



Oregon

Theodore R. Kulongoski, Governor

Department of Land Conservation and Development

635 Capitol Street, Suite 150

Salem, OR 97301-2540

(503) 373-0050

Fax (503) 378-5518

www.lcd.state.or.us



NOTICE OF ADOPTED AMENDMENT

11/29/2010

TO: Subscribers to Notice of Adopted Plan
or Land Use Regulation Amendments

FROM: Plan Amendment Program Specialist

SUBJECT: City of Rainier Plan Amendment
DLCD File Number 002-10

The Department of Land Conservation and Development (DLCD) received the attached notice of adoption. A Copy of the adopted plan amendment is available for review at the DLCD office in Salem and the local government office.

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Friday, December 10, 2010

This amendment was submitted to DLCD for review prior to adoption pursuant to ORS 197.830(2)(b) only persons who participated in the local government proceedings leading to adoption of the amendment are eligible to appeal this decision to the Land Use Board of Appeals (LUBA).

If you wish to appeal, you must file a notice of intent to appeal with the Land Use Board of Appeals (LUBA) no later than 21 days from the date the decision was mailed to you by the local government. If you have questions, check with the local government to determine the appeal deadline. Copies of the notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR Chapter 661, Division 10). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

*NOTE: The Acknowledgment or Appeal Deadline is based upon the date the decision was mailed by local government. A decision may have been mailed to you on a different date than it was mailed to DLCD. As a result, your appeal deadline may be earlier than the above date specified. NO LUBA Notification to the jurisdiction of an appeal by the deadline, this Plan Amendment is acknowledged.

Cc: Lars Gare, City of Rainier
Gloria Gardiner, DLCD Urban Planning Specialist
Chris Shirley, FEMA Specialist
Anne Debbaut, DLCD Regional Representative

<paa> YA



FORM **2**

DLCD

Notice of Adoption

In person electronic mailed

DATE STAMP

sent 20 Nov 10

DEPT OF

NOV 22 2010

For Office Use Only

LAND CONSERVATION AND DEVELOPMENT

This Form 2 must be mailed to DLCD within **5-Working Days after the Final Ordinance is signed** by the public Official Designated by the jurisdiction and all other requirements of ORS 197.615 and OAR 660-018-000

Jurisdiction: **City of Rainier**

Local file number: **Ordinance 1055**

Date of Adoption: **November 15, 2010**

Date Mailed: **November 20, 2010**

Was a Notice of Proposed Amendment (Form 1) mailed to DLCD? Yes No Date: 09/09/10

Comprehensive Plan Text Amendment

Comprehensive Plan Map Amendment

Land Use Regulation Amendment

Zoning Map Amendment

New Land Use Regulation

Other:

Summarize the adopted amendment. Do not use technical terms. Do not write "See Attached".

An Ordinance Pertaining to Flood Damage Prevention in the City of Rainier. As mandated by FEMA and Oregon DLCD

Does the Adoption differ from proposal? Please select one
YES

Plan Map Changed from:

to:

Zone Map Changed from:

to:

Location:

Acres Involved:

Specify Density: Previous:

New:

Applicable statewide planning goals:

- | | | | | | | | | | | | | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
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Was an Exception Adopted? YES NO

Did DLCD receive a Notice of Proposed Amendment...

45-days prior to first evidentiary hearing?

Yes No

If no, do the statewide planning goals apply?

Yes No

If no, did Emergency Circumstances require immediate adoption?

Yes No

DLCD FILE No. 002-10 (18509) [16423]

Please list all affected State or Federal Agencies, Local Governments or Special Districts:

FEMA, DLCD, City of Rainier

Local Contact: **Lars Gare**

Phone: (503) 556-7301 Extension:

Address: **10 West B Street**

Fax Number: **503-556-3200**

City: **Rainier**

Zip: **97048**

E-mail Address: **lgare@cityofrainier.com**

ADOPTION SUBMITTAL REQUIREMENTS

This Form 2 must be received by DLCD no later than 5 days after the ordinance has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s) per ORS 197.615 and OAR Chapter 660, Division 18

1. This Form 2 must be submitted by local jurisdictions only (not by applicant).
2. When submitting, please print this **Form 2** on light green paper if available.
3. Send this Form 2 and **One (1) Complete Paper Copy and One (1) Electronic Digital CD** (documents and maps) of the Adopted Amendment to the address in number 6:
4. **Electronic Submittals: Form 2 – Notice of Adoption will not be accepted via email or any electronic or digital format at this time.**
5. The Adopted Materials must include the final decision signed by the official designated by the jurisdiction. The Final Decision must include approved signed ordinance(s), finding(s), exhibit(s), and any map(s).
6. **DLCD Notice of Adoption must be submitted in One (1) Complete Paper Copy and One (1) Electronic Digital CD via United States Postal Service, Common Carrier or Hand Carried to the DLCD Salem Office and stamped with the incoming date stamp.** (for submittal instructions, also see # 5)] **MAIL the PAPER COPY and CD of the Adopted Amendment to:**

**ATTENTION: PLAN AMENDMENT SPECIALIST
DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT
635 CAPITOL STREET NE, SUITE 150
SALEM, OREGON 97301-2540**

7. Submittal of this Notice of Adoption must include the signed ordinance(s), finding(s), exhibit(s) and any other supplementary information (see ORS 197.615).
8. Deadline to appeals to LUBA is calculated **twenty-one (21) days** from the receipt (postmark date) of adoption (see ORS 197.830 to 197.845).
9. In addition to sending the Form 2 - Notice of Adoption to DLCD, please notify persons who participated in the local hearing and requested notice of the final decision at the same time the adoption packet is mailed to DLCD (see ORS 197.615).
10. **Need More Copies?** You can now access these forms online at <http://www.lcd.state.or.us/>. You may also call the DLCD Office at (503) 373-0050; or Fax your request to: (503) 378-5518.

City of Rainier

ORDINANCE NO. 1055

An Ordinance Pertaining to Flood Damage Prevention in the City of Rainier.

WHEREAS, the City of Rainier is working under a Federally-Mandated Deadline to Adopt a Flood Damage Prevention Ordinance covering Property within the City of Rainier; and

WHEREAS, It is in the best interests of the Public and the City of Rainier to adopt said Ordinance to make it possible for Property Owners to obtain Flood Insurance through NFIP; and

WHEREAS, the State of Oregon recommends using a Model Ordinance covering all the required elements for an all-inclusive Statutory Compliant Document, the City has used that Model Ordinance and refined it to reflect City Development Regulations; and

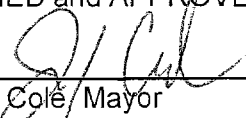
WHEREAS, The Planning Commission held a duly advertised Public Evidentiary Hearing on October 27, 2010 and no public comments were made either orally or in writing; and

WHEREAS, the Planning Commission unanimously approved forwarding the proposed Ordinance to the City Council with a recommendation for approval;

NOW, THEREFORE, THE CITY OF RAINIER DOES ORDAIN AS FOLLOWS:

1. The above recitals are true and correct and are incorporated herein by this reference.
2. In support of the above Ordinance, the City Council hereby adopts the Staff Report dated October 22, 2010.
3. The effective date of this Ordinance shall be 30 days after approval, in accordance with the City Charter and other applicable Laws.

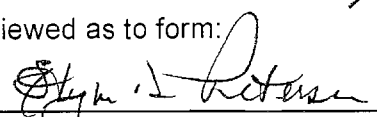
SIGNED and APPROVED this 17th day of November, 2010.



Jerry Cole, Mayor

Attested:


Debra Dudley, City Recorder

Reviewed as to form:


Stephen D. Petersen, City Attorney

City of Rainier

ORDINANCE NO. 1055

An Ordinance Pertaining to Flood Damage Prevention in the City of Rainier

I. STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE, AND OBJECTIVES

A. Statutory Authority

The State of Oregon has delegated¹ 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 Rainier, does ordain as follows:

B. Findings of Fact

(1) The flood hazard areas of The City of Rainier are subject to periodic inundation that results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood relief and protection, 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 structures in flood hazard areas, which are inadequately elevated, flood-proofed, or otherwise unprotected from flood damages, and by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities.

