

ORDINANCE NO. 412

AN ORDINANCE ESTABLISHING A FLOOD HAZARD ZONE  
AND ADOPTING RULES AND REGULATIONS REGARDING  
BUILDINGS AND STRUCTURES THEREIN.

The city of Brookings ordains as follows:

Section 1. That that certain suggested Model Flood Damage Prevention Ordinance promulgated by the Federal Insurance Administration, Seattle Regional Office, dated December, 1986, be and hereby is incorporated into the laws and ordinances of the City of Brookings, including all terms and conditions therein contained; and further, that within said suggested model said general terms are replaced with the following particulars, to-wit:

1.1 STATUTORY AUTHORIZATION

"State" is "the State of Oregon".

"Statutes" is "ORS 92.046 and each and every other pertinent statute under the laws of the State of Oregon related to the purpose and objective of this ordinance".

"Governing body" is "the Common Council of the City of Brookings".

"Local unit" is "the City of Brookings".

"State" is "the State of Oregon".

1.2 FINDINGS OF FACT

"Local unit" is the City of Brookings".

2.0 DEFINITIONS

"Local administrator" is "the City Manager or any designated official of the City of Brookings, including but not limited to the building official".

3.1 LANDS TO WHICH THIS ORDINANCE APPLIES

"Local unit" is "the City of Brookings".

3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD  
HAZARD

Said section in its entirety shall be deleted and replaced with the following:

"The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for the City of Brookings" dated September 18, 1985, with accompanying Flood Insurance Maps is hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study is on file at City Hall."

### 3.6 WARNING AND DISCLAIMER OF LIABILITY

"Local unit" is "the City of Brookings".

4.1, 4.2 and including Section 4.3-2.

"Local administrator" is the City Manager or any designated official of the City of Brookings, including but not limited to the building official".

### 4.3-4 ALTERATION OF WATERCOURSES

"State coordinating agency" is "the State Water Resources Department, its successors or divisions".

### 4.4-1 APPEAL BOARD

"Appeal board" is "the City Council".

"Local unit" is "the City of Brookings".

"Local administrator" is "the City Manager or any designated official of the city of Brookings, including but not limited to the building official".

"Name of appropriate court" and "statute" is "the appropriate writ of review statutes under the laws of the State of Oregon".

### 5.1-1 ANCHORING

"Local administrator" is "the City Manager or any designated official of the City of Brookings, including but not limited to the building official".

and further, said suggested model ordinance is attached hereto and by such reference incorporated herein.

Section 2. That that certain attachment to said suggested model Flood Damage Prevention Ordinance, being Section B "Coastal Flooding and Riverine Flooding-With Floodway (A and V-numbered Zones)" and being Section 5.4 "Coastal High Hazard Area", be and hereby is incorporated into the laws and ordinances of the City of Brookings, including all terms and conditions therein contained; and further, "local administrator" therein is "the City Manager or any designated official of the City of Brookings, including but not limited to the building official"; and further, said attachment to the suggested model ordinance is attached hereto and by such reference incorporated herein.

Section 3. That all standards, conditions and requirements of the State Structural Specialty Code and the State Plumbing Specialty Code currently or hereafter in effect in the State of Oregon in any way relating to flood damage prevention shall be followed and complied with by any person within the defined flood hazard zones and boundaries hereinabove mandated.

Section 4. Ordinance No. 347 and Ordinance No. 394 are hereby repealed in their entirety.

Section 5. It is hereby determined that it is in the interest of public welfare, peace and safety of the City of Brookings that this ordinance be immediately adopted because the Federal Emergency Management Agency has given the City of Brookings the deadline of April 1, 1987 within which this ordinance must be passed and therefore an emergency is declared to exist, and that this ordinance shall be in full force and effect from and after the date of its passage.

First Reading: March 16, 1987

Second Reading: March 16, 1987

Passage: March 16, 1987

Signed by me in authentication of its passage this 16th date of March, 1987.

  
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Bob Kerr  
Mayor

ATTEST:

  
\_\_\_\_\_  
Beverly S. Shields  
City Recorder

FEMA REGION X FLOOD DAMAGE PREVENTION ORDINANCE

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\* REQUIRED FOR APPROVAL BY FEMA.

# FLOOD DAMAGE PREVENTION ORDINANCE

## SECTION 1.0

### STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE, AND OBJECTIVES

#### 1.1 STATUTORY AUTHORIZATION

The Legislature of the State of Oregon has in ORS 92.046 delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the City of Brookings, Oregon ordains as follows:

#### 1.2 FINDINGS OF FACT

- (1) The flood hazard areas of Brookings are subject to periodic inundation which results in loss of life and property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- (2) These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately floodproofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.

