
Hurricane Ike Water Levels

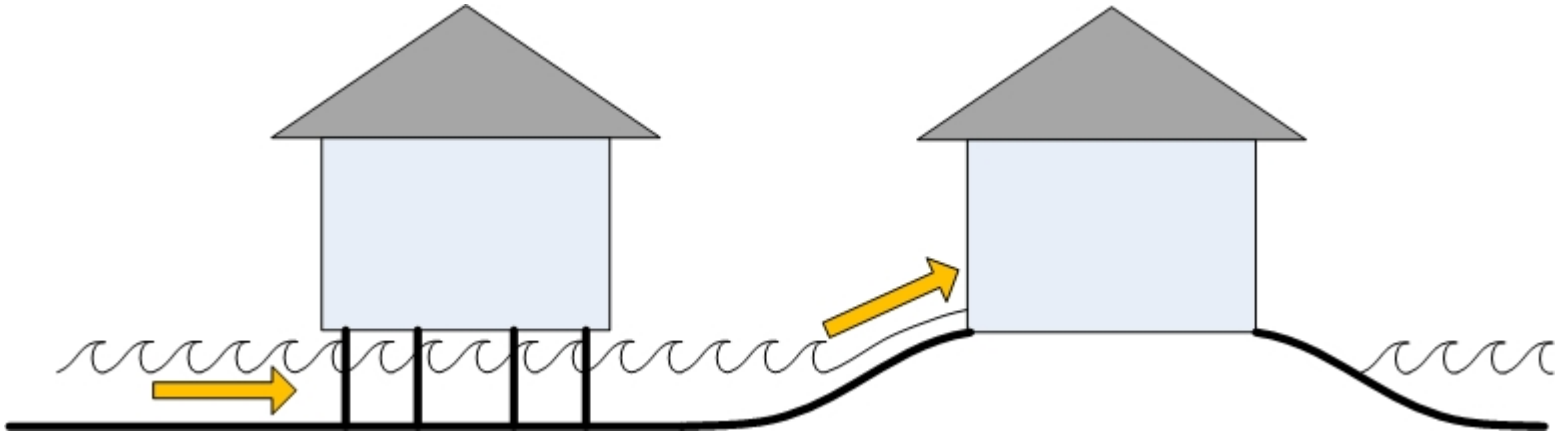
Wave Action

Still Water Level – Bay

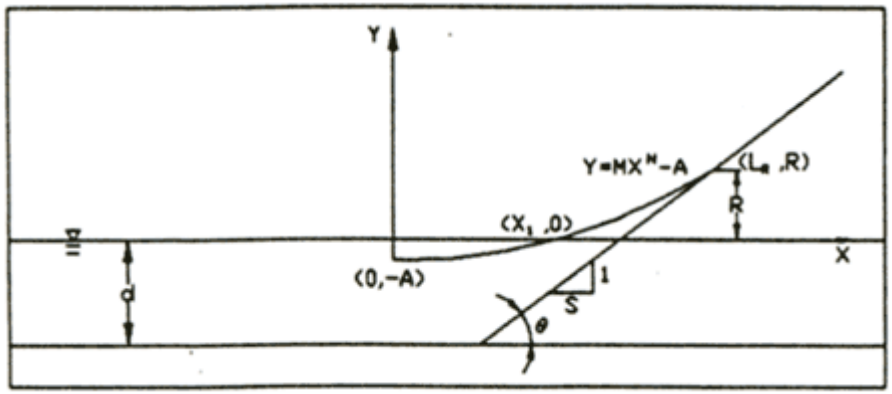
Still Water Level – Bayou



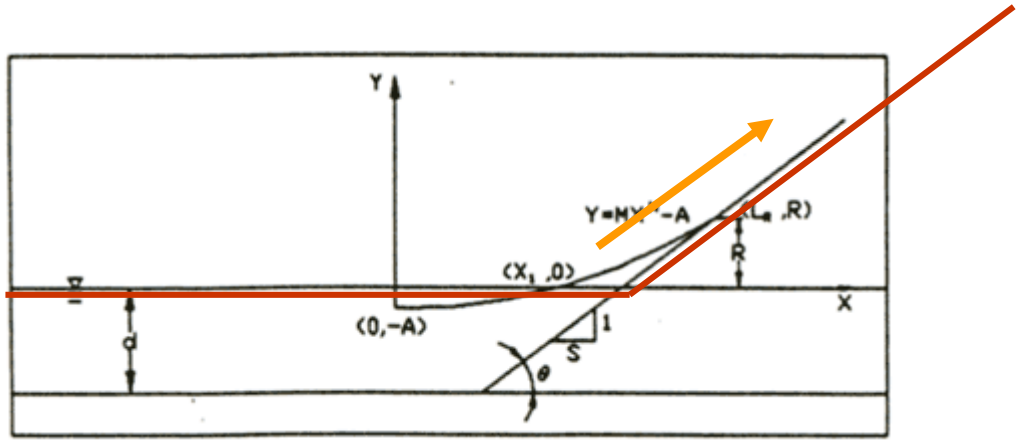




Wave Runup



Wave Runup



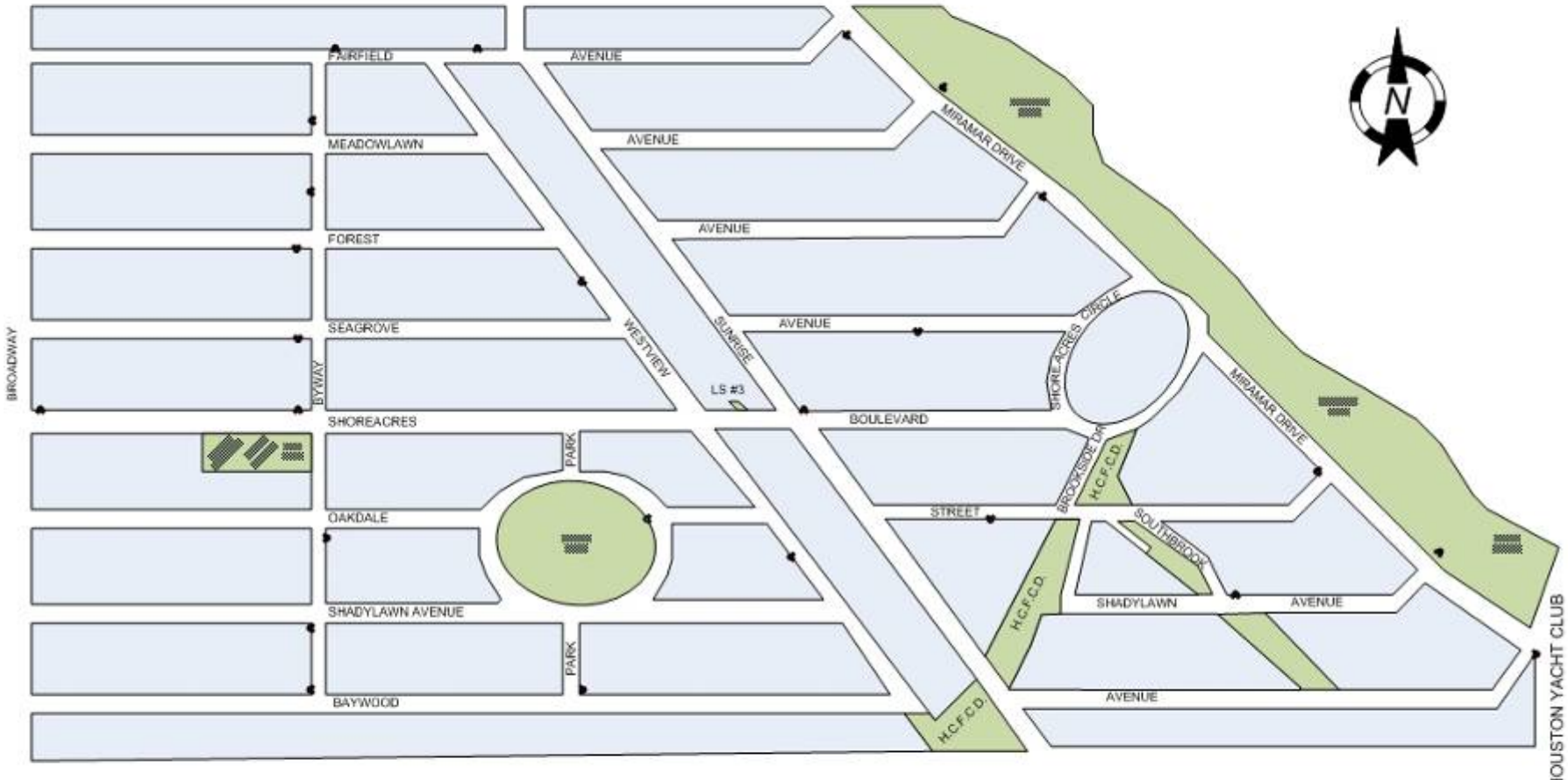
Wave Ramping & Runup

- Site slopes shallower than one vertical unit to five units horizontal are assumed not to cause or worsen wave runup, or reflection capable of damaging adjacent buildings.
- A five foot side yard would only allow one foot of elevation rise.
- A fifteen foot side yard would only allow three feet of elevation rise.

Wave Ramping & Runup

- Steeper site slopes such as one vertical unit to three units horizontal will enhance wave runup, and reflection capable of damaging adjacent buildings.
- A five foot side yard would allow a 1.6 foot elevation rise.
- A fifteen foot side yard would allow a five foot elevation rise.

City of Shoreacres



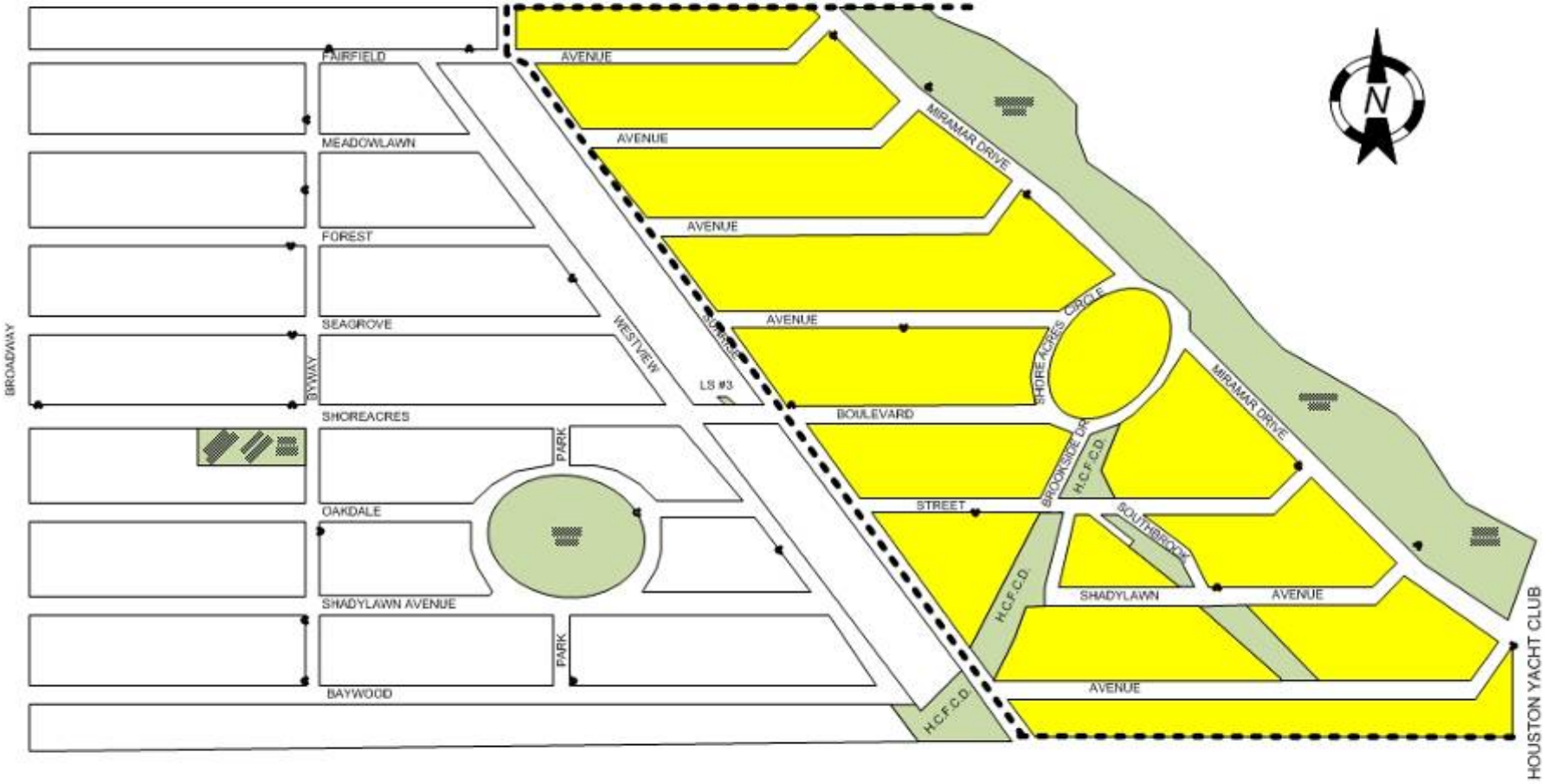
FILE: Zmap-E-08
DATE: 17AUG2008
BY: D. K. Stall

SECTION 30-97. BASIS FOR ESTABLISHING THE FLOOD SURGE HAZARD AREAS

The areas of flood surge hazard is hereby identified by the City of Shoreacres as the entirety of the area east of Sunrise Drive to the shoreline of Galveston Bay within the jurisdiction of the City of Shoreacres. The City Council finds and declares that the area set forth in this section was inundated by waters from tidal surge and hurricane wave wash on or about September 13, 2008.

City of Shoreacres

FLOOD SURGE HAZARD AREA



FILE: Zmap-E-09-Surge
DATE: 10 AUG 2009
BY: D. K. Stall

SECTION 30-98.
FLOOD SURGE HAZARD AREAS

(2) All new construction and substantial improvements in special flood hazard areas (Zone AE) shall be elevated on pilings and columns so that the lowest floor is elevated to or above the base flood elevation plus one foot free-board.

(3) The pile column foundation and the structure attached thereto are anchored to resist floatation, collapse, and lateral movement due to the effects of wind and water loads.

SECTION 30-98.
FLOOD SURGE HAZARD AREAS

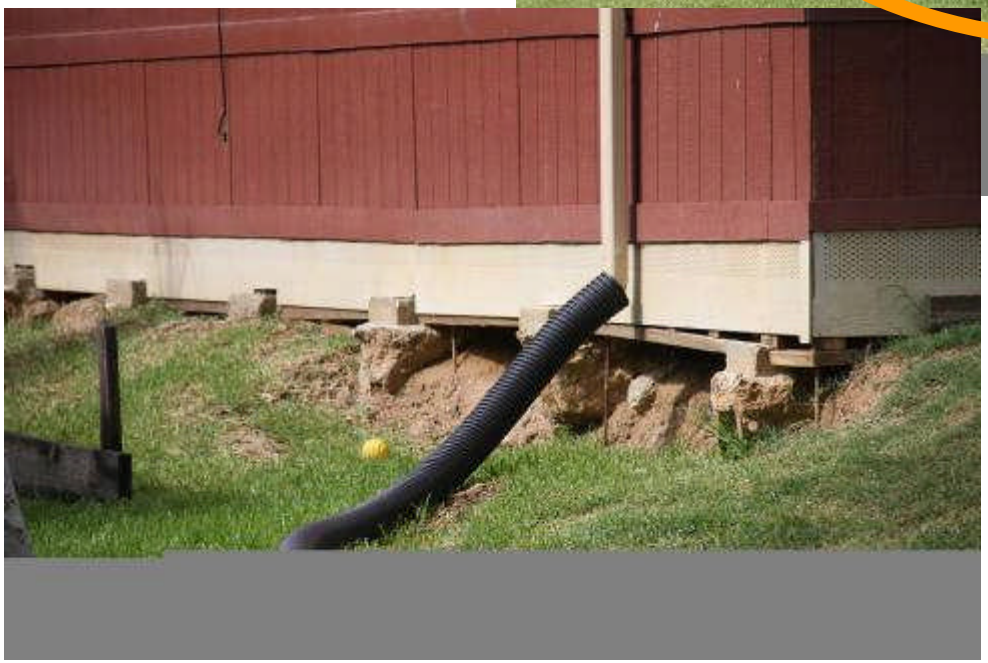
(4) New construction and substantial improvements have the space below the lowest floor free of obstruction or enclosed with non-supporting breakaway walls, or open wood lattice work.

(5) A registered professional engineer or architect must develop or review the structural design, specifications, and plans and certify that the designs and methods of construction to be used meet accepted standards of practice for meeting the provisions of CFR 60.3(e)(4)(ii) and breakaway walls (§60.3(e)(7)).

SECTION 30-98.
FLOOD SURGE HAZARD AREAS

(6) Prohibit the use of fill for structural support of buildings.

(7) Prohibit the use of fill to raise the grade of any lot above the minimum required to achieve proper drainage.



Erosion


WM
213-686-6666


09/13/2008 14:34