

ARTICLE 11. ENVIRONMENTAL AND FLOODPLAIN



11.1. STORMWATER MANAGEMENT

11.1.1. Application to Existing Development

- A. Existing structures which become nonconforming with respect to watershed regulation by the adoption of this UDO are not affected unless and until there is a repair or expansion of or reconstruction of such structure.
- B. Existing structures which become nonconforming with respect to watershed regulation by the adoption of this UDO may be repaired or reconstructed without a stormwater permit or watershed protection occupancy permit provided that there is no net increase in impervious surface.
- C. Existing structures, whether conforming or nonconforming, may be added to or expanded without a stormwater permit or watershed protection occupancy permit provided there is no net increase in impervious surface.
- D. In determining whether there is additional impervious surface area, and in determining the best management practices to be utilized in watershed protection in connection with an addition or expansion to an existing structure, the built-upon area of the existing development is to be excluded from any density calculations which are required to be performed.

Commentary:
Often, more than one element of the stormwater provisions will apply to an individual property. Questions about the application of these provisions should be discussed with the Town Engineer.

11.1.2. Erosion and Sediment Control

- A. A permit shall be obtained from the Wake County Erosion and Sediment Control (E&SC) Inspector before undertaking any land disturbing activity that is subject to Wake County E&SC measures. No such permit may be issued for any such development until an erosion control plan is submitted and approved. This section does not apply to activity under the exclusive jurisdiction of the North Carolina Sedimentation Control Commission (NCSCC), which is exempt from these requirements.
- B. No use permit may be issued or final plat approval be given for any development that would cause land disturbing activity subject to the jurisdiction of Wake County E&SC Inspector or the NCSCC unless such inspector or agency has certified to the Town that:
 - 1. Any permit required by such inspector or agency has been issued or any erosion control plan required by such inspector or agency has been approved; or
 - 2. Upon examination of the preliminary plans for the development it appears that any required permit or erosion control plan can be approved upon submission by the developer of more detailed

construction or design drawings. However, construction of the development may not begin until such inspector or agency issues any required permit or approves any required erosion control plan.

11.1.3. Stormwater Quantity

Specific to stormwater management and relation to adjacent properties, no development shall unreasonably burden adjacent properties with surface waters as a result of such development, specifically including the following standards:

- A. No development may be constructed or maintained so that such development unreasonably impedes the natural flow of water from higher to lower properties, thereby causing substantial damage to such higher properties.
- B. No development may be constructed or maintained so that surface waters from such development are unreasonably collected or diverted onto lower properties, thereby causing substantial damage to lower properties.

11.1.4. Stormwater Runoff Design Standards

All of the following standards and requirements shall be met:

- A. To the extent practicable, all development shall conform to the natural contours and drainage patterns (watersheds) of the land and retain existing patterns of flow.
- B. To the extent practicable, lot boundaries shall be made to coincide with natural drainage ways within subdivisions to avoid the creation of lots that can be built upon only by altering such natural drainage ways.
- C. All developments shall have a drainage system adequate to prevent the undue retention of surface water on the development site. Surface water shall not be regarded as unduly retained if:
 - 1. The retention results from a deliberate approved sedimentation or storm water run-off control plan; or
 - 2. The retention is not substantially different in location or degree than in the site's pre-development stage, unless such retention presents a danger to health or safety.
- D. No surface water may be channeled or directed into a sanitary sewer.
- E. Whenever practicable, drainage systems shall coordinate with and connect to drainage systems or drainage ways on surrounding properties or streets.
- F. Drainage swales in subdivisions are provided for in Article 8: Subdivision. Private roads and access ways within unsubdivided developments shall utilize curb and gutter and storm drains to provide adequate drainage if the grade of such roads or access ways is too steep to provide drainage in another manner or if other sufficient reasons exist to require such

construction.

G. Evaluation of Detention Needs

Applicants for development approval shall evaluate detention needs for the development as follows:

1. Except in certain situations, stormwater detention will be required on new development. The design standard for detention will be based upon peak flow reduction to predevelopment (existing) conditions for the 1-, 10-, 25-, and in some cases, the 100-year return frequency storm events.
2. Detention requirements may be reduced or eliminated by the Town Engineer upon a showing that installation of reduced or eliminated detention facilities will not create adverse downstream impacts.