#### 1.3 STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

- (1) To protect human life and health;
- (2) To minimize expenditure of public money and costly flood control projects;
- (3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) To minimize prolonged business interruptions;
- (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;

- (6) To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- (7) To ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- (8) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

#### 1.4 METHODS OF REDUCING FLOOD LOSSES

In order to accomplish its purposes, this ordinance included methods and provisions for:

- (1) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- (2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- (3) Controlling the alteration of natural flood, plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- (4) Controlling filling, grading, dredging, and other development which may increase flood damage; and
- (5) Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.

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### SECTION 2.0

### DEFINITIONS

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

"APPEAL" means a request for a review of the City Manager's interpretation of any provision of this ordinance or a request for a variance.

"AREA OF SHALLOW FLOODING" means a designated AO or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

"AREA OF SPECIAL FLOOD HAZARD" means the land in the flood plain within a community subject to a one per cent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

"BASE FLOOD" means the flood having a one per cent chance of being equalled or exceeded in any given year. Also referred to as the "100-year flood." Designation on maps always includes the letters A or V.

"DEVELOPMENT" means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations located within the area of special flood hazard.

"FLOOD" or "FLOODING" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (1) The overflow of inland or tidal water and/or
- (2) The unusual and rapid accumulation of runoff of surface waters from any source.

"FLOOD INSURANCE RATE MAP (FIRM)" means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

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"FLOOD INSURANCE STUDY" means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation of the base flood.

"FLOODWAY" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

"LOWEST FLOOR" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance found at Section 5.2-1(2).

"MANUFACTURED HOME" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For flood plain management purposes the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days. For insurance purposes the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

"MANUFACTURED HOME PARK OR SUBDIVISION" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

"NEW CONSTRUCTION" means structures for which the "start of construction" commenced on or after the effective date of this ordinance.

"START OF CONSTRUCTION" includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on the site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the state of excavation; on the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundation or the erection of temporary forms; nor does it include the installation on the property of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main structure.

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"STRUCTURE" means a walled and roofed building including a gas or liquid storage tank that is principally above ground.

"SUBSTANTIAL IMPROVEMENT" means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 per cent of the market value of the structure either:

- (1) before the improvement or repair is started, or
- (2) if the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term does not, however, include either:

- (1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions, or
- (2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

"VARIANCE" means a grant of relief from the requirements of this ordinance which permits construction in a manner that would otherwise be prohibited by this ordinance.

"BREAKAWAY WALL" means a wall that is not a part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation system.

"COASTAL HIGH HAZARD AREA" means the area subject to high velocity waters, including but not limited to, storm surge or tsunamis. The area is designated on the FIRM as Zone V1-V30, VE or V.

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### SECTION 3.0

#### GENERAL PROVISIONS

##### 3.1 LANDS TO WHICH THIS ORDINANCE APPLIES

This ordinance shall apply to all areas of special flood hazards within the jurisdiction of the City of Brookings.

##### 3.2\* BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for the City of Brookings" dated September 18, 1985, with accompanying Flood Insurance Maps is hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study is on file at City Hall.

##### 3.3 PENALTIES FOR NONCOMPLIANCE

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this ordinance and other applicable regulations. Violation of the provisions of this ordinance by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this ordinance or fails to comply with any of its requirements shall upon conviction thereof be fined not more than \$500 or imprisoned for not more than 30 days, or both, for each violation, and in addition shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent the City of Brookings from taking such other lawful action as is necessary to prevent or remedy any violation.

##### 3.4 ABROGATION AND GREATER RESTRICTIONS

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

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### 3.5 INTERPRETATION

In the interpretation and application of this ordinance, all provisions shall be:

- (1) Considered as minimum requirements;
- (2) Liberally construed in favor of the governing body; and,
- (3) Deemed neither to limit nor repeal any other powers granted under State statutes.

### 3.6 WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the City of Brookings, any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

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SECTION 4.0

ADMINISTRATION

4.1 ESTABLISHMENT OF DEVELOPMENT PERMIT

\* 4.1-1 DEVELOPMENT PERMIT REQUIRED

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 3.2. The permit shall be for all structures including manufactured homes, as set forth in the "DEFINITIONS", and for all development including fill and other activities, also as set forth in the "DEFINITIONS".

