

Chapter 20.64

FLOODPLAIN DEVELOPMENT REGULATIONS

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Part I. Administrative Provisions**20.64.010 Statutory Authorization.**

The legislature of the state of Washington has delegated the responsibility to local governmental units to adopt floodplain management regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the City Council of the City of Arlington does ordain as follows:

20.64.020 Findings of Fact.

- (a) The special flood hazard areas of the city encompass a very small area (two-tenths of one percent) of the developable lands within the corporate limits of the city. These areas are subject to periodic inundation of floodwaters due to storm surges and runoff, which may result in loss of life, property damage, public health and safety hazards, disruption of

commerce and governmental services, and other consequences which adversely affect the public health, safety, and general welfare.

- (b) The National Flood Insurance Program is adopted by the City of Arlington, which aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners and by encouraging communities to adopt and enforce floodplain management regulations. The efforts help mitigate the effects of flooding on new and improved structures.
- (c) On September 22, 2008, the National Marine Fisheries Service (NMFS) issued a Biological Opinion that required changes to the implementation of the National Flood Insurance Program in order to meet the requirements of the Endangered Species Act (ESA) in the Puget Sound Watershed. The City of Arlington enacted regulations that allow development that meets the criteria specified in the Biological Opinion as a "Door 2" Community.

20.64.030 Statement of Purpose.

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

- (1) To protect human life and health;
- (2) To manage development in a manner reducing impacts to floodplain processes;
- (3) To minimize expenditure of public money and costly flood control projects;
- (4) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (5) To minimize prolonged business interruptions;
- (6) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in areas of special flood hazard;
- (7) To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;
- (8) To ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- (9) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

20.64.040 Methods of Reducing Flood Losses.

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

- (1) Regulating development in Special Flood Hazard Areas (SFHA);
- (2) Requiring that all development and land use activity be protected against flood damage at the time of initial construction;
- (3) Regulating filling, grading, dredging, and other development which may have an adverse impact on flood waters; and
- (4) Preventing or regulating the construction of flood barriers that will unnaturally divert floodwaters or may increase flood hazards in other areas.

20.64.050 Definitions.

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

"Accessory Structure" means a minor building that is located on the same lot as a principal building and that is used incidentally to a principal building or that houses an accessory use.

"Alteration of Watercourse" means any action that will change the location of the channel occupied by water within the banks of any portion of a riverine waterbody.

"Appeal" means a request for a review of the interpretation of any provision of this ordinance or a request for a variance.

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

"Area of Special Flood Hazard" means the land in the floodplain within a community subject to a one-percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

"Base flood" means the flood having a one percent chance of being equaled or exceeded in any given year (also referred to as the "one-hundred-year flood").

"Base Flood Elevation" (BFE) means the elevation to which floodwater is anticipated to rise during the base flood.

"Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

"Building": See *"Structure"*.

"Channel Migration Zone" means the lateral extent of likely movement along a stream reach during the next one hundred years with evidence of active stream channel movement over the past one hundred years.

"Critical Facility" means a facility for which even a slight chance of flooding might be too great. Critical facilities include, but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations, installations that produce, use or store hazardous materials or hazardous waste.

"Development" means any manmade 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, subdivision of land, removal of more than 5% of the native vegetation on the property, or alteration of natural site characteristics

"Elevated Building" means for insurance purposes, a non-basement building that has its lowest elevated floor raised above ground level by foundation walls, shear walls, post, piers, pilings, or columns.

"Existing Manufactured Home Park or Subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

"Expansion To an Existing Manufactured Home Park or Subdivision" means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

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

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

- (3) Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in (2) in this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current;

The collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flash flood or an abnormal tidal surge, or by some similarly unusually and unforeseeable event which results in flooding as defined in (1) of this definition.

"Flood insurance rate map (FIRM)" means the official map on which the Federal Insurance Administrator has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

"Flood insurance study" means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of mudslide (i.e., mudflow) and/or flood-related erosion hazards. Also known as the Flood Elevation Study

"Flood proofing" means any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate risk of flood damage to real estate or improved real property, water and sanitary facilities, structures, and their contents. Dry flood proofed structures are those that have the structural integrity and design to be impervious to floodwater below the Base Flood Elevation.

"Floodplain or flood prone area" means any land area susceptible to being inundated by water from any source. See "Flood or flooding."

"Floodplain administrator" means the director of community development, who is hereby deemed to be the city's floodplain administrator to administer and enforce the floodplain management regulations.

"Floodplain management" means the operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works, and floodplain management regulations.