H. Stormwater Control Structure Requirements

1. All stormwater control structures and any modifications thereto, shall be designed and sealed by a North Carolina registered professional engineer, except that such a structure may be designed by a registered land surveyor, where the runoff consists solely of incidental drainage within a subdivision, as provided in G.S. § 89C-3(7); and
2. All water quality controls shall use retention ponds, bioretention areas, or other approved devices, as a primary treatment system. All approved devices shall be designed for specific pollutant removal according to modeling techniques approved by the North Carolina Department of Environmental Quality (NCDEQ). Specific requirements for these systems shall be in accordance with the NCDEQ design criteria or otherwise as approved by the Town Engineer.
3. All water quantity controls shall use detention ponds, bioretention areas, or other devices or systems as approved by the Town Engineer. Detention facilities shall be designed using the design procedures set forth in *Elements of Urban Stormwater Design* (Malcolm, 1989) or other design procedures as approved by the Town Engineer.
4. A maintenance and operations plan, acceptable to the Town Engineer, shall be developed for each water quantity and water quality control structure proposed as part of the development. The agreement must be signed by the developer and Town Manager and be recorded at the Register of Deeds.

I. Maintenance of Retention Facilities

1. All water quality controls and devices which are installed solely to provide 85 percent total suspended solid (TSS) removal in order to satisfy the water supply watershed protection section of the UDO

shall be maintained by the Town of Garner. Such maintenance by the Town will be limited to the water quality treatment function of the stormwater control system. Maintenance activities not related to water quality such as aesthetics, nuisance control, etc. will not be the responsibility of the Town but shall be the responsibility of the owner. The developer shall deed, dedicate, or grant sufficient easement or right-of-way to allow for the access and maintenance of the water quality control system.

2. All water quality controls and devices which are installed to meet the nitrogen reduction requirements of this UDO shall be maintained by the property owner or the person or persons responsible for the maintenance of the property. In the case of residential or commercial subdivisions, an HOA or merchants association shall be established in order to identify the person or persons responsible for the maintenance of the property. The developer shall deed, dedicate, or grant sufficient easement or right-of-way to allow for the access and inspection of the water quality control system.
3. All water quantity controls and devices shall be maintained by the property owner or the person or persons responsible for the maintenance of the property. In the case of residential or commercial subdivisions, an HOA or merchants association shall be established in order to identify the person or persons responsible for the maintenance of the property. The developer shall deed, dedicate, or grant sufficient easement or right-of-way to allow for the access and inspection of the water quality control system.

11.1.5. Fencing for Stormwater Control Measures or Other Water Feature Standards

Where a water impoundment pond (wet or dry pond) or other water feature is located more than 25 feet from the property line of any adjacent residential use or zoning district and provides an aquatic shelf acceptable to the Town Engineer, no fence shall be required.

- A. Alternative means of separation for water impoundment ponds, such as natural landforms and native plantings, are encouraged.
- B. Fencing used around SCMs shall not be opaque.

11.1.6. Water Impoundment Ponds as Open Space

- A. Applicability

All stormwater retention ponds (wet ponds) and detention basins (dry ponds) permitted or constructed after the adoption date of this ordinance and exceeding 0.5 acres in surface area (at full retention/detention) may count said area toward the passive open space requirement for the greater development subject to the following limitations:

1. No more than 20 percent of the total required open space for a development may consist of water impoundment ponds.
2. No more than half of the open water area (or area designed to retain/detain water) may be counted as open space.

B. Design Standards

Water impoundment ponds as open space must be integrated into the design of public areas within the site through appropriate site placement, use of common building materials, textures, features, or other treatments. This shall be achieved by incorporating at least three of the following elements:

1. Proximate placement of the stormwater facility to the principal structure(s) on the site.
2. Provision of pedestrian access to the facility through installation of a delineated walk or trail. Water impoundment ponds which are not accessible to pedestrians or are 100 percent fenced shall not be counted toward open space requirements.
3. Utilization of similar planting materials and building materials as the principal structure of the site, if amenities are constructed within the open space.
4. Permanent, pedestrian-oriented features such as seating or tables, at least every 100 linear feet.
5. Grading and slopes of 10:1 or shallower which will allow utilization of the facility as an area for recreation, with the exemption of a dam or retaining structure and as is necessary to tie back to existing grades.