4.1-2 APPLICATION FOR DEVELOPMENT PERMIT

Application for a development permit shall be made on forms furnished by the City of Brookings and may include but not be limited to; plans in duplicate drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:

- (1) Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- (2) Elevation in relation to mean sea level to which any structure has been floodproofed;
- (3) Certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Section 5.2-2; and
- (4) Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

4.2 DESIGNATION OF THE CITY MANAGER

The City Manager is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions.

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### 4.3 DUTIES AND RESPONSIBILITIES OF THE CITY MANAGER

Duties of the City Manager shall include, but not be limited to:

#### 4.3-1 PERMIT REVIEW

- (1) Review all development permits to determine that the permit requirements of this ordinance have been satisfied.
- (2)\* Review all development permits to determine that all necessary permits have been obtained from those Federal, State, or local governmental agencies from which prior approval is required.
- (3) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 5.3(1) are met.

#### \* 4.3-2 USE OF OTHER BASE FLOOD DATA

When base flood elevation data has not been provided in accordance with Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, the City Manager shall obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, State or other source, in order to administer Section 5.2, SPECIFIC STANDARDS, and 5.3 FLOODWAYS.

#### \* 4.3-3 INFORMATION TO BE OBTAINED AND MAINTAINED

- (1) Where base flood elevation data is provided through the Flood Insurance Study or required as in Section 4.3-2, obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement.
- (2) For all new or substantially improved floodproofed structures:
  - (i) verify and record the actual elevation (in relation to mean sea level), and
  - (ii) maintain the floodproofing certifications required in Section 4.1(3).
- (3) Maintain for public inspection all records pertaining to the provisions of this ordinance.

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### \* 4.3-4 ALTERATION OF WATERCOURSES

- (1) Notify adjacent communities and the Corps of Engineers prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.
- (2) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

### 4.3-5 INTERPRETATION OF [FIRM] BOUNDARIES

Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 4.4.

## 4.4 VARIANCE PROCEDURE

### 4.4-1 APPEAL BOARD

- (1) The City Council as established by the City of Brookings shall hear and decide appeals and requests for variances from the requirements of this ordinance.
- (2) The City Council shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the City Manager in the enforcement or administration of this ordinance.
- (3) Those aggrieved by the decision of the City Council, may appeal such decision to the District Court.
- (4) In passing upon such applications, the City Council shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and:
  - (i) the danger that materials may be swept onto other lands to the injury of others;
  - (ii) the danger to life and property due to flooding or erosion damage;
  - (iii) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

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- (iv) the importance of the services provided by the proposed facility to the community;
  - (v) the necessity to the facility of a waterfront location where applicable;
  - (vi) the availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
  - (vii) the compatibility of the proposed use with existing and anticipated development;
  - (viii) the relationship of the proposed use to the comprehensive plan and flood plain management program for that area;
  - (ix) the safety of access to the property in times of flood for ordinary and emergency vehicles;
  - (x) the expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
  - (xi) the costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.
- (5) Upon consideration of the factors of Section 4.4-1(4) and the purposes of this ordinance, the City Council may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.
- (6) The City Manager shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.

### 4.4-2 CONDITIONS FOR VARIANCES

- (1) Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (i-xi) in Section 4.4-1(4) have been fully considered. As the lot size increases the technical justification required for issuing the variance increases.

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- (2) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this section.
- (3) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
- (4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (5) Variances shall only be issued upon:
  - (i) a showing of good and sufficient cause;
  - (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant; providing that the hardship was not caused by any act or omission of the applicant;
  - (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in Section 4.1-4(4), or conflict with existing local laws or ordinances.
- (6) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to the physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.
- (7) Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except 4.4-2(1), and otherwise complies with Section 5.1-1 and 5.1-2 of the GENERAL STANDARDS.

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- (8) Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a lowest floor elevation below the base flood elevation and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

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### SECTION 5.0

#### PROVISIONS FOR FLOOD HAZARD REDUCTION

##### \* 5.1 GENERAL STANDARDS

In all areas of special flood hazards, the following standards are required:

##### \* 5.1-1 ANCHORING

- (1) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
- (2) All manufactured homes must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (Reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

##### \* 5.1-2 CONSTRUCTION MATERIALS AND METHODS

- (1) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- (2) All new construction and substantial improvements shall be constructed using methods and practices that can be shown to eliminate flood damage.
- (3) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other utility and service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

##### \* 5.1-3 UTILITIES

- (1) All new and replacement water supply systems shall be designed to eliminate infiltration of flood waters into the system;
- (2) New and replacement sanitary sewage systems shall be designed to eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and

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- (3) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

### \* 5.1-4 SUBDIVISION PROPOSALS

- (1) All subdivision proposals shall be consistent with the need to eliminate flood damage;
- (2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to eliminate flood damage;
- (3) All subdivision proposals shall have adequate drainage provided to eliminate flood damage; and,
- (4) Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less). Such data shall be prepared and certified by a Registered Professional Engineer.

### \* 5.1-5 REVIEW OF BUILDING PERMITS

Where elevation data is not available either through the Flood Insurance Study or from another authoritative source (Section 4.3-2), applications for building permits may be received to assure that proposed construction will be reasonably safe from flooding.

### \* 5.2 SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD or Section 4.3-2, USE OF OTHER BASE FLOOD DATA, the following provisions are required:

#### \* 5.2-1 RESIDENTIAL CONSTRUCTION

- (1) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to or above base flood elevation.

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- (2) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:
- (i) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
  - (ii) The bottom of all openings shall be no higher than one foot above grade.
  - (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

### \* 5.2-2 NONRESIDENTIAL CONSTRUCTION

New construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated to the level of the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

- (1) be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
- (2) have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- (3) be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in Section 4.3-3(2).
- (4) Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described in 5.2-1(2).

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- (5) Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the flood-proofed level (e.g., a building constructed to the base flood level will be rated as one foot below that level).

### \* 5.2-3 MANUFACTURED HOMES

All manufactured homes to be placed or substantially improved within Zones A1-30, AH, and AE shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above the base flood elevation and be securely anchored to an adequately anchored foundation system in accordance with the provisions of Subsection 5.1-1(2).

### \* 5.3 FLOODWAYS

Located within areas of special flood hazard established in Section 3.2 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

- (1) Encroachments are prohibited, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- (2) If Section 5.3(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 5.0, PROVISIONS FOR FLOOD HAZARD REDUCTION.

### 5.4 COASTAL HIGH HAZARD AREAS

Located within areas of special flood hazard established in Section 3.2 are Coastal High Hazard Areas, designated as Zones V1-V30, VE and/or V. These areas have special flood hazards associated with high velocity waters from tidal surges and, therefore, in addition to meeting all provisions in this ordinance, the following provisions shall also apply:

- (1) All new construction and substantial improvements in Zones V1-V30 and VE (V if base flood elevation data is available) shall be elevated on pilings and columns so that:

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- (i) the bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level; and
- (ii) the pile or column foundation and structure attached thereto is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. Wind and water loading values shall each have a one per cent chance of being equalled or exceeded in any given year (100-year mean recurrence interval);

A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for meeting the provisions of (i) and (ii) of this Section.

- (2) Obtain the elevation (in relation to mean sea level) of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of all new and substantially improved structures in Zones V1-30 and VE, and whether or not such structures contain a basement. The local administrator shall maintain a record of all such information.
- (3) All new construction shall be located landward of the reach of mean high tide.
- (4) Provide that all new construction and substantial improvements have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls, open wood lattice-work, or insect screening intended to collapse under wind and water loads without causing collapse, displacement, or other structural damage to the elevated portion of the building or supporting foundation system. For the purpose of this section, a breakaway wall shall have a design safe loading resistance of not less than 10 and not more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading resistance of 20 pounds per square foot (either by design or when so required by local or state codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions:

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- (i) breakaway wall collapse shall result from a water load less than that which would occur during the base flood; and
  - (ii) the elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural). Maximum wind and water loading values to be used in this determination shall each have a one per cent chance of being equalled or exceeded in any given year (100-year mean recurrence interval).
- (5) If breakaway walls are utilized, such enclosed space shall be useable solely for parking of vehicles, building access, or storage. Such space shall not be used for human habitation.
  - (6) The use of fill for structural support of buildings is prohibited.
  - (7) Man-made alteration of sand dunes which would increase potential flood damage is prohibited.

### 555 STANDARDS FOR SHALLOW FLOODING AREAS (AO ZONES)

Shallow flooding areas appear on FIRM's as AO zones with depth designations. The base flood depths in these zones range from 1 to 3 feet where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is usually characterized as sheet flow. In these areas, the following provisions apply:

- (1) New construction and substantial improvements of residential structures within AO zones shall have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, to or above the depth number specified on the FIRM (at least two feet if no depth number is specified).
- (2) New construction and substantial improvements of nonresidential structures within AO zones shall either:
  - (i) have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, to or above the depth number specified on the FIRM (at least two feet if no depth number is specified); or

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- (ii) together with attendant utility and sanitary facilities, be completely flood proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect as in Section 5.2-2(3).
- (3) Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.