(3) The City of Rainier has the primary responsibility for planning, adoption and enforcement of land use regulations to accomplish proper floodplain management. [44 CFR 44 CFR 59.12]

C. Statement of Purpose

The objectives of this ordinance are to,

(1) Protect human life, health and property;

(2) Minimize damage to public facilities and utilities such as water purification and sewage treatment plants, water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;

(3) Help maintain a stable tax base by providing for the sound use and development of flood prone areas;

¹ All counties, including those without home rule charters, have been granted authority to enact ordinances under Oregon Revised Statute 203.035.

- (4) Minimize expenditure of public money for costly flood control projects;
- (5) Minimize the need for rescue and emergency services associated with flooding and generally undertaken at the expense of the general public;
- (6) Minimize unnecessary disruption of commerce, access and public service during times of flood;
- (7) Ensure that potential buyers are notified that property is in an area of special flood hazard;
- (8) Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions, and;
- (9) Manage the alteration of flood hazard areas, stream channels and shorelines to minimize the impact of development on the natural and beneficial functions of the floodplain.

D. Methods of Reducing Flood Losses

In order to accomplish its purpose, this ordinance includes methods and provisions to:

- (1) Require that development that is vulnerable to floods, including structures and facilities necessary for the general health, safety and welfare of citizens, be protected against flood damage at the time of initial construction;
- (2) Restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which increase flood heights, velocities, or erosion;
- (3) Control filling, grading, dredging and other development which may increase flood damage or erosion;
- (4) Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or that may increase flood hazards to other lands;
- (5) Preserve and restore natural floodplains, stream channels, and natural protective barriers which carry and store flood waters, and;
- (6) Coordinate with and supplement provisions of State of Oregon Building Codes.

II. DEFINITIONS

Unless specifically defined in Chapter II, words or phrases used in this ordinance shall be interpreted according to the meaning they have in common usage.

“Accessory Structure” means a structure on the same or adjacent parcel as a principal structure, the use of which is incidental and subordinate to the principal structure.

“Alteration of a Watercourse” includes, but is not limited to, any dam, culvert, impoundment, channel relocation, change in channel alignment, channelization, or change in cross-sectional area or capacity, which may alter, impede, retard or change the direction and/or velocity of the riverine flow of water during conditions of the base flood.

“Appeal” means a request for review of the Floodplain Administrator's interpretation of provisions of this ordinance.

“Area of Shallow Flooding” means a designated AO or AH Zone on a community's Flood Insurance Rate Map (FIRM) with base flood depths from one to three feet, and/or where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident. [44 CFR 59.1, *simplified*].

“Area of Special Flood Hazard” means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Zone designations on FIRMs include the letters A or V. Also known as the Special Flood Hazard Area (SFHA). [44 CFR 59.1, *simplified*].

“Base Flood” means the flood having a one percent (1%) chance of being equaled or exceeded in any given year. [44 CFR 59.1].

“Base Flood Elevation (BFE)” means the water surface elevation during the base flood in relation to a specified datum. The Base Flood Elevation (BFE) is depicted on the FIRM to the nearest foot and in the FIS to the nearest 0.1 foot.

“Basement” means the portion of a structure with its floor sub grade (below ground level) on all sides. . [44 CFR 59.1

“Below-grade Crawlspace” means an enclosed area below the Base Flood Elevation in which the interior grade is not more than two feet below the lowest adjacent exterior grade and the height, measured from the interior grade of the crawlspace to the top of the crawlspace foundation, does not exceed 4 feet at any point

“Building” means a building or structure subject to Building Codes.

“Building Codes” means the combined specialty codes adopted under ORS 446.062, 446.185, 447.020 (2), 455.020 (2), 455.496, 455.610, 455.680, 460.085, 460.360, 479.730 (1) or 480.545, but does not include regulations adopted by the State Fire Marshal pursuant to ORS chapter 476 or ORS 479.015 to 479.200 and 479.210 to 479.220.

“Coastal High Hazard Area” means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM always includes the letter “V”. [44 CFR 59.1]

“Critical Facility” means a facility that needs to be operable during a flood, or for which even a slight chance of flooding might pose unacceptable risk to health and safety. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and other emergency responders, and installations that produce, use or store hazardous materials.

“Datum” The vertical datum is a base measurement point (or set of points) from which all elevations are determined. Historically, that common set of points has been the National Geodetic Vertical Datum of 1929 (NAVD29). The vertical datum currently adopted by the federal government as a basis for measuring heights is the North American Vertical Datum of 1988 (NAVD88).

“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 or storage of equipment or materials located within the area of special flood hazard. [44 CFR 59.1]. Development does not include²:

- A. Signs, markers, aids, etc. placed by a public agency to serve the public
- B. Driveways, parking lots, or other open space use areas where no alteration of topography occurs;

“Digital FIRM (DFIRM),” means Digital Flood Insurance Rate Map. It depicts flood risk and zones and flood risk information. The DFIRM presents the flood risk information in a format suitable for electronic mapping applications.

“Encroachment” means the advancement or infringement of uses, fill, excavation, buildings, permanent structures or other development into a floodway which may impede or alter the flow capacity of a floodplain.

“Elevated Building” means a non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

“Essential Facility” means:

- (A) Hospitals and other medical facilities having surgery and emergency treatment areas;
- (B) Fire and police stations;
- (C) Tanks or other structures containing, housing or supporting water or fire-suppression materials or equipment required for the protection of essential or hazardous facilities or special occupancy structures;
- (D) Emergency vehicle shelters and garages;
- (E) Structures and equipment in emergency-preparedness centers;
- (F) Standby power generating equipment for essential facilities; and
- (G) Structures and equipment in government communication centers and other facilities required for emergency response [ORS 455.447].

“Existing Building or Structure” means a structure for which the “start of construction” commenced before: June 30, 1986 [44 CFR 59.1, modified].

“Federal Emergency Management Agency (FEMA)” means the agency with the overall responsibility for administering the National Flood Insurance Program.

“**Flood**” or “**flooding**” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (a) The overflow of inland or tidal waters; or
- (b) The unusual and rapid accumulation or runoff of surface waters from any source [44 CFR 59.1].

“**Flood Insurance Rate Map (FIRM)**” means an official map of a community, issued by the Federal Insurance Administration, delineating the areas of special flood hazard and/or risk premium zones applicable to the community [44 CFR 59.1].

“**Flood Insurance Study (FIS)**” means the official report by the Federal Insurance Administration evaluating flood hazards and containing flood profiles, floodway boundaries and water surface elevations of the base flood [44 CFR 59.1, modified].

² Work exempt from Oregon Residential Specialty Code, Section R105.2 requires a Floodplain Development Permit unless specifically exempted by definition in this ordinance.

“Floodway (Regulatory Floodway)” means the channel of a river or other watercourse and those portions of the floodplain adjoining the channel required to discharge and store the floodwater or flood flows associated with the regulatory flood [44 CFR 59.1].

“Highest Adjacent Grade (HAG)” means the highest natural elevation of the ground surface prior to construction, adjacent to the proposed walls of a structure. Refer to the Elevation Certificate, FEMA Form 81-31, HAG, for more information.

“Historic Structure” means a structure that is:

(a) Listed individually in the National Register of Historic Places (a listing maintained by the U.S. Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register;

(b) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or to a district preliminarily determined by the Secretary to qualify as a registered historic district;

(c) Individually listed on a state inventory of historic places and determined as eligible by states with historic preservation programs which have been approved by the Secretary of the Interior, or ;

(d) Individually listed on a local inventory of historic places and determined as eligible by communities with historic preservation programs that have been certified either:

i. By an approved state program as determined by the Secretary of the Interior, or;

ii. Directly by the Secretary of the Interior in states without approved programs. [44 CFR 59.1]

“Letter of Map Change (LOMC)” means an official FEMA determination, by letter, to amend or revise effective Flood Insurance Rate Maps and Flood Insurance Studies. LOMCs are issued in the following categories:

Letter of Map Amendment (LOMA)

A revision based on technical data showing that a property was incorrectly included in a designated special flood hazard area. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a specific property is not located in a special flood hazard area;

Letter of Map Revision (LOMR)

A revision based on technical data showing that, usually due to manmade changes, shows changes to flood zones, flood elevations, floodplain and floodway delineations, and planimetric features. One common type of LOMR, a LOMR-F, is a determination that a structure of parcel has been elevated by fill above the Base Flood Elevation and is excluded from the special flood hazard area;

Conditional Letter of Map Revision (CLOMR)

A formal review and comment by FEMA as to whether a proposed project complies with the minimum National Flood Insurance Program floodplain management criteria. A CLOMR does NOT amend or revise effective Flood Insurance Rate Maps, Flood Boundary and Floodway Maps, or Flood Insurance Studies.

