CHAPTER 21-16. FLOODPLAIN OVERLAY ZONE

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Sec. 21-16-3. Adoption of Maps and Studies.

The City hereby automatically adopts the following:

(1) The effective FIRM, as updated and amended by FEMA;

(2) The effective scientific and engineering report entitled "Flood Insurance Study, Salt Lake County, Utah, Unincorporated Areas," (FIS) as updated and amended by FEMA; and

(3) The effective Flood Boundary-Floodway Maps, as updated and amended by FEMA; and

(4) The effective flood hazard boundary map (FHBM).

(Ord. No. 21-08 , § 1(Exh. A), 3-23-2021)

Sec. 21-16-4. Definitions.

The general definitions for Title 21 — Land Development Code are found in Chapter 21-37. The definitions that follow apply to this chapter, Chapter 21-16 — Floodplain Overlay Zone, only.

(1) *Addition* is any improvement that expands the enclosed footprint or increases the square footage of an existing structure. This includes lateral additions added to the side, front, or rear of a structure; vertical additions added on top of a structure; and enclosures added underneath a structure.

(2) *Base flood elevation (BFE)* is the water surface elevation of the 1-percent-annual-chance flood event. It is the height in relation to mean sea level expected to be reached by the waters of the base flood at pertinent points in the floodplains of coastal and riverine areas. It is also the elevation shown on the FIRM and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, AH, A1-A30, AR, V1-V30, or VE on the City's FIRM that indicates the water surface elevation resulting from the flood that has a 1-percent chance of equaling or exceeding that level in any given year.

(3) *Best available data* is existing flood hazard information adopted by the City and reflected on an effective FIRM, FBFM, and/or within an FIS report; or draft or preliminary flood hazard information supplied by FEMA or from another source. Other sources may include, but are not limited to, state, other federal agencies, or local studies, the more restrictive of which would be reasonably used by the City.

(4) *Code of Federal Regulations (CFR)* is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government.

(5) *Conditional letter of map revision (CLOMR)* is FEMA's comment on a proposed project that would, upon construction, affect the hydrologic and/or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFEs, and/or the SFHA. The letter does not revise an effective map; it indicates whether the project, if built as proposed, would be recognized by FEMA.

(6) *Crawlspace* means an under-floor space that has its interior floor area (finished or not) no more than four feet from the bottom floor joist the next higher floor elevation, designed with proper openings that equalize hydrostatic pressures of flood water, and is not used for habitation.

(7) *Enclosure* refers to an enclosed walled-in area below the lowest floor of an elevated building. Enclosures below the BFE may only be used for building access, vehicle parking, and storage.

(8) *Erosion* means the process of the gradual wearing away of land masses by wind, water, or other natural agents.

(9) *Existing construction* refers to structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. It may also be referred to as Existing Structures.

10) *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 floodplain management regulations adopted by Sandy City.

(~~10~~11) *FEMA* means the Federal Emergency Management Agency.

(~~11~~12) *Flood or flooding* means:

a. 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 or runoff of surface waters from any source.

b. Mudslides (i.e., mudflows) that are proximately caused by flooding as defined in this chapter 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.

c. 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 unusual and unforeseeable event which results in flooding as defined in this chapter.

(~~12~~13) *Flood hazard boundary map (FHBM)* is an official map of a community issued by FEMA, where the boundaries of the flood, mudflow and related erosion areas having special hazards have been designated.

(~~13~~14) *Floodplain Development Permit* is a City-issued permit or document that is used for any development, new construction, substantial improvements, repair of substantial damage, placement of mobile home or recreational vehicle, or permanent storage of materials or equipment that occurs within a SFHA identified by FEMA or the City.

(~~14~~15) *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, mitigation plans, and floodplain management regulations.

(~~15~~16) *Floodproofing* means any combination of structural and non-structural additions, changes, or adjustments to structures that reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents. Floodproofing can either be accomplished in the form of dry floodproofing in which the structure is watertight below the levels that need flood protection, or wet floodproofing in permanent or contingent measures applied to a structure that prevent or provide resistance to damage from flooding, while allowing floodwaters to enter the structure or area.

(~~16~~17) *Letter of map revision (LOMR)* means FEMA's modification or revision to an entire or portion of the effective FIRM, or flood boundary and floodway map, or both. LOMRs are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective BFEs, or the SFHA.

(~~17~~18) *Lowest adjacent grade (LAG)* means the lowest natural elevation of the ground surface prior to construction next to the proposed walls of a structure. For an existing structure, it means the lowest point where the structure and ground touch, including, but not limited to, attached garages, decks, stairs, and basement windows.

(~~18~~19) *Map* means the FHBM or the FIRM.

(~~19~~20) *Mean sea level* means the National Geodetic Vertical Datum (NGVD) of 1929, North American Vertical Datum (NAVD) of 1988, or other datum, to which BFEs shown on the City's FIRM are referenced.

(~~20~~21) *New construction* means structures for which the start of construction commenced on or after the effective date of a floodplain management regulation adopted by the City and includes any subsequent improvements to such structures. For the purposes of determining insurance rates, structures for which the "start of construction" commenced on or after the effective date of an initial FIRM or after December 31, 1974, whichever is later, and includes any subsequent improvements to such structures.

(~~21~~22) *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 floodplain management regulations adopted by Sandy City.

(~~22~~23) *No-rise certifications* are formal certifications signed and stamped by a professional engineer licensed to practice in the state, demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that a proposed development will not result in any increase (0.00 feet) in flood levels within the City during the occurrence of a base flood event.

(~~23~~24) *Regulatory 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.

(~~24~~25) *Riverine* means relating to, formed by, or resembling a river (including tributaries), stream, brook, creek, etcetera, which can be intermittent or perennial.

(~~25~~26) *Special exception* means a grant of relief by the City from and in accordance with the requirements of this chapter.

(~~26~~27) *Special flood hazard area (SFHA)* means the land in the floodplain within the City subject to a one percent or greater chance of flooding in any given year. The area may be designated as Zone A on the FHBM. After detailed ratemaking has been completed in preparation for publication of the FIRM, Zone A usually is refined into Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, or V1-30, VE, or V on the City's FIRM. For purposes of these regulations, the term "special flood hazard area" is synonymous in meaning with the phrase "area of special flood hazard".

(~~27~~28) *Structure* means, for floodplain management purposes, a walled and roofed building, culvert, bridge, dam, or a gas or liquid storage tank that is principally above ground, as well as a manufactured home. Structure, for insurance purposes, means:

a. A building with two or more outside rigid walls and a fully secured roof, which is affixed to a permanent site;

b. A manufactured home ("a manufactured home," also known as a mobile home, is a structure: built on a permanent chassis, transported to its site in one or more sections, and affixed to a permanent foundation); or

c. A travel trailer without wheels built on a chassis and affixed to a permanent foundation, that is regulated under the City's floodplain management and building ordinances or laws.

d. For insurance purposes, "structure" does not mean a recreational vehicle or a park trailer or other similar vehicle, except as described in paragraph c. of this definition, or a gas or liquid storage tank.

(~~28~~29) *Water surface elevation* means the height, in relation to the North American Vertical Datum (NAVD) of 1988, (or other datum, where specified) of floods of various magnitudes and frequencies, such as the 1-percent-annual-chance flood event, in the floodplains of coastal or riverine areas.

(~~29~~30) *Watercourse* means the channel and banks of an identifiable water in a creek, brook, stream, river, ditch or other similar feature.

(Ord. No. 21-08 , § 1(Exh. A), 3-23-2021)

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Sec. 21-16-13. Substantial Improvement and Substantial Damage Determination.

(a) Substantial improvements and repairs to substantial damage shall comply with provisions of this chapter.

(b) For purposes of this chapter the following terms shall have the following definitions:

(1) *Substantial improvement* means any combination of repair, reconstruction, rehabilitation, addition, or improvement of a building or structure, if the cumulative cost of the entire project equals or exceeds 50 percent, unless a higher standard option is selected below, of the market value of the structure only (not of the structure and land value combined) before the improvement or repair is started then the work shall be considered as substantial improvement. If the structure has sustained substantial damage, any repairs are considered substantial improvements regardless of the actual repair work performed. For substantial damage, refer to Section 21-16-25: Substantial Damage. The term does not, however, include either:

a. Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions; or

b. Any alteration of a ~~historic~~ structure listed on the National Register of Historic Places or the State Inventory of Historic Places, provided that the alteration will not preclude the structure's continued designation as a historic structure.

(2) *Substantial damage* means damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed 50 percent of the market value of the structure only, unless a higher standard option is selected, before the damage occurred. This term also applies to structures which have incurred any damage that equals or exceeds 50 percent of the structure's market value regardless of the actual repair work performed. When a structure or building has been determined as substantially damaged, any work or repair on said structure or building will be considered as substantial improvement and will be required to meet the development requirements set forth within this ordinance for substantial improvement.

(c) The Floodplain Administrator shall determine if a building permit application involves substantial improvements or repair of substantial damage as follows:

(1) Estimate the market value, or require the applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the building or structure only, not of land and building, before

the start of construction of the proposed work. In the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made.

(2) Compare the cost to perform the improvement, the cost to repair a 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.

(3) Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; the determination requires evaluation of other permits issued for improvements and repairs.

(4) Utilize FEMA's Substantial Improvement/Substantial Desk Reference when making any determination on substantial improvement and/or substantial damage.

(5) The substantial improvement regulations apply to all of the work that is proposed as the improvement, even if multiple permits are issued. Therefore, the determination of the cost of the improvement should consider all costs of all phases of the work before issuance of the first permit.

(6) If it is determined that the work constitutes substantial improvement or partial or complete repair of substantial damage, compliance with this chapter is required.

(Ord. No. 21-08 , § 1(Exh. A), 3-23-2021)

Sec. 21-16-14. Development Standards Within the Floodplain Overlay Zone.

In addition to the general development standards found elsewhere in this title, the following standards shall be required for all new construction, placement of manufactured homes, substantial improvements, partial or complete repair of substantial damage, and permanent storage of materials or equipment in the floodplain overlay zone:

(1) *Anchoring.*

a. Anchoring shall be required to prevent flotation, collapse, or lateral movement of the structure and be capable of resisting the hydrostatic and hydrodynamic loads.

b. Anchoring for manufactured homes shall use 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. Specific requirements include:

1. Over-the top ties at each of the four corners of the manufactured home, with two additional ties per side at intermediate locations. Manufactured homes less than 50 feet long may require one additional tie per side.

2. Frame ties provided at each corner of the home with five additional ties per side at intermediate points. Manufactured homes less than 50 feet long may require four additional ties per side.

3. Components of the anchoring system shall be capable of carrying a force of 4,800 pounds.

4. Additions to the manufactured home shall be similarly anchored.

(2) *Construction Materials and Methods.*

a. Materials and utility equipment shall be resistant to flood damage.

b. Construction methods and practices shall minimize flood damage.

c. Electrical, heating, ventilation, plumbing, and air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

d. Within Zone AH on the city's FIRM, adequate drainage paths shall be designed and constructed around structures on slopes to guide floodwaters around and away from proposed structures.

(3) *Utilities.*

a. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.

b. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into floodwaters.

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

(4) *Development Applications.*

a. All subdivision applications including the development of manufactured home parks and subdivisions shall be consistent with the provisions of this chapter, shall have adequate drainage provided to reduce exposure to flood hazards, and shall meet Development Permit requirements of this chapter.

b. BFE data shall be generated by the developer for any subdivision or other proposed development including the development of manufactured home parks and subdivisions, which is greater than 50 lots or five acres, whichever is lesser.

c. All development including the development of manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.

d. All development shall have adequate drainage provided to reduce exposure to flood damage.

e. FEMA approved base flood elevation data shall be provided for development applications.

(5) *Residential Construction.* Each residential structure shall have the lowest floor, including basement, elevated to a minimum of one foot above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit certified elevations to the Floodplain Administrator that the standards of this chapter are satisfied.

(6) *Nonresidential Construction.* Each commercial, industrial, or other nonresidential structure shall either have the lowest floor, including basement, elevated to a minimum of one foot above the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

a. Be floodproofed so that below one foot 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 standards of this Subsection (6) are satisfied. Such certifications shall be provided to the Floodplain Administrator; and

d. If the use or occupancy of the building changes in the future to residential, then the dry floodproofing of the structure shall not be used when determining compliance of the structure to the requirements of this chapter. A building converted from commercial to residential use will be required to comply with the residential construction requirements of this chapter.

(7) *Enclosures Below the Lowest Floor.* Fully enclosed areas below the lowest floor that are to be used solely for parking of vehicles, building access, or storage in an area other than a basement shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry

and exit of flood waters. 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:

a. 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.

b. The bottom of all openings shall be no higher than one foot above grade.

c. Openings may be equipped with screens, louvers, or other coverings or devices, provided they permit the automatic entry and exit of flood waters.

d. The development and construction of the structure must conform with the provision in FEMA/Federal Insurance Administration (FIA)-Technical Bulletins 1 and 2. Certification and documentation from a professional, licensed engineer or architect is required if the structure's lowest floor is built below the BFE.

e. For any nonresidential construction that has an enclosure below the lowest floor, a non-conversion agreement must be completed as part of the permitting process. The non-conversion agreement:

1. Acknowledges the risk associated with this building practice;

2. Acknowledges the use of the area that was permitted as an enclosure will be used solely on a nonresidential accessory structure of low value whose usage is only for building access, parking or storage; and

3. Allows for City, state and/or federal officials to conduct periodic inspections to ensure compliance.

(8) *Manufactured Homes.*

a. All manufactured homes within Zone A on the City's FHBM or FIRM shall be installed using methods and practices that minimize flood damage.

b. Manufactured homes shall be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may 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.

c. Manufactured homes within Zones A1-30, AH, and AE on the City's FIRM on sites outside of a manufactured home park or subdivision; in a new manufactured home park or subdivision; in an expansion to an existing manufactured home park or subdivision; or in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as a result of a flood, shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to one foot above the BFE, and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

d. Manufactured homes within Zones A-1-30, AH, AO and AE on the City's FIRM on sites in an existing manufactured home park shall be elevated so that the lowest floor is at or above one foot above the BFE; or the chassis is supported by reinforced piers no less than 36 inches in height above grade and securely anchored.

(9) *Recreational Vehicles.* Recreational vehicles placed on sites within Zones A1-30, AH, and AE on the City's FIRM shall: (a) be on-site for fewer than 180 consecutive days, be fully licensed and ready for highway use; or (b) be subject to a Floodplain Development Permit and meet elevation and anchoring requirements for manufactured homes.

a. A recreational vehicle is ready for highway use if it is 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.

b. This only applies to recreational vehicles that are:

1. Built on a single chassis;

2. Four hundred 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.

(10) *Crawlspace.*

a. Structures built on a crawlspace or sub-grade (below grade) crawlspace may be permitted if the development is designed and meets or exceeds the standards found in FEMA's Technical Bulletins 1, 2, and 11, which include but are not limited to the following:

b. The structure must be affixed to a permanent foundation, 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. Because of hydrodynamic loads, crawlspace construction is not allowed in areas with flood velocities greater than five feet per second unless the design is reviewed and approved by a qualified design professional, such as a registered architect or professional engineer.

c. The crawlspace is an enclosed area below the 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 foot above the LAG.

d. The crawlspace enclosure must have proper openings that allow equalization of hydrostatic pressure by allowing automatic entry and exit of floodwaters. To achieve this, a minimum of one square inch of flood opening is required per one square foot of the enclosed area subject to flooding. The flood opening must allow floodwaters to automatically enter and exit the enclosure as required by FEMA Technical Bulletin 1.

e. 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, piers, or other materials that extend below the BFE. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters.

f. Any building utility systems within the crawlspace must be elevated above the BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions.

g. The interior grade of a crawlspace below the BFE must not be more than two feet below the LAG.

h. The height of the below-grade crawlspace, measured from the lowest interior grade of the crawlspace floor to the bottom of the floor joist of the next higher floor cannot exceed four feet at any point.

i. 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.

j. Buildings with below-grade crawlspaces will have higher flood insurance premiums than buildings that have the preferred crawlspace construction, with the interior elevation at or above the LAG.

(Ord. No. 21-08 , § 1(Exh. A), 3-23-2021)

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