"Floodplain management regulations" means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as floodplain ordinance, grading ordinance and erosion control ordinance) and other application of police power. The term describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

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

"Functionally dependent use" means a use which cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long term storage or related manufacturing facilities.

"Highest adjacent grade" means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

"Historic structure" means any structure that is:

- (1) Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the

- Secretary of the Interior as meeting the requirements for individual listing on the National Register;
- (2) Certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district;
 - (3) Individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of Interior; or
 - (4) Individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either:
 - (a) By an approved state program as determined by the Secretary of the Interior, or
 - (b) Directly by the Secretary of the Interior in states without approved programs.

“Impervious Surface”: a hard surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater.

“Lowest Floor” means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building’s lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements found in [§20.64.170\(2\)](#).

“Manufactured Home” means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

“Manufactured Home Park or Subdivision” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“New Construction” means, for the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial Flood Insurance Rate Map or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of a floodplain management regulation adopted by a community and includes any subsequent improvements to such structures.

“New Manufactured Home Park or Subdivision” means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations.

“Protected Area” means the greater of the floodway, the channel migration zone plus 50 feet, and the riparian habitat zone within the FEMA mapped special flood hazard area.

means the greater of the floodway, the channel migration zone, and the riparian habitat zone within the FEMA mapped special flood hazard area.

“Recreational Vehicle” means a vehicle that is:

- (1) Built on a single chassis;

- (2) 400 square feet or less when measured at the largest horizontal projection;
- (3) Designed to be self-propelled or permanently towable by a light duty truck; and
- (4) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

“*Riparian habitat zone*” means an area identified on the approved map that provides the necessary protection perpendicularly from:

- (1) The ordinary high-water mark,
- (2) The channel migration zone,
- (3) The mapped floodway.

“*Start Of Construction*” includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty 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 that alteration affects the external dimensions of the building.

“*Structure*” means a walled and roofed building including a gas or liquid storage tank that is principally above ground, as well as a manufactured home.

“*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 the market value of the structure before the damage occurred.

“*Substantial improvement*” means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty 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 term does not, however, include either:

- (1) Any project for improvement of a structure to correct identified 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
- (2) Any alteration of a “historic structure,” provided that the alteration would not preclude the structure's continued designation as a “historic structure.”

“*Variance*” means a grant of relief from the requirements of this ordinance that permits construction in a manner that would otherwise be prohibited by this ordinance.

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

“*Water Dependent*” means a structure for commerce or industry that cannot exist in any other location and is dependent on the water because of the intrinsic nature of its operations.

20.64.060 Basis for Establishing the Areas of Special Flood Hazard.

- (a) The areas of special flood hazard identified by the Federal Insurance Administrator in a scientific and engineering report entitled "The Flood Insurance Study for Snohomish County and Incorporated Areas" (in which the city is incorporated) dated June 19, 2020, or as amended, with an accompanying flood insurance rate map (FIRM), as amended, are hereby adopted by reference and declared to be a part of this section. The flood insurance study and the FIRM are on file at Arlington City Hall, 238 North Olympic, Arlington, Washington. The best available information for flood hazard area identification as outlined in subsection (b) shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under subsection (b).
- (b) When base flood elevation data has not been provided (A zones) in accordance with subsection (a), the floodplain administrator shall use any base flood elevation and floodway data available from a federal, state or other source, in order to comply with Section 20.64.160 (General Standards), Section 20.64.170 (Specific standards for zones A and AE) and Section 20.64.180 (Specific standards for designated regulatory floodways).
- (c) If such data are not already available, the administrator may rely on a licensed surveyor to provide such information as necessary to reasonably ascertain said zones.

20.64.070 Abrogation and Greater Restrictions

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

20.64.080 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.

20.64.090 Warning and Disclaimer of Liability

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

Part I. Administrative Provisions**20.64.100 Supplementary Information Required with a Permit Application.**

In addition to the standard information required on a permit application, the following information is also required for any permits proposing development within a floodway or floodplain, watercourse alteration or relocation:

- (1) Proposed Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- (2) Proposed Elevation in relation to mean sea level to which any structure has been floodproofed;
- (3) Proposed Elevation certification by a registered professional engineer or architect.
- (4) Notify adjacent communities and the department of ecology prior to any alteration or relocation of a watercourse and submit evidence of such notification to the Federal Insurance Administrator through appropriate notification means.
- (5) Assure that the flood-carrying capacity of the altered or relocated portion of said watercourse is maintained.