11.2. NITROGEN REDUCTION

11.2.1. Stormwater Requirements for Nitrogen Control

All new development shall meet the requirements of the "The Town of Garner Stormwater Program for Nitrogen Control." The major requirements that must be met by new development, as contained in the stormwater program, are as follows:

- A. New development shall comply with the requirements for protecting and maintaining riparian buffers as specified in the Riparian Buffer Rule 15A NCAC 2B.0610, 0611, or 0612.
- B. As required by the Neuse Stormwater Rule 15A NCAC 2B.0710, 0711, 0712, 0713, 0714, or 0715, the nutrient load contributed by new development activities is limited to 3.6 pounds per acre per year (lbs/ac/yr) of nitrogen loading. Development shall have the option of partially offsetting projected nitrogen loads by funding wetland or riparian area restoration through the North Carolina Wetland Restoration Program. However, the total nitrogen loading rate cannot exceed 6.0 lbs/ac/yr for residential development or 10.0 lbs/ac/yr for nonresidential development. SCMs provided for in the stormwater program must be used to reduce nitrogen loading to the 6.0 and 10.0 limits and may be used to reduce nitrogen loading to the 3.6 limit. Maintenance of any SCMs installed will be the responsibility of the development.
- C. Except in certain situations, stormwater detention will be required on new development. The design standard for detention will be based upon peak flow reduction to predevelopment (existing) conditions for the 1-, 10-, 25-, and in some cases, the 100-year return frequency storm events.

11.3. WATER SUPPLY WATERSHED PROTECTION

The water supply watershed protections areas described below are identified on the Town of Garner Watershed Protection Map.

11.3.1. Water Supply Watershed Protection Areas

A. Swift Creek Water Supply Watershed Protection Area (Swift Creek WSW)

The Town of Garner Swift Creek-Lake Benson public water supply watershed protection area shall apply to the land defined in the Swift Creek Land Management Plan (SCLMP) Interlocal Agreement.

B. Exemptions

The water supply watershed protection ordinances of the Town of Garner shall apply to the above-described land area, except, however that the watershed protection ordinances shall not apply to:

1. Existing development, although they shall apply to future additions, expansion, repair, or reconstruction of existing development which are of such nature to create additional impervious surface; or
2. To the development of a single existing lot for single-family residential purposes; although they shall apply to single-family residential development of multiple contiguous lots with common ownership.

11.3.2. Impervious Surface Limits

- A. Within the Garner Swift Creek WSW, impervious limits may not exceed 12 percent of land area, per lot, except that impervious limits may be a maximum of 70 percent, known as the high density option, where the stormwater runoff from a one inch rainfall event is retained by retention ponds, or other approved devices designed to achieve 85 percent total suspended solids as approved by the NCDEQ and the Town of Garner, constructed in accordance with best management practices.
- B. Impervious surface shall occupy no more than 40 percent of the required front yard.
- C. The Swift Creek WSW critical area is subject to the Lake Benson Conservation District Overlay, found in Article 5.

Commentary:
This means, for example, that the owner of an existing lot may build on up to 70 percent of the remaining pervious surface, rather than the 70 percent limitation being applied to the entire lot including pre-existing development. Questions about the application of these provisions should be discussed with the Town Engineer.

11.4. FLOODPLAIN MANAGEMENT

The stormwater management provisions apply seven sets of rules, covering the areas of erosion control, stormwater quantity, conservation or protected buffers, nitrogen reduction, water supply watershed protection, environmentally sensitive watershed protection, and floodplain management. The Town of Garner adopted floodplain regulations to be consistent with federal and state requirements. However, Town regulations specifically prohibit development in the 100-year floodplain and in conservation or protected buffers areas except as noted in Section 5.13.

11.4.1. Statutory Authorization, Findings of Fact, and Purpose and Objectives

A. Statutory Authorization

The Legislature of the State of North Carolina has in Part 6, Article 21 of Chapter 143; Article 6 of Chapter 153A; Article 8 of Chapter 160A; and Article 7, 9, and 11 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the Town Council of the Town of Garner North Carolina, does ordain the following findings of fact:

1. The flood prone areas within the jurisdiction of Town of Garner are subject to periodic inundation which results in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures of flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
2. These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities and by the occupancy in flood prone areas of uses vulnerable to floods or other hazards.

B. Statement of Purpose

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

1. Restrict or prohibit uses that are dangerous to health, safety, and property due to water or erosion hazards or that result in damaging increases in erosion, flood heights, or velocities;
2. Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;
3. Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation

of floodwaters;

4. Control filling, grading, dredging, and all other development that may increase erosion or flood damage; and
5. Prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or which may increase flood hazards to other lands.

C. Objectives

The objectives of this section are to:

1. Protect human life and health;
2. Minimize expenditure of public money for costly flood control projects;
3. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. Minimize prolonged business losses and interruptions;
5. Minimize damage to public facilities and utilities (i.e. water and gas mains, electric, telephone, cable and sewer lines, streets, and bridges) that are located in flood prone areas;
6. Minimize damage to private and public property due to flooding;
7. Make flood insurance available to the community through the National Flood Insurance Program;
8. