



COLLIN COUNTY FLOODPLAIN MANAGEMENT REGULATIONS

DRAFT January 13, 2020

Approved by the Collin County Commissioners Court on _____

Court Order Number _____

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COLLIN COUNTY FLOODPLAIN MANAGEMENT REGULATIONS

1.01 DEFINITIONS

For the purpose of these Regulations, the following terms, phrases, words and their derivations shall have the meaning given herein. Definitions not expressly prescribed herein are to be determined in accordance with customary usage in planning and engineering practice. The word “shall” is mandatory and the word “may” is permissive.

100-YR STORM EVENT - the rainfall event having a 1 percent chance of being equaled or exceeded in any given year.

APPLICANT - an Owner or Developer who seeks approval of a floodplain development proposal pursuant to these Regulations.

APPURTENANT STRUCTURE – a structure which is on the same parcel of property as the principal structure to be insured and the use of which is incidental to the use of the principal structure.

AREA OF FUTURE CONDITIONS FLOOD HAZARD – the land area that would be inundated by the 1 percent annual chance flood (100-yr storm event) based on fully developed watershed hydrology.

AREA OF SHALLOW FLOODING – a designated AO, AH, AR/AO, or AR/AH zone on a Community's Flood Insurance Rate Map (FIRM) with a 1 percent or greater annual chance of flooding to an average depth of 1 to 3 feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

BASE FLOOD – the flood having a 1 percent chance of being equaled or exceeded in any given year. Also the flood resulting from the 100-yr storm event.

BASE FLOOD ELEVATION (BFE) – the WSEL resulting from any flood in Collin County, including outside of SFHAs, that has a 1 percent chance of equaling or exceeding that level in any given year, also called the 100-yr storm event. The BFE is used to delineate the Base Flood in plan view. The BFE may be calculated by the Developer's Engineer or as shown on the FIRM and found in the accompanying Flood Insurance Study (FIS) for Zones A, AE, or AH for Collin County. The BFE shall be in relation to the datum specified in the FIS for Collin County.

BASEMENT - any area of the building having its floor subgrade (below ground level) on all sides.

COMMUNITY – a political entity that has the authority to adopt and enforce floodplain ordinances for the area under its jurisdiction.

CONDITIONAL LETTER OF MAP REVISION (CLOMR) - FEMA's comment on a proposed project that would, upon construction, 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. The letter does not revise an effective NFIP

map, it indicates whether the project, if built as proposed, would be recognized by FEMA.

COUNTY – Collin County, Texas.

CRITICAL FEATURE – an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

DEVELOPER – any person, partnership, firm association, corporation (or combination thereof), or any officer, agent, employee, servant or trustee thereof, who performs or participated in the performing of any act toward the development of a subdivision, within the intent, scope and purview of these Regulations.

DEVELOPMENT – all land modification activity, including the grading or construction of buildings, roadways, parking lots and/or other impervious structures or surfaces.

DEVELOPMENT PERMIT – a permit obtained through the Collin County Development Services Department and is required for all development in and outside the Special Flood Hazard Area.

DIRECTOR OF ENGINEERING - where used in these Regulations, "Director of Engineering" shall mean the Collin County Director of Engineering and his authorized and/or appointed representatives.

DRAINAGE PLAN OR STUDY – a plan for handling stormwater affecting existing and proposed property and/or roadways due to development, including water surface elevations, floodplains, velocities, and mitigation measures. Drainage plans or studies include all areas handling stormwater, including SFHAs.

ELEVATED BUILDING – a non-basement building, which has its lowest elevated floor, raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

ENGINEER – a person licensed under the provisions of the Texas Engineering Registration Act to practice the profession of engineering in the State of Texas.

EXISTING CONDITIONS WATERSHED - the land use of any watershed or drainage area at the time the Applicant submits a request for development permit or plat approval.

EXISTING CONSTRUCTION – 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. "Existing construction" may also be referred to as "existing structures."

EXISTING MANUFACTURED HOME PARK OR SUBDIVISION – 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 roadways, and either final site grading or the pouring of

concrete pads) is completed before the effective date of the floodplain management regulations adopted by a Community.

EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION – 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 roadways, and either final site grading or the pouring of concrete pads).

FEMA – Federal Emergency Management Agency.

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

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

FLOOD INSURANCE RATE MAP (FIRM) – an official map of a Community, on which FEMA has delineated both the SFHAs and the risk premium zones applicable to the Community.

FLOOD INSURANCE STUDY (FIS) – the official report provided by FEMA. The report contains flood profiles, water surface elevation of the base flood, as well as the Flood Insurance Rate Map.

FLOOD PROOFING – any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

FLOOD STUDY – an examination, evaluation and determination of flood hazards and corresponding water surface elevations, floodplains, and velocities. Flood studies, when used herein, are associated with analysis of regulated SFHAs.

FLOODPLAIN OR FLOOD-PRONE AREA – any land area susceptible to being inundated by water from any source (see definition of flooding). A floodplain is a plan view depiction of the extent of flooding based on calculated water surface elevations.

FLOODPLAIN ADMINISTRATOR – an individual responsible for enforcing these Regulations.

FLOODPLAIN MANAGEMENT – 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 – State or Local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

FLOODWAY – see Regulatory Floodway

FULLY DEVELOPED WATERSHED - the land use of any watershed or drainage area at full build-out based on the best available information for planned future land use.

FUNCTIONALLY DEPENDENT USE – 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 that are necessary for the loading and unloading of passengers, and boat repair facilities, but does not include long-term storage or related manufacturing facilities.

HIGHEST ADJACENT GRADE – the highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

HISTORIC STRUCTURE – 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 the 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.

LETTER OF MAP AMENDMENT (LOMA) – FEMA’s comment or official letter of an amendment to the currently effective FEMA Flood Insurance Rate Map (FIRM) which established that a structure or group of structures is not located in a Special Flood Hazard Area (SFHA) as shown on the FIRM. A LOMA is issued only by FEMA.

LETTER OF MAP REVISION (LOMR) – FEMA’s modification to an effective FIRM. 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 base flood elevations, or the SFHA. The LOMR officially revises the FIRM, and sometimes the FIS, and when appropriate, includes a description of the modifications. The LOMR is generally

accompanied by an annotated copy of the affected portions of the FIRM or the FIS. A LOMR is issued only by FEMA.

LETTER OF MAP REVISION – FILL (LOMR-F) – FEMA’s modification of the SFHA shown on the FIRM based on the placement of fill outside the existing regulatory floodway. A LOMR-F is issued only by FEMA.

LOWEST FLOOR – the lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking or 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 requirement of [Section 60.3](#) of the National Flood Insurance Program regulations.

MANUFACTURED HOME – a structure transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle".

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

MEAN SEA LEVEL – the North American Vertical Datum (NAVD) of 1988 or other datum, to which base flood elevations shown in the Collin County FIS are referenced.

NATURAL CREEK – a small body of flowing water, generally shallow in depth and flowing into a larger body of water. This is represented by a blue line on a USGS topographic map.

NEW CONSTRUCTION – 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. For floodplain management purposes, "new construction" means structures for which the "start of construction" commenced on or after the effective date of these Regulations and includes any subsequent improvements to such structures.

NEW MANUFACTURED HOME SUBDIVISION – a manufactured home 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 roadways, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of these Regulations.

OWNER – the owner of land of record subject to these requirements.

REACH – a section of a stream or river along which similar hydrologic conditions exist.

RECREATIONAL VEHICLE – a vehicle which is (i) built on a single chassis; (ii) 400 square feet or less when measured at the largest horizontal projections; (iii) designed to be self-propelled or permanently towable by a light duty truck; and (iv) designed primarily as

temporary living quarters for recreational, camping, travel, or seasonal use. Where used in these Regulations, "recreational vehicle" refers to recreational vehicles in use, not in storage.