20.64.110 Location of Boundaries of Floodplain and Floodway Districts.

- (a) As used in this chapter, the terms floodplain and floodway refer in the first instance to certain areas whose boundaries are determined and can be located on the ground by reference to the specific fluvial characteristics set forth in the definitions of these terms. These terms also refer to overlay zoning districts whose boundaries correspond to the actual physical location of floodways and floodplains as shown on FEMA's flood insurance rate map (FIRM) and should be shown on the map identified in the City's adopted Shoreline Master Plan. (These overlay districts thus differ from other zoning districts whose boundaries are established solely according to planning or policy, rather than physical, criteria.) Therefore, the administrator is authorized to make necessary interpretations as to the exact location of the boundaries of floodways or floodplains if there appears to be a conflict between a mapped boundary and actual field conditions. Such interpretations, like other decisions of the administrator, may be appealed pursuant to Section 20.20.010 (Appeals).
- (b) As used in this chapter the term riparian habitat zone (RHZ) is identified on the approved RHZ map. The RHZ is an overlay zone that encompasses lands as defined above on either side of all streams, and for all other watercourse including off channel areas within the special flood hazard areas. The RHZ is a no new disturbance zone, other than for activities that will not adversely affect the existing habitat function. Any property or portion thereof that lies within the RHZ is subject to the restrictions of the RHZ, as well as any zoning restriction that apply to the parcel in the underlying zoning. Unless shown otherwise the RHZ on a channel migration zone is fifty feet.
- (c) When updating the maps the city must consider future conditions and the cumulative effect from the future land-use changes.
- (d) When updating the maps the city must consider identifying and evaluating the risk of flooding behind one hundred-year levees within the city jurisdiction based on future conditions and cumulative effects.

20.64.120 Setbacks from Streams RHZ within the Floodplain.

Type	Buffer
S	250 feet
F - > 5 feet wide and marine shorelines	150 feet
F - < 5 feet wide and lakes	150 feet
N – perennial and seasonal streams	150 – 225 feet ²

¹ Channel Migration Zone (CMZ) plus fifty feet.

² Depending on slope stability.

- (1) Communities must use the most restrictive data available for the CMZ, floodway, future conditions, and RHZ's.

20.64.125 Flood Hazard Permit Required

(A) General Requirements

- (1) No land within the areas of special flood hazard shall hereafter be subdivided or short subdivided, improved, filled, graded or cleared; nor shall any structure, including manufactured homes, be constructed, reconstructed, substantially improved, relocated, or erected on such lands unless the person(s) responsible for such improvements shall first obtain a Flood Hazard Permit for such action in accord with the provisions of Arlington Municipal Code Chapters 20.64.
- (2) The areas of flood hazard include those identified on the latest version of the Federal Insurance Administrator's, Flood Insurance Rate Maps (FIRM), or subsequent floodplain information prepared by the City to show updated flood hazard information, or on site-specific studies if required for development application purposes. Publicly available flood hazard information is available from the Permit Center and Public Works Engineering.
- (3) A Habitat Assessment Report is required as part of project permitting to help project proponents and government agencies identify and address potential impacts of a proposed development on protected areas that have potential to adversely affect habitat functions for species listed under the Endangered Species Act (ESA). For the purposes of this assessment, "ESA listed species" include any species listed as endangered, threatened, or being considered for listing, and have been documented to be present in streams near and adjacent to the project site. Refer to FEMA Floodplain Habitat Assessment and Mitigation Regional Guidance for the Puget Sound Basin.

(B) Required Analysis Methods

- (1) When analysis is required. Projects that displace floodwaters require an engineer's certification that compensatory storage and no reduction in floodway conveyance will result. Examples of projects exempt from the compensatory storage and conveyance certification analysis requirement include, but are not limited to:
 - (i) Projects in the floodplain that do not involve any activity below the base flood elevation, such as a second story addition (an elevation certificate may still be required, however).
 - (ii) Activities that do not involve recontouring of ground or new fill, such as an on-grade driveway. New or improved structures in the flood fringe (i.e., away from