“Lowest Floor” is the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure used solely for parking of vehicles, building access, or storage, in an area

other than a basement, is not considered a structure's lowest floor provided that the enclosed area is built and maintained in accordance with the applicable design requirements of the Building Codes [44 CFR 59.1, modified for clarity]. The lowest floor of a structure in a V-zone is the bottom of the lowest horizontal structural member supporting the structure. The lowest floor of a manufactured dwelling is the bottom of the longitudinal chassis frame beam in A zones and the bottom of the lowest horizontal structural member supporting the dwelling in the V zone [Manufactured Dwelling Specialty Code, page 13]

“Manufactured Dwelling” means a structure, transportable in one or more sections, built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. The term “Manufactured Dwelling” does not include a “Recreational Vehicle” [44 CFR 59.1, modified to replace “home” with “dwelling” to match Building Code].

“Mean Sea Level” means for purposes of the National Flood Insurance Program, the North American Vertical Datum of 1988 (NAVD88), or other datum, to which Base Flood Elevations shown on a community’s FIRM are referenced [44 CFR 59.1, modified to add new datum].

“New Construction” means a structure for which the “start of construction” commenced after June 30, 1988 and includes subsequent substantial improvements to the structure. [44 CFR 59.1, modified for clarity].

“Recreational Vehicle” means a vehicle that is:

- (a) Built on a single chassis;
- (b) 400 square feet or less when measured at the largest horizontal projection;
- (c) Designed to be self-propelled or permanently towed by a light duty truck, and;
- (d) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use. [44 CFR 59.1]

“Start of construction” includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, or improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or 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 foundations 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. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not the alteration affects the external dimensions of a building [44 CFR 59.1].

“Structure” means a walled and roofed building, a manufactured dwelling, a modular or temporary building, or a gas or liquid storage tank that is principally above ground [44 CFR 59.1, modified for clarity].

“Substantial Damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of its market value before the damage occurred [44 CFR 59.1].

“Substantial Improvement” means reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the “start of construction” of the improvement. This term includes structures which have incurred “substantial damage,” regardless of the actual repair work performed. The market value of the structure should be:

- (1) The appraised real market value of the structure prior to the start of the initial repair or improvement, or
- (2) In the case of damage, the appraised real market value of the structure prior to the damage occurring. The term does not include either:
 - (a) A project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications, which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
 - (b) Alteration of an Historic Structure, provided that the alteration will not preclude the structure's continued designation as an Historic Structure [44 CFR 59.1].

“Variance” means a grant of relief from a requirement of this ordinance [44 CFR 59.1].

“Violation” means the failure of a structure or other development to be fully compliant with the community’s flood plain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance is presumed to be in violation until such time as that documentation is provided.

“Watercourse” means a lake, river, creek, stream, wash, arroyo, channel or other topographic feature in, on, through, or over which water flows at least periodically.

“Water Dependent Use” means a facility that cannot be used for its intended purpose unless it is located or carried out in close proximity to water, such as a docking or port facility necessary for the loading and unloading of cargo or passengers, shipbuilding, or ship repair facilities. The term does not include long-term storage, manufacture, sales, or service facilities.

“Water Surface Elevation” means the height, in relation to a specific datum, of floods of various magnitudes and frequencies in the flood plains of coastal or riverine areas [44 CFR 59.1].

III. GENERAL PROVISIONS

A. Lands to Which This Ordinance Applies

This ordinance shall apply to all Areas of Special Flood Hazard within the jurisdiction of The City of Rainier, Oregon. Nothing in this Ordinance is intended to allow uses or structures that are otherwise prohibited by the zoning ordinance or Building Codes.

B. Basis for Area of Special Flood Hazard

The Area of Special Flood Hazard identified by the Federal Emergency Management Agency in its Flood Insurance Study (FIS) for Columbia County, Oregon and incorporated areas, dated November 26, 2010, with accompanying Flood Insurance Rate Maps (FIRM) or Digital Flood Insurance Rate Maps (DFIRM), and other supporting data, are adopted by reference and declared a part of this ordinance. The FIS and the FIRM are on file at the office of the Rainier City Clerk, Rainier City Hall, 106 West “B” Street, Rainier, Oregon 97048 [44 CFR Part 60.3(b)(1), (c)(1) and (d)(2)]

C. Coordination with Building Codes.

Pursuant to the requirement established in ORS 455 that Columbia County, Oregon, administers and enforces the State of Oregon Building Codes on behalf of the City of Rainier, Oregon, the Rainier City Council does hereby acknowledge that the Building Codes contain certain provisions that apply to the design and construction of buildings and structures located in Areas of Special Flood Hazard. Therefore, this ordinance is intended to be administered and enforced in conjunction with the Building Codes.

D. Establishment of Floodplain Development Permit.

A Floodplain Development Permit shall be required prior to initiating development activities in any Areas of Special Flood Hazard established in Chapter III Section B. [44 CFR Part 60.3(a)]

Any Floodplain Development Permit application that requires engineering analysis, calculations or modeling to establish a base flood elevation or floodway, or to demonstrate no increase to base flood elevation in an established floodway shall be considered a land use action requiring an opportunity for a quasi-judicial land use hearing. [LUBA No. 2009-007 and ORS 197.763]

E. 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, including state Building Codes.

E. 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. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside Areas of Special Flood Hazard 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 Rainier, Oregon or any officer or employee thereof, or the Federal Insurance Administration, for any flood damages that result from reliance on this ordinance or an administrative decision lawfully made hereunder. [FEMA Region X]

IV. ADMINISTRATION

A. Designation of Floodplain Ordinance Administrator

The Rainier City Administrator, or The Administrator's designee, is hereby appointed as the Floodplain Administrator who is responsible for administering and implementing the provisions of this ordinance. [44 CFR 59.12(b)]

B. Duties and Responsibilities of the Floodplain Administrator

Duties of the Floodplain Administrator shall include, but shall not be limited to:

- (1) Review all proposed development to determine whether it will be located in Areas of Special Flood Hazard or other flood-prone areas; [44 CFR 60.3(a)(1)]
- (2) Review applications for modifications of any existing development in Areas of Special Flood Hazard for compliance with the requirements of this ordinance; [44 CFR 60.3(a)(1)]
- (3) Interpret flood hazard area boundaries, provide available flood hazard information, and provide Base Flood Elevations, where they exist;
- (4) Review proposed development to assure that necessary permits have been received from governmental agencies from which approval is required by federal or state law. Copies of such permits shall be maintained on file. [44 CFR 60.3(a)(2)]
- (5) Review all development permit applications to determine if proposed development is located in the floodway, and if so, ensure that the encroachment standards of Chapter V, Section B are met. [44 CFR 60.3(d)(1)]
- (6) When Base Flood Elevation data or floodway data have not been established in Chapter III, Section B, the Floodplain Administrator shall obtain, review and reasonably utilize any Base Flood Elevation and floodway data available from a federal, state or other authoritative source in order to administer the provisions of this ordinance. [44 CFR 60.3(b)(4)]
- (7) When Base Flood Elevations are not available from an authoritative source, the Floodplain Administrator shall require Base Flood Elevations to be developed in accordance with 0 to Section V.A.(4) of this ordinance or take into account the flood hazards, to the extent they are known, to determine whether a proposed building site or subdivision will be reasonably safe from flooding³. [44 CFR 60.3(a)(3) and 60.3(a)(4)] *Note: Oregon Residential Specialty Code R324.1.3 authorizes the building official to require the applicant to determine a Base Flood Elevation where none exists.*
- (8) Where interpretation is needed of the exact location of boundaries of the Areas of Special Flood Hazard including regulatory floodway (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Administrator shall make the interpretation. Any person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Chapter VI.

³ 44 CFR Part 65.2 defines "reasonably safe from flooding" as base flood waters will not inundate the land or damage structures ... and that any subsurface waters related to the base flood will not damage existing or proposed buildings.

(9) Issue floodplain development permits when the provisions of this ordinance have been met, or deny the same in the event of noncompliance; [44 CFR 59.24]

(10) Coordinate with the Building Official to assure that applications for building permits comply with the requirements of this ordinance; [44 CFR 59.24]

(11) Obtain, verify and record the actual elevation in relation to the vertical datum used on the effective FIRM, or in relation to the highest adjacent grade where no Base Flood Elevation is available, of the lowest floor level, including basement, of all new construction or substantially improved buildings and structures. [44 CFR 60.3(b)(5), amended to address no BFE]

(12) Obtain, verify and record the actual elevation, in relation to the vertical datum used on the effective FIRM, or highest adjacent grade where no Base Flood Elevation is available, to which any new or substantially improved buildings or structures have been flood-proofed. When flood-proofing is utilized for a structure, the Floodplain Administrator shall obtain certification of design criteria from a registered professional engineer or architect; [44 CFR 60.3(b)(5), amended to address no BFE]

(13) Ensure that all records pertaining to the provisions of this ordinance are permanently maintained in the office of the city/county clerk or his/her designee and shall be open for public inspection. [44 CFR 60.3(b)(5)]

(14) Make inspections in Areas of Special Flood Hazard to determine whether development has been undertaken without issuance of a floodplain development permit, ensure that development is undertaken in accordance with a the floodplain development permit and this ordinance, and verify that existing buildings and structures maintain compliance with this ordinance; [44 CFR 59.14]

(15) Coordinate with the Building Official to inspect areas where buildings and structures in flood hazard areas have been damaged, regardless of the cause of damage, and notify owners that permits may be required prior to repair, rehabilitation, demolition, relocation, or reconstruction of the building or structure; [44 CFR 59.24]

(16) Make Substantial Improvement or Substantial Damage determinations based on criteria set forth in Chapter IV, Section D of this ordinance. [44 CFR 59.24]

C. Permit Procedures

Applicants shall be required to submit an Elevation Certificate (FEMA Form 81-31) for proposed structures at the time of application for a floodplain development permit, for buildings under construction at the time of the inspection required by the Oregon Residential Specialty Code, Section R109, and upon building completion prior to issuance of a Certificate of Occupancy.

Application for a Floodplain Development Permit shall be made to the Floodplain Administrator or the Administrator's designee on forms furnished by the Administrator or the Administrator's designee prior to starting development activities.[44 CFR Part 60.3(a)(1) and (b)(1)] Specifically, the following information is required:

(1) Application Stage

- (a) Plans in duplicate drawn to scale with elevations of the project area and the nature, location, dimensions of existing and proposed structures, earthen fill placement, storage

- of materials or equipment and drainage facilities; *[Oregon Residential Specialty Code R106.5 requires one set to be retained and the second to be returned to the applicant]*
- (b) Delineation of flood hazard areas, floodway boundaries including Base Flood Elevations, or flood depth in AO zones, where available; *[Oregon Residential Specialty Code R106.1.3]*
 - (c) For all proposed structures, elevation in relation to the highest adjacent grade and the Base Flood Elevation, or flood depth in AO zones, of the:
 - (i) lowest enclosed area, including crawlspace or basement floor; *[Oregon Residential Specialty Code R106.1.3]*
 - (ii) bottom of the lowest horizontal structural member in coastal high hazard areas (V Zones); *[Oregon Residential Specialty Code R106.1.3]*
 - (iii) top of the proposed garage slab, if any, and;
 - (iv) next highest floor.
 - (d) Locations and sizes of all flood openings in any proposed building;
 - (e) Elevation to which any non-residential structure will be flood-proofed; *[44 CFR Part 60.3(b)(5)]*
 - (f) Certification from a registered professional engineer or architect that any proposed non-residential flood-proofed structure will meet the flood-proofing criteria of the NFIP and Building Codes; *[44 CFR Part 60.3 (c)(4)]*
 - (g) Description of the extent to which any watercourse will be altered or relocated as a result of a proposed development; *[44 CFR Part 60.3(b)(6)]*
 - (h) Proof that application has been made for necessary permits from other governmental agencies from which approval is required by federal or state law. *[44 CFR Part 60.3 (a)(2) requires that other permits be received prior to issuing floodplain development permit].*

(2) Construction Stage

- (a) Copies of necessary permits from other governmental agencies from which approval is required by federal or state law must be provided prior to start of construction.
- (b) For all new construction and substantial improvements, the permit holder shall provide to the Floodplain Administrator an as-built certification of the floor elevation or flood-proofing level immediately after the lowest floor or flood-proofing is placed and prior to further vertical construction; *[Oregon Residential Specialty Code R109]]*
- (c) Any deficiencies identified by the Floodplain Administrator shall be corrected by the permit holder immediately and prior to work proceeding. Failure to submit certification or failure to make the corrections shall be cause for the Floodplain Administrator to issue a stop-work order for the project. *[44 CFR Part 44 CFR 59.14]*

(3) Certificate of Occupancy

- (a) In addition to the requirements of the Building Codes pertaining to certificate of occupancy, prior to the final inspection the owner or authorized agent shall submit the following documentation that has been prepared and sealed by a registered surveyor or engineer, *[44 CFR Part 60.3(b)(5)]*:
 - i. For elevated buildings and structures in non-coastal Areas of Special Flood Hazard (A zones), the as-built elevation of the lowest floor, including basement or where no Base Flood Elevation is available the height above highest adjacent grade of the lowest floor;

- ii. For buildings and structures in coastal Areas of Special Flood Hazard (V zones), the elevation of the bottom of the lowest horizontal structural member supporting the lowest floor, and;
 - iii. For buildings and structures that have been floodproofed, the elevation to which the building or structure was floodproofed.
- (b) Failure to submit certification or failure to correct violations shall be cause for the Floodplain Administrator to withhold a certificate of occupancy until such deficiencies are corrected.

(4) Expiration of Floodplain Development Permit

- (a) A floodplain development permit shall expire 180 days after issuance unless the permitted activity has been substantially begun and thereafter is pursued to completion. *[44 CFR 59.1]*
- (b) Commencement of work includes start of construction, when the permitted work requires a building permit. *[44 CFR 59.1]*

D. Substantial Damage and Substantial Improvement Determination *[Best Practice summarized from FEMA 213 and FEMA-301]*

For applications for permits to improve buildings and structures, including additions, repairs, renovations, and alterations, the Floodplain Administrator, shall:

- (1) Estimate the market value, or require the applicant to obtain a professional appraisal of the market value, of the building or structure before the proposed work is performed; when repair of damage is proposed, the market value of the building or structure shall be the market value before the damage occurred;
- (2) Compare the cost of improvement, the cost to repair the damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building or structure;
 - (a) Except as indicated in subsections (b) through (d) below, all costs to repair substantial damage, including emergency repairs, including the costs of complying with any county, state or federal regulation must be included;
 - (b) The costs associated with the correction of pre-existing violations of state or local health, sanitary, or safety code specifications that were identified by the building official, the director of environmental health, or any other local code enforcement official prior to the improvement or repair and that are the minimum necessary to ensure safe living conditions shall not be included;
 - (c) Costs associated with the following items are not included:
 - (i) The preparation and approval of all required plans, calculations, certifications, and specifications;
 - (ii) The performance of surveys or other geotechnical or engineering studies and resulting reports;
 - (iii) Permit and review fees, and;
 - (iv) The construction, demolition, repair, or modification of outdoor improvements, including landscaping, fences, swimming pools, detached garages and sheds, etc.;
 - (d) Proposed alterations of a designated historic building or structure is not to be considered substantial improvement unless the alteration causes a loss of said designation.

(3) The City of Rainier, together with the Columbia County Building Department shall make the final determination of whether the proposed improvement and/or repair constitutes a substantial improvement or substantial damage.

(4) The City of Rainier shall notify the applicant of the results of the determination by letter.

(5) Applicant has the right to appeal the determination by providing The City of Rainier ,Oregon with either or both an appraisal conducted by a licensed appraiser to establish the market value of the building immediately prior to the damage or proposed improvement, or a signed contractor's estimate to establish cost to repair or improve the building.

E. Temporary Encroachments into the Floodway

Summarized from FEMA Region X Guidance Memorandum: Temporary Encroachments into the Floodway (October 2009)

A floodplain development permit is required for construction or placement of temporary structures, temporary storage associated with non-residential uses, and temporary bridges located in areas of special flood hazard:

(1) Temporary structures, not including bridges, shall be limited as to time of service, but shall not be permitted for more than 180 days. The Floodplain Administrator is authorized to grant extensions for demonstrated cause; such cause shall reaffirm the temporary nature of the structure. Temporary structures shall be anchored to prevent flotation, collapse, or lateral movement.

(2) Temporary storage of twenty cubic yards or more of fill material shall be limited as to time of service, but shall not be permitted for more than 90 days. The Floodplain Administrator is authorized to grant extensions for demonstrated cause; such cause shall reaffirm the temporary nature of the storage. Stored material shall be anchored or contained to prevent flotation or release outside the assigned storage area. Hazardous materials priority persistent pollutants identified by the Oregon Department of Environmental Quality shall not be stored in the floodway.

(3) Temporary encroachments in the floodway for the purposes of capitol improvement projects (including bridges) require a floodplain development permit⁴. No CLOMR/LOMR is required⁵

⁴ The permit shall stipulate the days and dates the structure or other development will be on site. If a longer period is required, a new permit will be issued.

A flood warning system for the project shall be in place to allow equipment to be evacuated from the site and placed outside the floodway.

Placement of equipment in the floodway shall be restricted to only that equipment which is absolutely necessary for the purposes of the project. All other accessory equipment and temporary structures (i.e. construction trailers) shall be restricted from the floodway. Structures shall be placed on site so that flood damages are minimized. Construction trailers shall be adequately anchored to prevent floatation or movement in case evacuation isn't practical.

The following conditions should be included in the permit:

- Identification of the temporary changes to the floodplain under a 1% chance flood event (100-year flood)

F. Watercourse Alterations

(1) Development shall not diminish the carrying capacity of a water course. If any water course will be altered or relocated as a result of the proposed development the applicant must submit certification by a registered professional engineer that the carrying capacity of the water course will not be diminished.

(2) Applicant will be responsible for obtaining all necessary permits from governmental agencies from which approval is required by federal or state law, including but not limited to section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334; the Endangered Species Act of 1973, 16 U.S.C. 1531-1544; and State of Oregon Division of State Lands regulations.

(3) If the altered or relocated watercourse is part of an Area of Special Flood Hazard, the applicant shall notify adjacent communities and Oregon Department of Land Conservation and Development prior to any alteration or relocation of the watercourse. Evidence of notification must be submitted to the floodplain administrator and to the Federal Emergency Management Agency. *[44 CFR 60.3(b)(6)]*

(4) The applicant shall be responsible for ensuring necessary maintenance for the altered or relocated portion of the water course is provided so that the flood carrying capacity will not be diminished. *[44 CFR 60.3(b)(7)]*

(5) The applicant shall meet the requirements to submit technical data in Section IV.G when an alteration of a watercourse results in the expansion, relocation or elimination of the special flood hazard area.

G. Requirement to Submit New Technical Data

(1) Within six months of project completion, an applicant who obtains an approved Conditional Letter of Map Revision from FEMA, or whose development modifies floodplain boundaries or Base Flood Elevations shall obtain from FEMA a Letter of Map Revision reflecting the as-built changes to the FIRM. *[44 CFR Part 65.3]*

(2) It is the responsibility of the applicant to have technical data prepared in a format required for a Conditional Letter of Map Revision or Letter of Map Revision and to submit such data to FEMA on

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- Identification of all insurable structures affected by any increase in BFE during a 1% chance flood event (100-year flood)
 - Written notification to the applicant that they may be liable for any flood damages resulting from the temporary structure
 - The length of time the structure or encroachment will be allowed.

⁵ No CLOMR/LOMR will be required because there is no need to modify the FIRM due to the temporary condition of the encroachment, but the City of Rainier shall disclose to all owners of insurable structures and all applicants for permits in the affected area that there is an increased risk of flooding for the duration of the temporary encroachment.

the appropriate application forms. Submittal and processing fees for these map revisions shall be the responsibility of the applicant.

(3) Applicants shall be responsible for all costs associated with obtaining a Conditional Letter of Map Amendment or Letter of Map Revision from FEMA.

(4) The Floodplain Administrator shall be under no obligation to sign the Community Acknowledgement Form, which is part of the CLOMR/LOMR application.

H. Non-Conversion of Enclosed Areas below the Lowest Floor

To ensure that enclosed areas below the BFE continue to be used solely for parking vehicles, limited storage, or access to the building and not be finished for use as human habitation, the Floodplain Administrator shall:

(1) Determine which applicants for new construction and/or substantial improvements have fully enclosed areas below the lowest floor that are 5 feet or higher;

(2). Enter into a “NON-CONVERSION AGREEMENT FOR CONSTRUCTION WITHIN FLOOD HAZARD AREAS” or equivalent with the City of Rainier, Oregon. The agreement shall be recorded with the City of Rainier, Oregon, as a deed restriction. The non-conversion agreement shall be in a form acceptable to the Floodplain Administrator and County Counsel; and

I. Periodic Floodplain Inspections and Enforcement Actions

(1) The Floodplain Administrator or designee shall make periodic inspections of floodplain areas to establish that development activities within the floodplain are being performed in compliance with an approved floodplain development permit. The Floodplain Administrator or designee shall prepare a field report listing non-complying conditions to be delivered to the City Attorney. Upon receipt of the report, the City Attorney or designee shall proceed with enforcement actions including, but not limited to: the issuance of a Stop Work Order; the issuance of a citation; and the commencement of civil legal proceedings.

(2) Within 30 days of discovery of a violation of this ordinance, the Floodplain Administrator shall submit a report to the Rainier City Council which shall include all information available to the Floodplain Administrator which is pertinent to said violation. Within 30 days of receipt of this report, the Rainier City Council shall:

- (a) take any necessary action to effect the abatement of such violation; or
- (b) issue a variance to this ordinance in accordance with the provisions of Section 6.0 (Variance Procedures) herein; or
- (c) order the owner of the property upon which the violation exists to provide whatever additional information may be required for their determination. Such information must be provided to the City Administrator or the Administrator’s designee within 30 days of such order, and he/she shall submit an amended report to the City Council within 20 days. At their next regularly scheduled public meeting, the City Council shall either order the abatement of said violation or they shall grant a variance in accordance with the provisions of Section VI (Variance and Appeal Procedures) herein.

(3) If a Variance cannot be granted according to Section VI, submit to the Administrator of Federal Insurance Administration a declaration for denial of insurance, stating that the property is in violation of a cited statute or local law, regulation or ordinance, pursuant to section 1316 of the National Flood Insurance Act of 1968 as amended.

V. PROVISIONS FOR FLOOD HAZARD REDUCTION

A. Site Improvements and Subdivisions

(1) All plans for proposed new site improvements, subdivisions, and manufactured home parks shall be consistent with the need to minimize flood damage and ensure that building sites will be reasonably safe from flooding. *[44 CFR 60.3(a)(3) and (4)]*

(2) Building lots shall have adequate buildable area outside of floodways.

(3) Site improvement proposals, subdivision development plans, and manufactured home park plans shall include the mapped flood hazard zones from the effective FIRM, if available. *[Oregon Residential Specialty Code R106.1.3]*

(4) In Areas of Special Flood Hazard where Base Flood Elevations have not been established in Chapter III, Section B of this ordinance, Base Flood Elevations shall be generated and/or provided for subdivision proposals and all other proposed development, including manufactured home parks and subdivisions, greater than fifty lots or five acres, whichever is less. *[44 CFR 60.3(a)(4)]*

(5) Site improvements, subdivisions, and manufactured home parks shall have public utilities and facilities such as sewer, gas, electric and water systems located and constructed to minimize or eliminate damage and infiltration of floodwaters. Replacement public utilities and facilities such as sewer, gas, electric and water systems, likewise shall be sited and designed to minimize or eliminate damage and infiltration of floodwaters. *[44 CFR 60.3(a)(4) and (5)]*

(6) New and replacement on-site waste disposal systems shall be located and constructed to avoid functional impairment, or contamination from them, during flooding. *[44 CFR 60.3(a)(6)]*

(7) Subdivisions and manufactured home parks shall have adequate drainage provided to reduce exposure to flood hazards. *[44 CFR 60.3(a)(4) and 60.3(c)(1)]*. In AO and AH zones, drainage paths shall be provided to guide floodwater around and away from all proposed and existing structures. *[44 CFR 60.3(c)(11)]*

(8) New essential and new special occupancy structures shall not be constructed in the Tsunami Inundation Zone. The Tsunami Inundation Zone may include V, A, and potentially other flood zones. If an exception is granted then the Coastal High Hazard Area construction standards shall apply to the building of these new structures in the Tsunami Inundation Zone. *[ORS 455.446 and 447]*

B. Development in Floodways

(1) Except as provided in paragraph (4), encroachments, including fill, new construction, substantial improvements, and other development are prohibited in the regulatory Floodway unless certification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that such

encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge. *[44 CFR Part 60.3(d)(3)]*

(2) Any fill permitted to be placed in the floodway shall be designed to be stable under conditions of flooding, including rapid rise and rapid drawdown of floodwaters, prolonged inundation, and flood-related erosion and scour.

(3) Applicants shall obtain a Conditional Letter of Map Revision (CLOMR) from FEMA before an encroachment, including fill, new construction, substantial improvement, and other development, in the floodway is permitted that will cause any increase in the Base Flood Elevation. *[44 CFR Part 60.3(d)(4)]*.

(4) Projects for stream habitat restoration may be permitted in the floodway provided: *[Oregon Solutions Regulatory Streamlining Project 2009]*

- (a) The project qualifies for a Department of the Army, Portland District Regional General Permit for Stream Habitat Restoration (NWP-2007-1023); and,
- (b) A qualified professional (a Registered Professional Engineer; or staff of NRCS; the county; or fisheries, natural resources, or water resources agencies) has provided a feasibility analysis and certification that the project was designed to keep any rise in 100-year flood levels as close to zero as practically possible given the goals of the project; and,
- (c) No structures would be impacted by a potential rise in flood elevation; and,
- (d) An agreement to monitor the project, correct problems, and ensure that flood carrying capacity remains unchanged is included as part of the local approval.

(5) Fences shall not cause any rise in Base Flood Elevation and are subject to the no-rise and CLOMR provisions of paragraph (1) and (3). *[Clarifies that no-rise requirements pertain to all development in the floodway]*

C. Zones with Base Flood Elevations but No Floodway

(1) In areas within Zones A1-30 and AE on the community's FIRM with a Base Flood Elevation, or where a Base Flood Elevation is developed according to Chapter V, Section E, but where no regulatory floodway has been designated, new construction, substantial improvements, or other development (including fill) shall be prohibited, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community. *[44 CFR 60.3(c)(10)]*

(2) Applicants of proposed projects that increase the Base Flood Elevation more than one foot shall obtain from FEMA a Conditional Letter of Map Revision, before the project may be permitted. As soon as possible, but no later than 6 months after project completion, an application for a Letter of Map Revision shall be submitted by the applicant to FEMA. The applicant is responsible for paying any costs associated with the CLOMR and LOMR process. *[44 CFR Part 60.3(c)(13)]*.

D. Zones Without Base Flood Elevations

(1) When Base Flood Elevation or floodway data have not been identified by FEMA in a Flood Insurance Study and /or Flood Insurance Rate Maps, the Floodplain Administrator shall obtain, review, and reasonably utilize scientific or historic Base Flood Elevation and floodway data available from a federal, state, or other source, in order to administer this ordinance. *[44 CFR 60.3(b)(4)]* If Base Flood Elevations are not available, subsection (3) shall apply.

(2) Where the floodplain administrator has obtained Base Flood Elevation data, Chapter V, Sections C and Sections E through M shall apply. *[44 CFR Part 60.3(b)(4)]*

(3) In Areas of Special Flood Hazard without Base Flood Elevation data,

(a) No encroachments, including structures or fill, shall be located in an Area of Special Flood Hazard within an area equal to the width of the stream or fifty feet, whichever is greater, measured from the ordinary high water mark, unless a Base Flood Elevation is developed by a licensed professional engineer, *[Good Practice; note that if BFE is developed Chapter V, Section D(2) applies.]* or;

(b) The lowest floor of any building or structure, including manufactured dwellings, shall be elevated a minimum of three (3) feet above highest adjacent grade. Below grade crawlspaces are not allowed. *[Based on high costs of flood insurance for un-elevated buildings, or buildings with below grade crawlspaces, located in approximate A Zones and consistency with Oregon Residential Specialty Code R324.2.2 which requires lowest floor be elevated a minimum of three feet above highest adjacent grade in AO zones where no depth number is specified.]*

E. Building Design and Construction

Buildings and structures, including manufactured dwellings, within the scope of the Building Codes, including repair of substantial damage and substantial improvement of such existing buildings and structures, shall be designed and constructed in accordance with the flood-resistant construction provisions of these codes, including but not limited to Section R324 of the Residential Specialty Code and Section 1612 of the Structural Specialty Code. *[This Section links local ordinance to Building Codes. Communities may include specific building design and construction standards, such as those found in Appendix A, in this section. Specific construction standards must equal or exceed those published in 44 CFR Part 60.3 and Oregon building codes.]*

F. Manufactured Dwellings

(1) Manufactured dwellings to be newly placed or replaced on sites, or substantially improved are within the scope of the Building Codes; and,

(2) Manufactured dwellings to be newly placed or replaced on sites, or substantially improved shall be installed using methods and practices that minimize flood damage and shall be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement. Methods of anchoring include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

G. Below Grade Crawlspace

Below-grade crawlspaces are allowed (Note: *there is a charge added to the basic policy premium for a below-grade crawlspace*) subject to the following standards as found in FEMA Technical Bulletin 11-01, Crawlspace Construction for Buildings Located in Special Flood Hazard Areas:

- (1) The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy. Hydrostatic loads and the effects of buoyancy can usually be addressed through the required openings stated in Section B below. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five (5) feet per second unless the design is reviewed by a qualified design professional, such as a registered architect or professional engineer. Other types of foundations are recommended for these areas.
- (2) The crawlspace is an enclosed area below the base flood elevation (BFE) and, as such, must have openings that equalize hydrostatic pressures by allowing the automatic entry and exit of floodwaters. The bottom of each flood vent opening can be no more than one (1) foot above the lowest adjacent exterior grade.
- (3) Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls of the crawlspace used to elevate the building, but also any joists, insulation, or other materials that extend below the BFE. The recommended construction practice is to elevate the bottom of joists and all insulation above BFE.
- (4) Any building utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.
- (5) The interior grade of a crawlspace below the BFE must not be more than two (2) feet below the lowest adjacent exterior grade.
- (6) The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall must not exceed four (4) feet at any point. The height limitation is the maximum allowable unsupported wall height according to the engineering analyses and building code requirements for flood hazard areas.
- (7) There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. The enclosed area should be drained within a reasonable time after a flood event. The type of drainage system will vary because of the site gradient and other drainage characteristics, such as soil types. Possible options include natural drainage through porous, well-drained soils and drainage systems such as perforated pipes, drainage tiles or gravel or crushed stone drainage by gravity or mechanical means.
- (8) The velocity of floodwaters at the site should not exceed five (5) feet per second for any crawlspace. For velocities in excess of five (5) feet per second, other foundation types should be used.

H. Accessory Structures

Relief from the elevation or dry flood-proofing standards may be granted for new and replacement accessory structures containing no more than two-hundred (200 square feet) square feet. Such a structure must meet the following standards:

- (1) It shall not be subject to Building Codes;

- (2) The accessory structure shall be located on a property, or an adjacent property with same owner, as a dwelling;
- (3) It shall not be used for human habitation and may be used solely for parking of vehicles or storage of items having low damage potential when submerged;
- (4) It shall be constructed of flood resistant materials;
- (5) It shall be constructed and placed on the lot to offer the minimum resistance to the flow of floodwaters;
- (6) It shall be firmly anchored to prevent flotation;
- (7) Services such as electrical and heating equipment shall be elevated or flood-proofed to or above the Base Flood Elevation, and;
- (8) It shall be designed to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater. Designs for complying with this requirement must be certified by a licensed professional engineer or architect or
 - (a) provide a minimum of two openings with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding;
 - (b) the bottom of all openings shall be no higher than one foot above the higher of the exterior or interior grade or floor immediately below the opening;
 - (c) openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwater in both directions without manual intervention.

I. Recreational Vehicles

In all Areas of Special Flood Hazard, Recreational Vehicles that are an allowed use or structure under the zoning ordinance must either: *[44 CFR 60.3(e)(9) and 44 CFR 60.3(c)(14)] Note: 44 CFR Part 60.3(c)(14) does not include AO zones. Application of this section in AO Zones is considered a good practice.*

- (1) Be placed on the site for fewer than 180 consecutive days;
- (2) Be fully licensed and ready for highway use, on its wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached structures or addition, or
- (3) Meet all the requirements of Chapter V, Section F: Manufactured Dwellings, including the anchoring and elevation requirements.

J. Toxic Materials

Toxic materials, oil or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality shall not be stored below BFE, or where no BFE is available lower than three feet above grade, unless confined in a tank installed in compliance with this ordinance; (Suggestion has been made to make this a separate section)

K. Critical Facilities

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the area of special flood hazard. Construction of new critical facilities shall be permissible within the area of special flood hazard if no feasible alternative site is available. Critical facilities constructed within the areas of special flood hazard shall have the lowest floor elevated three feet above BFE (or depth number in AO zones) or to the height of the 0.2 percent (500-year) flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances or priority organic pollutants as defined by the Oregon Department of Environmental Quality will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the Base Flood Elevation shall be provided to all critical facilities to the extent possible.

L. Sanitary Sewage Systems

All new and replacement sanitary sewage facilities, private sewage treatment plants (including all pumping stations and collector systems), and on-site waste disposal systems shall be designed in accordance with Chapter 7, ASCE 24, to minimize or eliminate infiltration of flood waters into facilities and discharge from facilities into flood waters, or impairment of the facilities and systems.

M. Fences and Walls

New and replacement fencing shall be designed to collapse under conditions of the base flood or to allow the passage of water by having flaps or openings in the areas at or below the Base Flood Elevation sufficient to allow flood water and associated debris to pass freely. *[See Appendix B: Oregon Guidance Concerning Fencing and Walls in Areas of Special Flood Hazard]*

N. Other Development in Non-Coastal High Hazard Areas

All development in non-coastal high hazard areas (A zones) for which provisions are not specified in this ordinance or building codes, shall:

- (1) Be located and constructed to minimize flood damage; *[44 CFR 60.3(a)(3)]*
- (2) Be designed so as not to impede flow of flood waters under base flood conditions; *[Good practice]*
- (3) If located in a floodway, meet the limitations of Chapter V, Section C of this ordinance; *[44 CFR 60.3(d)(3)]*
- (4) Be anchored to prevent flotation or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the design flood; *[44 CFR 60.3(a)(3)]*
- (5) Be constructed of flood damage-resistant materials; *[44 CFR 60.3(a)(3)]* and
- (6) Have electric service and or mechanical equipment elevated above the Base Flood Elevation (or depth number in AO zones), except for minimum electric service required to address life safety and electric code requirements. *[44 CFR 60.3(a)(3)]*

O. Underground & Aboveground Tanks: *(tanks are regulated by NFIP but specific standards are not found in 44 CFR Part 60.3).*

(1) New and replacement underground tanks in flood hazard areas shall be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy assuming the tank is empty, during conditions of the design flood. *[From ASCE 24]*

(2) New and replacement of above-ground tanks in flood hazard areas shall be:

- (a) Elevated to or above the Base Flood Elevation (or depth number in AO zones) on a supporting structure that is designed to prevent flotation, collapse and lateral movement during conditions of the design flood; or be
- (b) Anchored or otherwise designed and constructed to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy assuming the tank is empty, during conditions of the design flood. *[From ASCE 24]*

(3) New and replacement tank inlets, fill openings, outlets and vents shall be:

- (a) A minimum of 2 feet above Base Flood Elevation or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tank during conditions of the design flood; and
- (b) Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design flood. *[From ASCE 24]*

VI. VARIANCE PROCEDURES AND CRITERIA

A. Variance

(1) An application for a variance must be submitted to the Rainier City Clerk's Office on the form provided by the City of Rainier and include at a minimum the same information required for a development permit and an explanation for the basis for the variance request.

(2) The burden to show that the variance is warranted and meets the criteria set out herein is on the applicant.

(3) In passing upon such applications, the City of Rainier shall consider all technical evaluations, all relevant factors, standards specified in other sections of this ordinance, and the:

- (a) danger that materials may be swept onto other lands to the injury of others;
- (b) danger to life and property due to flooding or erosion damage;
- (c) susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- (d) importance of the services provided by the proposed facility to the community;
- (e) necessity to the facility of a waterfront location, where applicable;
- (f) availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;

- (g) compatibility of the proposed use with existing and anticipated development;
The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;
- (h) safety of access to the property in times of flood for ordinary and emergency vehicles;
- (i) 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,
- (j) 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.

(4) Upon consideration of the criteria in Section B (Criteria for Variances) and the purposes of this ordinance, the City of Rainier may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.

(5) The floodplain administrator shall maintain a permanent record of all variances and report any variances to the Federal Emergency Management Agency upon request. *[44 CFR 60.6(a)(6)]*

B. Criteria for Variances

(1) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result. *[44 CFR 60.6(a)(1)]*

(2) 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 a-j in Section VI.A.5 have been fully considered. As the lot size increases the technical justification required for issuing the variance increases. *[44 CFR 60.6(a)(2)]*

(3) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief. *[44 CFR 60.6(a)(4)]*

(4) Variances shall only be issued upon a:

- (a) showing of good and sufficient cause;
- (b) determination that failure to grant the variance would result in exceptional hardship to the applicant, and;
- (c) 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 or conflict with existing local laws or ordinances. *[44 CFR 60.6(a)(3)]*

(5) Variances may be issued for a water dependent use provided that the

- (a) criteria of paragraphs (a)(1) through (a)(4) of this section are met, and;
- (b) structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety. *[44 CFR 60.6(a)(7)]*

(6) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the Statewide Inventory of Historic Properties, without regard to the procedures set forth in this section. *[44 CFR 60.6(a)]*

(7) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece or 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. *[44 CFR 60.6]*

C. Variance Decision

The decision to either grant or deny a variance shall be in writing and shall set forth the reasons for such approval and denial. If the variance is granted, the property owner shall be put on notice along with the written decision that the permitted building will have its lowest floor below the Base Flood Elevation and that the cost of flood insurance likely will be commensurate with the increased flood damage risk. *[44 CFR 60.6(a)(5)]*

VII. PENALTIES FOR VIOLATION

(1) No structure or land shall hereafter be located, extended, converted or altered unless in full compliance with the terms of this ordinance and other applicable regulations.

(2) Violation of the provisions of this ordinance or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions shall constitute a Civil Infraction. Any person who violates this ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined an amount to be determined by the court. Each day the violation continues shall be considered a separate offense. Nothing herein contained shall prevent the City of Rainier from taking such other lawful actions as is necessary to prevent or remedy any violation.

VIII. SEVERABILITY

The ordinance is hereby declared to be severable. Should any portion of this ordinance be declared invalid by a court of competent jurisdiction, the remaining provisions shall continue in full force and effect and shall be read to carry out the purpose(s) of the ordinance before the declaration of partial invalidity. *[FEMA Region X]*

IX. 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, Building Codes, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

Appendix A: Specific Building Design and Construction Standards

*Substitute relevant sections of Appendix A for Section E of the model companion ordinance to add NFIP minimum construction standards to a local ordinance. This substitution is optional. All of the provisions in this Appendix also are found in Oregon Building Codes. This Appendix contains certain Sections pertaining to specific flood hazard zones. **There is no need to adopt code for flood hazard zones that are not within your jurisdictional boundaries.***

E. Building Design and Construction Standards

(1) In all areas of special flood hazards,

- (a) New construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure; [44 CFR 60.3(a)(3)(i)]
- (b) New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage; [44 CFR 60.3(a)(3)(ii)]
- (c) New construction and substantial improvements shall be constructed using methods and practices that minimize flood damage, and; [44 CFR 60.3(a)(3)(iii)]
- (d) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other 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. [44 CFR 60.3(a)(3)(iv)]

(2) Specific Building Design and Construction Standards for Non-coastal Residential Construction (A Zones)

In addition to Paragraphs (1) of this Section,

- (a) New construction and substantial improvement of residential structures located in non-coastal flood zones shall have the lowest floor, including basement, elevated a minimum of one foot above the Base Flood Elevation or three feet above highest adjacent grade where no BFE is defined, and; [44 CFR 60.3(c)(2)]
- (b) 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 be either 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, and;
 - (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters. [44 CFR 60.3(c)(5)]

Exception: Engineered openings

(3) Specific Building Design and Construction Standards for Non-coastal, Nonresidential Construction

In addition to Paragraph (1) of this Section, new construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated according to Table 2-1 the American Society of Civil Engineers, Flood Resistant Design and Construction Standard (ASCE 24); or, together with attendant utility and sanitary facilities, shall,

- (a) Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water; [44 CFR 60.3(c)(3)]
- (b) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; [44 CFR 60.3(c)(3)]
- (c) 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 Floodplain Administrator; [44 CFR 60.3(c)(3)]
- (d) Nonresidential structures that are elevated, not floodproofed, must meet residential standards described in Section E, subsection (2);
- (e) Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building floodproofed to the base flood level will be rated as one foot below.

(4) Specific Building Design and Construction Standards for Manufactured Dwellings

NFIP regulations allow “infill” manufactured dwellings in existing manufactured parks to be exempt from new development elevation requirements. The Oregon Building Code does not recognize this exemption, and therefore the Building Code is more restrictive and takes precedence. This section is optional because manufactured dwellings are covered by Building Codes.

In addition to Paragraphs (1) and (2) of this Section, manufactured dwellings are subject to the following standards,

- (a) If the manufactured dwelling is supported on solid foundation walls, the ground area reserved for the placement of a manufactured dwelling shall be a minimum of 12 inches above BFE unless the foundation walls are designed to automatically equalize hydrostatic forces 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 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, and;
 - (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters. [Manufactured Dwelling Specialty Code, Definitions and Section 4-3.1(5) and NFIP 60.3(c)(5)]
- (b) The bottom of the longitudinal chassis frame beam in A zones, and the bottom of the lowest horizontal structural member supporting the dwelling in V zones shall be a minimum of 12 inches above BFE [see definition of Lowest Floor in Manufactured Dwelling Specialty Code; Manufactured Dwelling Code points to the Oregon Residential Specialty Code, which states that the lowest floor shall be 1 foot above DFE]
- (c) The manufactured dwelling shall be anchored to prevent flotation collapse and lateral movement during the base flood. 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), and;
[44 CFR 60.3(c)(6)]

- (d) Electrical crossover connections shall be a minimum of 12 inches above BFE.
[Manufactured Dwelling Specialty Code 6-4.2(1)]

(6) Standards for Shallow Flooding Areas (AO Zones)

Shallow flooding areas appear on FIRMs as AO zones with depth designations. The base flood depths in these zones range from 1 to 3 feet above ground 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 often characterized as sheet flow. In these areas Paragraph (1) and the following provisions shall apply:

- (a) New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest grade adjacent to the building, a minimum of one foot above the depth number specified on the FIRM (at least three feet if no depth number is specified). [Building Code R324, 44 CFR Part 60.3(c)(7)]
- (b) 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, one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or [44 CFR Part 60.3(c)(7)]
 - (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, and; [44 CFR Part 60.3(c)(8)]
- (c) Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures. [44 CFR Part 60.3(c)(11)]

(9) Specific Building Design and Construction Standards for Coastal Areas of Special Flood Hazard (V Zones)

Located within areas of special flood hazard established in Section III.B 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 surges and, therefore, in addition to meeting Paragraphs (1) and (2) of this Section and all other provisions in this ordinance the following provisions shall also apply:

- (a) All residential and non-residential 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: [44 CFR Part 60.3(e)(4)]
- (i) The bottom of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) is elevated a minimum of one foot above the base flood level; and [44 CFR Part 60.3(e)(4)(i)]
 - (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 percent chance of being equaled or exceeded in and given year (100-year mean recurrence interval); [44 CFR Part 60.3(e)(4)(ii)]

- (b) 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 Paragraph (a) of this Section.
- (c) 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, VE, and V, and whether or not such structures contain a basement. The Floodplain Administrator shall maintain a permanent record of all such information. *[44 CFR Part 60.3(e)(2)]*
- (d) All new construction shall be located landward of the reach of mean high tide. *[44 CFR Part 60.3(e)(3)]*
- (e) 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 no 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:
 - (i) Breakaway wall collapse shall result from 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 percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval). *[44 CFR Part 60.3(e)(5)(i)]*
- (f) 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. *[44 CFR Part 60.3(e)(4)(ii)]*
- (g) Prohibit the use of fill for structural support of buildings. *[44 CFR Part 60.3(e)(6)]*
- (h) Prohibit man-made alteration of sand dunes which would increase potential flood damage. *[44 CFR Part 60.3(e)(7)]*
- (g) All manufactured homes to be placed or substantially improved within Zones V1-V30, V, and VE on the community's FIRM on sites shall meet the standards of paragraphs (a) through (h) of Section 9. *[44 CFR Part 60.3(e)(8)]*

Appendix B: Guidance Concerning Fencing and Walls in Areas of Special Flood Hazard

Fencing and walls located in the special flood hazard area require floodplain development permits, unless they are small enough to be considered *de minimis* development as defined by local ordinance.

Fence or Wall Type	Fencing and Walls Allowed?			
	Floodway Fringe (Riverine)	Floodway (Riverine)	Shallow/Sheetflow/Ponding Zones	Coastal Velocity Zones
A	Yes			
B	Yes	Yes, with limited cross channel fencing	Yes	Yes
C	Design Review Required ⁱ			
D	Yes, if open at base to BFE	No ⁱⁱ	Yes, if open at base to BFE	Yes, if installed parallel to shore, otherwise Design Review required.
E	Yes, if open at base to BFE	No ⁱⁱ	Yes, if open at base to BFE	Yes, if installed parallel to shore, otherwise Design Review required.
F	Yes, if adequate openings at base to BFE	No ⁱⁱ	Yes, if adequate openings at base to BFE	Design Review required ⁱⁱⁱ
G	Yes, if adequate openings at base to BFE	No ⁱⁱ	Yes, if adequate openings at base to BFE	Design Review required ⁱⁱⁱ
H	Yes, if adequate openings at base to BFE	No ⁱⁱ	Yes, if adequate openings at base to BFE	No

i Ensure fence will collapse under anticipated base flood conditions. Debris impacts must be considered.

ii Unless shown, using FEMA-approved engineering/modeling standards, to cause no-rise in BFE

iii Fences and walls in V zone must be analyzed for their effects on flood conditions, including ramping effects on adjacent buildings and effects of debris during flood events (TB 5)

Fence/Wall Types:

- A Open barb or barbless wire. Open means no more than one horizontal strand per foot of height
- B Open pipe or rail fencing (e.g. corrals). Open means rails occupy less than 10% of the fence area and posts are spaced no closer than 8 feet apart.
- C Collapsible fencing
- D Other wire, pipe, or rail fencing (e.g. field fence, chicken wire, etc.) which does not meet open requirements above.
- E Chain link fencing
- F Continuous wood fencing
- G Masonry walls
- H Retaining walls, bulkheads

ⁱ Ensure fence will collapse under anticipated base flood conditions, in no case more than 20 pounds per square foot. Debris impact must be considered.

ⁱⁱ Unless shown, using FEMA-approved engineering/modeling standards, to cause no-rise in BFE

iii Fences and walls in V zone must be analyzed for their effects on flood conditions, including ramping effects on adjacent buildings and effects of debris during flood events (TB 5)



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