REGULATORY FLOODWAY – 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.

RIVERINE – relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

SPECIAL FLOOD HAZARD AREA (SFHA) – the land in the floodplain subject to a 1 percent or greater chance of flooding in any given year. Areas of special flood hazard are depicted on the Collin County FIRM.

START OF CONSTRUCTION – includes substantial improvement and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on 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 roadways and/or walkways; nor does it include excavation for 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 – for floodplain management purposes, 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 – 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 – any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before "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 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 will not preclude the structure's continued designation as a "historic structure."

SURVEYOR – a person licensed under the provisions of the Texas Professional Land Surveying Practices Act to practice the profession of surveying in the State of Texas.

VALLEY STORAGE – a measure of the floodplain volume capacity.

VARIANCE – a grant of relief from the terms of these Regulations. (For full requirements see [Section 60.6](#) of the National Flood Insurance Program regulations.)

VIOLATION – the failure of a structure or other development to be fully compliant with these Regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in 44 CFR Section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

WATER SURFACE ELEVATION (WSEL) – the height, in relation to the datum shown in the FIS for Collin County, of floods of various magnitudes and frequencies.

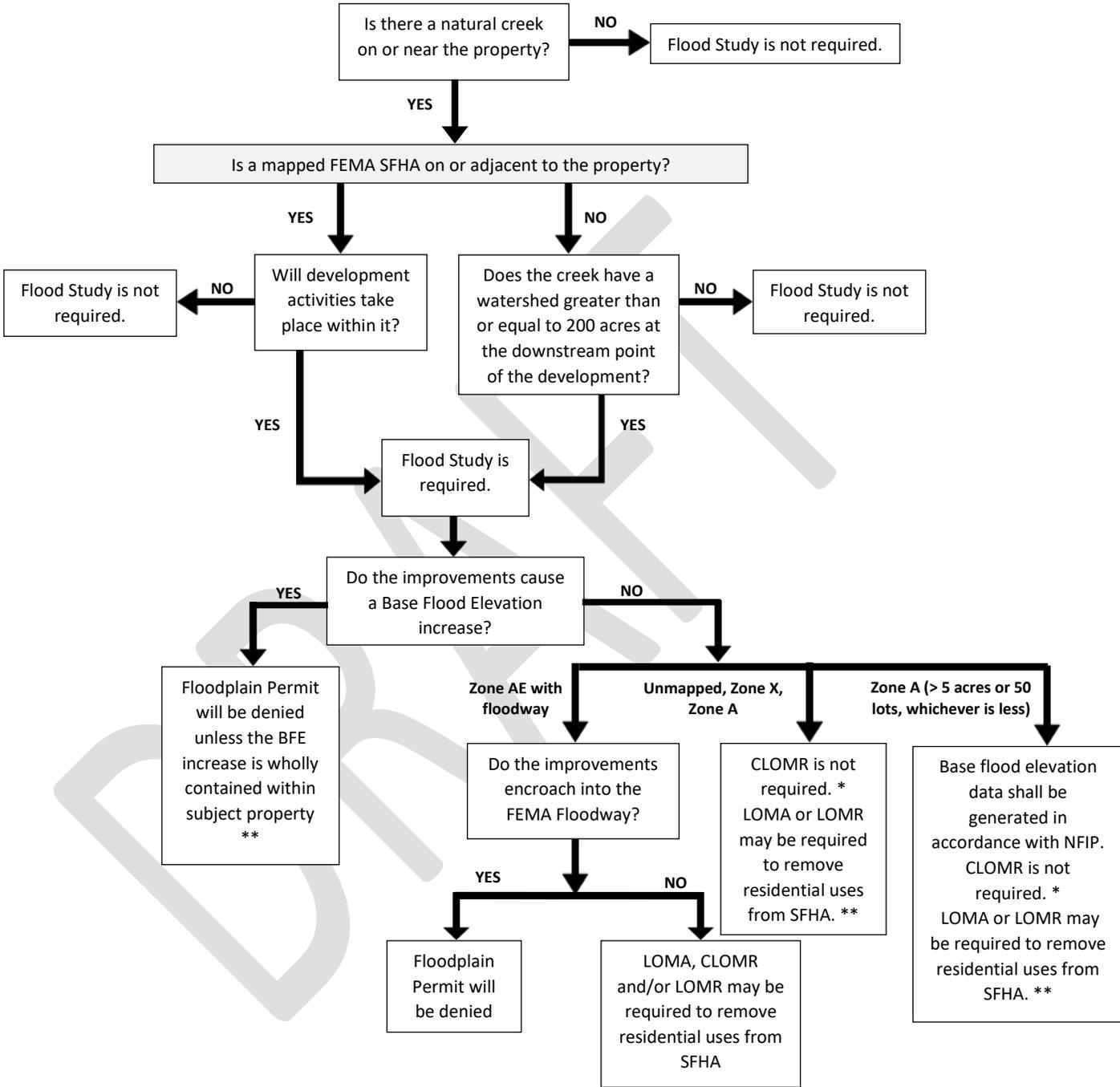
ZONES – Zones are SFHAs and have the following meanings:

Zone A	Areas of the base (1% or 100-yr) riverine flood where base flood elevations have not been determined.
Zone AE	Areas of the base (1% or 100-yr) riverine flood where base flood elevations have been determined; and base flood elevations are shown on the FIRM and in the FIS.
Zone AH	Areas of the base (1% or 100-yr) flood where the depths of ponding are between 1.0 and 3.0 feet; and base flood elevations are shown.
Zone AO	Areas of the base (1% or 100-yr) flood where the depths of sheet flow are between 1.0 and 3.0 feet; average depths of inundation are determined.
Zone X	(Shaded): Areas of the 0.2% flood or 500-yr flood, areas of the base (1% or 100-yr) flood with average depths of less than 1.0 foot or with drainage areas less than one (1) square mile, and areas protected by levees from the 1% or 100-yr flood. (Unshaded): Areas determined to be outside both the 1% (100-yr) and 0.2% (500-yr) floodplains.

1.02 GENERAL REQUIREMENTS

- A. All development and new construction within the FEMA designated floodplain require review and approval by the Director of Engineering. A pre-development meeting shall be scheduled to discuss Flood Study requirements.
- B. A development floodplain permit may require a Flood Study, depending on the individual situation. Flood Study requirements are described in Section 1.04.
- C. Land in a floodplain subject to flooding as a result of the 100-yr storm event may be reclaimed provided that:
 - 1. There is no increase in the water surface elevation;
 - 2. Non-erosive velocities are maintained;
 - 3. Channel stability in the reach being reclaimed is not adversely impacted; and,
 - 4. An equivalent volume of valley storage is provided in the same reach as the proposed development.
- D. Increase in the floodplain water surface elevation may be considered only when the floodplain area experiencing the increase is wholly contained within the subject property, both sides of the stream.
- E. Alterations of the floodplain that increase the water surface elevation of any flood are subject to the Adverse Impacts requirements of the Collin County Drainage Design Standards.
- F. Velocities throughout the channel must be analyzed for all storm events to ensure that any new fill and grading is protected.
- G. The flowchart in Figure 1.02-1 shall be followed when developing in or near any floodplain.

Figure 1.02-1. Floodplain Development Process In or Near Streams/Floodplains



* CLOMR shall be required if developer pursues building permit prior to FEMA approval of LOMR.
 ** LOMR may be required to modify the limits or boundary of the SFHA based on determined BFE
 Note: Drainage Studies are required for all developments, including when Flood Studies are not required. Base Flood Elevations for non-mapped streams must be determined in accordance with the Collin County Drainage Standards.

1.03 ADMINISTRATION

A. Designation of the Floodplain Administrator

The Collin County Director of Engineering is appointed the Floodplain Administrator to administer and implement the provisions of these Regulations and other appropriate sections of [44 CFR](#) (National Flood Insurance Program Regulations) pertaining to floodplain management. The Floodplain Administrator shall appoint a qualified person to review all permit applications and approve any such permits in the absence of the administrator.

B. Duties & Responsibilities of the Floodplain Administrator

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

1. Maintain and hold open for public inspection all records pertaining to the provisions of this order;
2. Review permit applications to determine whether a proposed building site, including the placement of manufactured homes or recreational vehicles, will be reasonably safe from flooding;
3. Review, approve or deny all applications for development permits required by adoption of this order;
4. Review permits for proposed development to assure that all necessary permits have been obtained from those Federal, State, or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required;
5. Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Floodplain Administrator shall make the necessary interpretation, which may require the Owner to apply for a LOMA or LOMR from FEMA;
6. Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained;
7. When base flood elevation data has not been defined on the FIRM, the Floodplain Administrator shall review and approve the base flood elevation determined by the Owner, Developer, or Applicant;
8. When a regulatory floodway has not been designated, the Floodplain Administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A and AE on the Community's FIRM, unless it is demonstrated that the proposed development, will not increase the water surface elevation of the base flood within the Community;

9. Review all proposed development applications to determine whether such proposals will be reasonably safe from flooding;
10. Require within SFHA that new and replacement water supply and sanitary sewage systems be designed to minimize or eliminate infiltration of flood waters into the systems, and that discharges from the systems into flood waters and onsite waste disposal systems be located to avoid impairment to them or contamination from them during flooding;
11. Require proposed development (including the construction of a structure) to obtain a LOMA or LOMR when appropriate (see Section 1.02, Figure 1.02-1); and
12. Require proposed development to obtain a conditional letter of map revision (CLOMR) prior to any construction in a Zone AE SFHA. After such construction, a formal LOMR shall be required.

1.04 FLOOD STUDY REQUIREMENT

For circumstances determined by following the flow chart in Figure 1.02-1, the Owner shall be responsible for providing a Flood Study which enables the County Floodplain Administrator to review and reproduce the results of the hydrologic and hydraulic model. The applicant shall provide the following Floodplain/Drainage Study checklist with the submittal.

**COLLIN COUNTY
FLOODPLAIN/DRAINAGE STUDY ADMINISTRATIVE REVIEW CHECKLIST**

Project Name:		Date:
Project Location:		
Engineering Firm:		
Engineering Firm Contact:		Contact Phone Number:
Creek/Waterway Encroached:		
GENERAL		Please check or N/A
Floodplain Study Drainage Study (circle one)		
Floodplain Reclamation No Floodplain Reclamation (circle one)		
Project Description		
Project Purpose		
Table of Contents		
Conclusion/Summary		
Stamp/Seal/Firm #		
All electronic data submitted (HMS, RAS, PondPack, Excel, etc.)		
HYDROLOGY		
Hydrologic Methodology Used (Rational, Regression Equations, etc)		
Drainage Area Map		
Runoff Coefficients		
Time of Concentration		
Intensity Values for Peak Event		
Summary of Peak Discharges		
Existing/Proposed Conditions (100 yr)		
HYDRAULICS		
Hydraulic Methodology Used		
Channel Sections		
N-Values		
Contraction/Expansion coefficients		
Ineffective flow limits		
Summary of results (pre-project & post-project conditions)		
Water Surface Elevation		
Velocity		
Valley Storage		
SUPPORTING DOCUMENTS		
Location Map		
FIRM Map		
Proposed Grading Plan		
Work Map (showing channel sections within limits of study)		
Channel Cross Sections (pre-project & post-project)		
Hydrologic & Hydraulic Models (HEC-HMS, HEC-RAS, etc)		

1.05 FLOOD HAZARD REDUCTION

A. General Standards

In all flood-prone areas, the following provisions are required for all new construction and substantial improvements:

1. Residential structures; manufactured homes; and recreational vehicles to be in use for more than 14 days shall not be placed in areas prone to flooding as a result of the 100-yr storm event;
2. A CLOMR or LOMA is required prior to building construction to show that any residential structures, manufactured homes, and recreational vehicles will not be within a SFHA upon completion of construction;
3. All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
4. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
5. All new construction or substantial improvements shall be constructed with materials resistant to flood damage;
6. All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located to prevent water from entering or accumulating within the components during conditions of flooding;
7. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
8. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters; and
9. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

B. Specific Standards

In all flood-prone areas, the following provisions are required:

1. Residential Construction – Floodplain Development Permit required
 - a. New residential construction is not allowed in an SFHA. A LOMA, CLOMR and/or LOMR is required to show that any residential construction proposed in an existing SFHA will be removed from the SFHA upon completion of construction.

- b. The lowest floor (including basement) of any new residential construction adjacent to a SFHA shall be elevated two (2) feet or more above the BFE.
 - c. Substantial improvement of any residential structure located in a SFHA built before the adoption of these Regulations shall have the lowest floor (including basement), elevated two (2) feet or more above the BFE.
 - d. For residential construction in or adjacent to a SFHA, an Engineer or Surveyor shall submit proposed lowest floor elevations with permit or plat application and an elevation certification upon construction of the lowest floor slab to the Floodplain Administrator.
2. Nonresidential Construction – Floodplain Development Permit required
- a. New construction and substantial improvements of any commercial, industrial or other non-residential structure shall either have the lowest floor (including basement) elevated to two (2) feet or more above the BFE or together with attendant utility and sanitary facilities, be designed so that below the BFE the structure is watertight with walls substantially impermeable to the passage of water and with structural component having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
 - b. An Engineer or Surveyor shall submit proposed lowest floor elevations with permit or plat application and an elevation certification upon construction of the lowest floor slab to the Flood Administrator. An Engineer or Architect shall develop and/or review structural design, specifications and civil construction plans and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are flood proofed shall be maintained by the Floodplain Administrator.
 - c. A Flood Study is required for any nonresidential construction proposed in a SFHA. No rise in the BFE outside the subject property will be allowed.
3. Enclosures
- a. New construction and substantial improvements, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.
 - b. Designs for meeting this requirement must either be certified by an Engineer or Architect or meet or exceed the following minimum criteria:

- i. A minimum of two openings on separate walls 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, valves or other coverings or devices provided they permit the automatic entry and exit of floodwaters.
- iv. All utilities and common facilities including gas, electrical systems, sewage systems and water supply systems must be located and elevated or constructed to avoid or minimize flood damage.

4. Manufactured Homes

- a. New manufactured home sites shall not be placed in any area prone to flooding as a result of the 100-yr storm event.
- b. Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision with Zones AE, A, and AH be elevated so that either:
 - i. the lowest floor of the manufactured home is at two (2) feet 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 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

5. Recreational Vehicles

- a. Recreational vehicles placed on sites within Zones AE, A, and AH shall:
 - i. be on the site for fewer than 14 consecutive days, and
 - ii. be fully licensed and ready for highway use. 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.

C. Standards for Subdivisions

1. All subdivisions shall be consistent with this order and shall comply with the Collin County Subdivision Regulations.
2. All proposals for the development of subdivisions including the placement of manufactured home parks and subdivisions shall meet the requirements of these Regulations.

3. Base flood elevation data shall be generated in accordance with FEMA requirements for subdivision proposals and other proposed development including the placement of manufactured home parks and subdivisions which is greater than 50 lots or 5 acres, whichever is lesser.
4. Base flood elevation data shall be generated in accordance with FEMA requirements for situations requiring a Flood Study as determined in Section 1.02, Figure 1.02-1.
5. All subdivisions including the placement 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 or eliminate flood damage.
6. The subdivision must be planned to provide adequate drainage, to reduce flood hazards.
7. Notwithstanding any other provision of these Regulations, no permit will be issued if the Floodplain Administrator determines that the development will increase flood hazards.

D. Standards for Areas of Shallow Flooding (AO/AH Zones)

The SFHA may include areas designated as shallow flooding. These areas have delineated SFHAs associated with flood depths of 1 to 3 feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may not be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

1. All new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated to two (2) feet above the base flood elevation or the highest adjacent grade at least as high as the depth number specified in feet on the Community's FIRM (at least 2 feet if no depth number is specified).
2. All new construction and substantial improvements of non-residential structures;
 - a. have the lowest floor (including basement) elevated to two (2) feet above the base flood elevation or the highest adjacent grade at least as high as the depth number specified in feet on the Community's FIRM (at least 2 feet if no depth number is specified), or
 - b. together with attendant utility and sanitary facilities be designed so that below the specified base flood depth in an AO Zone, or below the base flood elevation in an AH Zone, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy.

3. An Engineer or Surveyor shall submit proposed lowest floor or waterproofing elevations with permit or plat application and an elevation certification upon construction of the lowest floor slab or waterproofing to the Floodplain Administrator.
4. Require within Zones AH or AO adequate drainage paths around structures on slopes, to guide flood waters around and away from proposed structures.

E. Floodways

Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, encroachments are prohibited, including fill, new construction, substantial improvements and other development within the adopted regulatory floodway.

F. Severability

In the event any article, appendix, section, paragraph, sentence, clause or phrase of these Regulations shall be declared unconstitutional or invalid by the valid judgment or decree of any court of competent jurisdiction for any reason, such declaration shall not affect any remaining part of these Regulations. It is the express intent of the Collin County Commissioners Court that the articles, appendices, sections, paragraphs, sentences, clauses or phrases of these Regulations be severable.

1.06 PROCEDURES FOR MAP CHANGES

A. Letter of Map Amendment (LOMA)

Upon the determination of the Floodplain Administrator that the ground elevation below a structure or structures (including any basements) on a property is at an elevation greater than the base flood elevation, a property owner may apply to FEMA for letter of map amendment (LOMA) in accordance with 44 CFR Chapter 1, Section 70. Such a determination shall be based on a professional survey and/or the hydraulic, computer model (HEC-2 or HEC-RAS) used by an Engineer to define the SFHA.

B. Letter of Map Revision (LOMR)

1. **Existing structure or structures** – Upon the determination of the Floodplain Administrator that the ground elevation of a property is not in accordance with the approved FIRM, a property owner may apply to FEMA for a Letter of Map Revision (LOMR) or letter of map revision—Fill (LOMR-F) in accordance with 44 CFR Chapter 1, Section 72. Such a determination shall be based on a professional survey and the hydraulic computer model (HEC-2 or HEC-RAS) used by an Engineer to define the SFHA. All supporting documentation shall be submitted to the Floodplain Administrator for review and approval prior to submission to FEMA for review and approval.

2. **Proposed structure or structures** – Upon determination of the Floodplain Administrator that property currently indicated in a SFHA could be removed from the SFHA through modifications of the floodplain as identified on the FIRM, a property owner may apply to FEMA for a Conditional Letter of Map Revision (CLOMR) or Conditional Letter of Map Revision—Fill (CLOMR-F) in accordance with 44 CFR Chapter 1, Section 72. Such modifications and the determination shall be based on a professional survey and the hydraulic computer model (HEC-2 or HEC-RAS) used by an Engineer to define the SFHA. In this instance, the property owner shall not begin construction within the existing floodplain or the area of the proposed floodplain until FEMA issues a CLOMR or CLOMR-F. Additionally, after FEMA’s issuances of a CLOMR or CLOMR-F and such modifications have been completed, the property owner shall apply to FEMA for a LOMR or LOMR-F. The LOMR or LOMR-F is required prior to filing of a plat with the County Clerk or issuance of any permits associated with building construction.

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