- flowing flood water), where no fill is proposed and adequate foundation openings are provided.
- (iii) New or improved structures constructed on flow-through foundations or pilings where no fill is proposed. The City will verify that the exemption is valid before a permit is issued.
- (2) **Compensatory Storage Required.** Development proposals shall not reduce the effective base Page 2 of 3 REV 10/2017 flood storage volume of the floodplain. Grading or other activity which would reduce the effective storage volume must be mitigated by creating compensatory storage either on-site or approved adjacent off-site location. The compensatory storage must be hydraulically connected to the source of floodwaters and excavated at an elevation at or below the elevation of the filled storage that is being compensated.
 - (3) **No Reduction in Floodplain Conveyance.** Development proposals shall not reduce the hydraulic capability of the floodplain on-site to convey floodwaters through the property during the base flood event. No rise in base flood elevations is allowed on adjacent properties. Providing this compensatory conveyance capacity can be done in conjunction with the compensatory storage, either on-site or off-site.
 - (4) **Floodplain Hydraulic Study.** Compliance with the compensatory storage, compensatory conveyance requirements, and other requirements of the Arlington Municipal Code Chapter 20.64 shall be documented in a floodplain hydraulic study prepared by a licensed civil engineer registered in the state of Washington. The following methods shall be used to assess impacts and required mitigation:
 - (a) Base flood information, including flood magnitudes, shall be consistent with the latest Flood Insurance Study, or with subsequent reports and data furnished to the applicant by the City. The applicant should verify these assumptions, and whether hydraulic models that represent the current base flood mapping are available, with the City.
 - (b) The floodplain hydraulic study shall include site topographic mapping, plans and specifications for proposed grading and structures, surveyed cross-section data and graphs, flood profiles, model input and output data, and any other information necessary to document modeling assumptions, conditions and conclusions. If requested, floodplain study submittals shall be accompanied by electronic copies of floodplain models and topographic maps.
 - (c) Acceptable modeling methodologies for calculating floodplain conveyance impacts and mitigation are described in Table 1. Alternative methods may be approved by the City.

Table 1: Acceptable Modeling Methodologies

Activity	Modeling Methodology
(1) No Impact: All activities not causing obstruction to floodwaters or fill, such as vegetation removal or planting, building improvements that do not increase footprint, maintenance to restore an original permitted condition, etc.	No modeling required.
(2) Minor grading or structures: Under 10 feet of obstruction width or less than 2 feet of fill, not to exceed 100 square feet of total obstruction under base flood.	Hand-computed conveyance (k) calculation assuming no change in water surface elevation and using appropriate Manning’s “n” value.
(3) Major grading or structure: Activities that do not meet the definitions of (1) or (2).	Step-backwater computer model such as HEC 2 or HEC – RAS.

(C) Document and Plans Submittal

The following documents and plans shall be provided by the applicant at the time the permit application is filed with the City:

- (1) A complete legal description of the property; parcel number, lot number(s) and name of platted subdivision; or the tax lot number assigned by the County Assessor's Office, Page 3 of 3 REV 10/2017 together with the Section, Township and Range Number.
- (2) A topographic survey of the property prepared by a licensed surveyor, with sufficient scale (1"=20') and contour interval (2') to adequately assess variations in the ground surface, and based on the City of Arlington datum (NAVD88).
- (3) Compensatory Storage and Floodplain Conveyance Design. The grading plan shall identify description, location and volume of compensatory storage provided, and features of floodplain conveyance facilities. Calculations and analysis methods shall be documented, as required in Section B (above), in the floodplain hydraulic study prepared by a licensed civil engineer registered in the state of Washington
- (4) A design of site stormwater drainage in compliance with Chapter 13.28 AMC (if required).
- (5) Habitat Assessment.
- (6) Two sets of plans, profiles, sections or sketches, drawn clearly and legibly, showing pertinent distances, dimensions, contours, elevations and details.
- (7) Permit application.

(D) Elevation Certificate

- (1) A preliminary elevation certificate shall be completed and submitted to the City at the time of first floor construction.
- (2) A final elevation certificate shall be submitted at completion of construction.
- (3) Elevation certificates shall be completed by or under the supervision of a Washington State Registered Professional Surveyor. Per state law, a licensed engineer cannot sign an elevation certificate.
- (4) The City shall approve preliminary and final elevation certificates. No acceptance or occupancy shall be granted prior to submittal of the as-built elevation certification.

(E) Other Permits

The City's approval of this application and permit does not grant approval for drainage work, grading or crossings that may affect streams or wetlands. Contact the City for more information on other permits that may be required for the project.

(F) Review and Approval

An application, when completed on the forms provided by the City, together with required materials described above, will be reviewed by the Designated Official, and, when appropriate and necessary, by other public agency officials, engineers, and persons. Their recommendations will be forwarded to the designated official who will examine, approve or reject drawings, plans, sketches or floodplain analyses for any proposed improvement. The approved application, and approved plans will represent the permit.

20.64.130 Artificial Obstructions Within Floodways Prohibited.

- (a) No artificial obstruction may be located within any floodway, except as provided in [§20.64.140 \(Permissible Uses Within Floodways\)](#).
- (b) For purposes of this section, an artificial obstruction is any obstruction, other than a natural obstruction, that is capable of reducing the flood carrying capacity of a stream or may accumulate debris and thereby reduce the flood-carrying capacity of a stream. A natural

obstruction includes any rock, tree, gravel, or analogous natural matter that is an obstruction and has been located within the floodway by a non-human cause.

20.64.140 Permissible Uses Within Floodways.

Notwithstanding Chapter 20.40 (Permissible Uses), no permit to make use of land within a floodway may be issued unless, the applicant can demonstrate a No Rise Certification per methods as outlined in 20.64.180 for the proposed use when listed as permissible in the Table of Permissible Uses, Chapter 20.93 (Critical Areas Ordinance), and in the following list:

- (1) General habitat restoration, farming, pasture, outdoor plant nurseries, horticulture, forestry, wildlife sanctuary, game farm, and other similar agricultural, wildlife, and related uses.
- (2) Ground-level loading areas, parking areas, boat launch, rotary aircraft ports, and other similar ground-level area uses.
- (3) Lawns, gardens, play areas, and other similar uses.
- (4) Golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, parks, hiking or horseback-riding trails, open space, and other similar private and public recreational uses.

20.64.150 Construction Within Floodplains Restricted.

(A) General development standards to be followed in floodplains (aka special flood hazard area) include:

- (1) If a lot has a buildable site out of the floodplain, all new structures shall be located there, when feasible. If the lot is fully in the floodplain, structures must be located to have the least impact on salmon.
 - (a) All structures must be set back at least fifteen feet from the protected area and sited as close to the SFHA boundary as possible.
- (2) Stormwater and drainage features shall incorporate low impact development techniques that mimic pre-development hydrologic conditions, when technically feasible.
- (3) Creation of new impervious surfaces shall not exceed ten percent of the surface area of the portion of the lot in the floodplain unless mitigation is provided.
- (4) Uses that are not permitted in the protected area unless shown not to adversely affect water quality, habitat, and large woody debris include; septic tanks and drain fields, dumping of any materials, hazardous or sanitary waste landfills: receiving area for toxic or hazardous waste or other contaminants.
- (5)
 - (a) The proposed action must be designed and located so that new structural flood protection is not needed.
 - (b) All bank stabilization measures requiring armoring of the streambank or shoreline shall utilize bioengineering per the integrated streambank protection guidelines 2003 (for riverine shorelines) or the state shorelines guidelines on bank stabilization 2003 (for estuarine and marine shorelines).
- (6) In an SFHA outside the protected area, zoning is required to maintain a low density of flood plain development. Concepts of cluster development, density transfer, credits and bonuses, planned unit development, and transfer of development rights shall be employed wherever possible.

(B) Any development occurring in the floodplain will require the issuance of a "flood hazard permit". A development permit shall be obtained before construction or development begins within any area of special flood hazard area. The permit shall be for all structures including manufactured homes, and for all development including fill and other activities as set forth in this chapter.

- (1) No land use or building permit may be issued for any development within a floodplain until the permit-issuing authority has reviewed the plans for any such development to assure that:
 - (a) The proposed development is consistent with the need to minimize flood damage, and
 - (b) All public utilities and facilities such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage, and
 - (c) Adequate drainage is provided to minimize or reduce exposure to flood hazards, and
 - (d) All necessary permits have been received from those agencies from which approval is required by federal or state law, and
 - (e) The application for a permit to develop in the affected area must include the elevations of the ten-, fifty-, and one hundred-year floods, where such data are available, and
 - (f) The applicant must record a notice on the title that the property contains land within the RHZ and/or one-hundred-year floodplain before a permit may be issued, and
 - (g) Any improvements or repairs to existing structures that result in a greater than ten percent increase of the structure footprint must mitigate for any adverse effects, and
 - (h) Removal of native vegetation must leave sixty-five percent of the surface area of the portion of the property in the floodplain in an undeveloped state, and
 - (i) Development in the protected area (floodway, RHZ, and CMZ plus fifty feet) is prohibited unless it is demonstrated that any proposed development in the area does not adversely affect water quality, water quantity, flood volumes, flood velocities, spawning substrate, and/or floodplain refugia for listed salmonids. No mitigation is allowed within the protected area. However, project design elements to avoid any adverse effects may be allowed.
- (2) Any development outside the protected area must mitigate for adverse effects, both direct and indirect on functions such that equivalent or better salmon habitat protection is provided for:
 - (a) Stormwater. Reduce flood volumes and stormwater runoff from new development by ensuring that increased flood volumes of stormwater reach the river at the same frequency, timing and duration as historic runoff. Low impact development is required to be incorporated as described in Section 20.64.140(b)(2).
 - (b) Riparian vegetation: maintain or replace riparian function by providing equivalent area, diversity, and function of riparian vegetation as currently exists on the site. Riparian retention requirements are outlined in subsection (I)(H).
 - (c) Hyporheic Zones. No activity is allowed that interferes with the natural exchange of flow between surface water, groundwater, and hyporheic zone, however, natural hyporheic exchange may be enhanced or restored.
 - (d) Wetlands. Wetland function must be maintained or replaced by providing equivalent function.
 - (e) Large Woody Debris. Any large woody debris {LWD} removed from the floodplain must be replaced in kind, replicating or improving the quantity, size, and species of the existing LWD.
- (3) No building may be constructed and no substantial improvement of an existing building may take place within any floodway. This includes a prohibition on installing new mobile homes in an existing mobile home park located in a floodway, even if the park is nonconforming.
- (4) Where elevation data is not available either through the flood insurance study, FIRM, or from another authoritative source the applicant shall obtain, review, and reasonably utilize

any base flood elevation and floodway data available from a federal, state or other source (Subsection 20.64.060(b) Basis for establishing the areas of special flood hazard), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding.

- (5) No new residential building may be constructed and no substantial improvement of a residential building may take place within any floodplain unless the lowest floor (including basement) of the building or improvement is elevated one foot or more above the base flood level.
 - (a) Accessory structures, shall be allowed within floodplains provided they are firmly anchored to prevent flotation, elevated one foot or more above the Base Flood Elevation, or, if used solely for parking or storage, meet the requirements under 20/64/17011) (6) (i.e., vented).
 - (b) Anchoring of any accessory structures may be done by bolting the building to a concrete slab or by over-the-top-ties. When bolting to a concrete slab, one-half inch bolts six feet on center with a minimum of two per side shall be required. If over-the-top-ties are used, a minimum of two ties with a force adequate to secure the building is required.
- (6) No new nonresidential building may be constructed and no substantial improvements of a nonresidential building may take place within any floodplain unless the lowest floor (including basement) of the building or improvement is elevated or floodproofed one foot or more above base flood elevation (BFE).
- (7) For purposes of this section, "substantial improvement" means any building constructed on or after the effective date of a floodplain management regulation, including any, reconstruction, rehabilitation, addition, or other improvement of a building, the cost of which equals or exceeds fifty 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.

"Substantial improvement" occurs when the first alteration on any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the building. The term does not, however, include either: Any 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

- (a) Any alteration of a "historic structure", provided that the alteration will not preclude the structure's continued designation as a "historic structure".
- (8) No land use or building permit may be issued for any development within a floodplain until the permit-issuing authority has reviewed the plans to assure that any new construction or substantial improvements shall be:
 - (a) Required that all new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
- (9) Notwithstanding any other provision of this title, no mobile home may be located or relocated within that portion of the floodplain outside of the floodway, unless the following criteria are met:
 - (a) All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement resulting from hydrodynamic, hydrostatic loads, including the effects of buoyancy, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use

- of over-the-top or frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).
- (b) Lots or pads are elevated on compacted fill or by any other method approved by the administrator so that the lowest habitable floor of the mobile home is at or above the base flood level.
 - (c) Adequate surface drainage and easy access for mobile home hauler is provided.
 - (d) Load-bearing foundation supports such as piers or pilings must be engineered.
- (10) Whenever any portion of a floodplain is filled in with fill dirt, slopes shall be adequately stabilized to withstand the erosive force of the base flood. All activity within the floodplain will require the issuance of a Flood Hazard Permit by the City.

20.64.160 General Standards.

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

- (1) Anchoring.
 - (A) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 - (B) All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (reference FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).
- (2) A, AE Zone Drainage. Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.
- (3) Construction Materials and Methods.
 - (A) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
 - (B) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
 - (C) 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.

20.64.170 Specific Standards for Zones AE and A.

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Section 20.64.060 (Basis for establishing the areas of special flood hazard and Use of Other Base Flood Data), the following provisions are required:

- (1) Residential Construction.
 - (A) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation.
 - (B) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or, if used solely for parking, access or storage, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a

registered professional engineer or architect or must meet or exceed the following minimum criteria:

- (i) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
 - (ii) The bottom of all openings shall be no higher than one foot above grade.
 - (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
- (2) Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:
- (A) Be floodproofed so that below one foot or more above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;
 - (B) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
 - (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 or building official.
 - (D) 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).
- (3) Manufactured Homes.
- (A) All manufactured homes to be placed or substantially improved on sites:
 - (i) Outside of a manufactured home park or subdivision,
 - (ii) In a new manufactured home park or subdivision,
 - (iii) In an expansion to an existing manufactured home park or subdivision, or
 - (iv) In an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood;
 - (v) Shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated one foot or more above the base flood elevation and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.
 - (B) Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions be elevated so that either:
 - (i) The lowest floor of the manufactured home is elevated one foot or more above the base flood elevation, or
 - (ii) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six inches in height above grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.
- (4) Recreational Vehicles. Recreational vehicles placed on sites are required to either:
- (A) Be on the site for fewer than one hundred eighty consecutive days,

- (B) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
- (C) Meet the requirements of subsection (c)(3), and the elevation and anchoring requirements for manufactured homes.

20.64.180 Specific Standards for Designated Regulatory Floodways.

Located within areas of special flood hazard established in Section [20.64.060 \(Basis for Establishing the Areas of Special Flood Hazard\)](#) are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters that carry debris, potential projectiles, and erosion potential, the following provisions apply:

- (1) Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels during the occurrence of the base flood discharge.
- (2) Construction or reconstruction of residential structures is prohibited within designated floodways, except for (i) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and (ii) repairs, reconstruction or improvements to a structure, the cost of which does not exceed fifty percent of the market value of the structure either, (A) before the repair, or reconstruction is started, or (B) if the structure has been damaged, and is being restored, before the damage occurred. Any 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 to structures identified as historic places shall not be included in the fifty percent.
- (3) If Subsection (1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Section 20.64.180 through Section 20.64.240.

20.64.200 AE with Base Flood Elevations but No Floodways.

In areas with base flood elevations (but where regulatory floodway has not been designated), no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones AE on the community's FIRM, 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.

20.64.210 Special Provisions for All Development Proposals, including Subdivisions and Manufactured Home Parks.

Shall:

- (a) Be consistent with the need to minimize flood damage.
- (b) Have public utilities and facilities, such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage.
- (c) Have adequate drainage provided to reduce exposure to flood damage.
- (d) Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for all development proposals, including subdivisions and manufactured home parks, greater than fifty lots or five acres (whichever is the lesser).

- (e) All subdivisions are subject to use and construction restrictions contained in Section 20.64.130 (Artificial obstructions within floodways prohibited), Section 20.64.140 (Permissible uses within floodways), Section 20.64.150 (Construction within floodplains restricted), Section 20.64.180 (Specific standards for designated regulatory floodways) and Section 20.64.220 (Utility systems in floodways and floodplains) if any portion of the land to be subdivided lies within a floodway or floodplain.
- (f) Final plat approval for any subdivision containing land that lies within a floodway ^{eF} may not be given unless the plat shows the boundary of the floodway or floodplain and contains in clearly discernible print the following statement:
"Use of land within a floodway or floodplain is substantially restricted by Title 20, Chapter 20.64 of the Arlington Municipal Code."
- (g) Subject to the following sentence, a conditional use permit or final plat approval for any subdivision may not be given if:
 - (1) The land to be subdivided lies within a zone where residential uses are permissible and it reasonably appears that the subdivision is designed to create residential building lots, and
 - (2) Any portion of one or more of the proposed lots lies within a floodway or floodplain, and
 - (3) It reasonably appears that one or more lots described in Subsections (g)(1) and (2) could not practicably be used as a residential building site because of the restrictions set forth in Section 20.64.150 (Construction within floodplains restricted), Section 20.64.160 (General standards), and Section 20.64.170 (Specific standards for zones AE and A).

20.64.220 Utility Systems in Floodways and Floodplains.

Whenever any portion of a proposed development is located within a floodway or floodplain, the agency or agencies responsible for certifying to the city the adequacy of the utility systems for the development (as set forth in [Chapter 20.60](#)) shall be informed by the developer that a specified area within the development lies within a floodway or floodplain. Thereafter, said agency shall certify, prior to approval of the proposed system, that:

- (1) All new and replacement water supply systems are designed to minimize or eliminate infiltration of flood waters into the systems;
- (2) Any proposed water wells are located on high ground that is not in the floodway (WAC 173-160-171);
- (3) New and replacement sanitary sewage systems are designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters; and,
- (4) On-site waste disposal systems are located to avoid impairment to them or contamination from them during flooding; and
- (5) All new utilities would be located so as to prevent water from entering or accumulating within the components during conditions of flooding.

20.64.230 Critical Facility.

Construction of new critical facilities shall be, to the extent possible, located outside the limits of the Special Flood Hazard Area (SFHA) (one-hundred-year floodplain). Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet or to the height of the five-hundred-year flood, whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Flood-proofing and sealing measures must be taken to ensure that toxic substances 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.

20.64.240 Additional Duties of Administrator Related to Flood Insurance and Flood Control.

The administrator shall:

- (1) For the purpose of the determination of applicable flood insurance risk premium rates within zone A on the City's flood insurance rate map provided by the U.S. Federal Emergency Management Agency:
 - (A) Obtain and maintain a record of the elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures and whether or not such structures contain a basement; and
 - (B) Obtain and maintain, a record of the elevation (in relation to mean sea level) to which the structure was floodproofed; and
 - (C) Maintain the floodproofing certifications found in other sections of this chapter; and
 - (D) The city will track projects which have been issued floodplain development permits, including effects to flood storage and fish habitat and mitigation provided.
 - (E) Maintain a record of all such information for public inspection.
- (2) Notify, in riverine situations, adjacent communities, the U.S. Army Corps of Engineers, the Washington State Department of Fish and Wildlife, and any effected diking or drainage districts prior to any alteration or relocation of a watercourse and submit copies of such notification to the Federal Insurance Administrator.
- (3) Ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained and within the same sub-basin so carrying capacity is not diminished.
- (4) Maintain the records of all appeal actions and report any variances, including the justification for their issuance, to the Federal Insurance Administrator upon request.
- (5) Notification to Other Entities
 - (A) Base Flood Elevations may increase or decrease resulting from physical changes affecting flooding conditions. As soon as practicable, but not later than six months after the date such information becomes available, the Floodplain Administrator shall notify the Federal Insurance Administrator of the changes by submitting technical or scientific data in accordance with Volume 44 Code of Federal Regulations Section 65.3. Such a submission is necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements will be based upon current data.
 - (B) Notify the Federal Insurance Administrator in writing of acquisition by means of annexation, incorporation or otherwise, of additional areas of jurisdiction.

20.64.250 Variances from Requirements.

- (a) 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 (1)-(11) in subsection (i), have been fully considered. As the lot size increases, the technical justification required for issuing the variance increases.

- (b) Variances may be issued for the reconstruction, rehabilitation, or restoration of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
- (c) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
- (d) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (e) Variances shall only be issued upon:
 - (1) A showing of good and sufficient cause;
 - (2) The submittal, review and approval of a biological assessment;
 - (3) A determination that failure to grant the variance would result in exceptional hardship to the applicant;
 - (4) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
- (f) Variances as interpreted in the national flood insurance program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.
- (g) Variances may be issued for nonresidential buildings in very limited circumstances to allow a lesser degree of floodproofing than watertight or dry-floodproofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria except subsection (i)(1), and otherwise complies with Subsection 20.64.160(a) General standards), Subsection 20.64.170 (2)(c), and Section 20.64.220 (Utility systems in floodways and floodplains).
- (h) Any applicant to whom a variance is granted shall be given written notice over the signature of a community official that the structure permitted to be built with a lowest floor elevation below the base flood elevation will result in increased premium rates commensurate with the increased risk resulting from the reduced lowest floor elevation, and such construction below the base flood elevation increases risks to life and property.
- (i) In granting a variance, in addition to the findings of Section 20.20.030 (Variances), the decision-maker shall consider and make findings concerning all technical evaluations, all relevant factors, standards specified in other sections of this chapter, and (including the degree to which the applicant proposes to mitigated impacts to the following:
 - (1) The danger that materials may be swept onto other lands to the injury of others;
 - (2) The danger to life and property due to flooding or erosion damage;
 - (3) The impact to ESA listed species and critical habitat;
 - (4) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
 - (5) The importance of the services provided by the proposed facility to the community;
 - (6) The necessity to the facility of a waterfront location, where applicable;
 - (7) The availability of alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - (8) The compatibility of the proposed use with existing and anticipated development;
 - (9) The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;

- (10) The safety of access to the property in times of flood for ordinary and emergency vehicles;
 - (11) The expected heights, velocity, duration, rate of rise, debris and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
 - (12) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.
- (j) Upon consideration of the factors of subsection (b) and the purposes of this chapter, the decision-maker may attach such conditions to the granting of a waiver, as it deems necessary to further the purposes of this chapter.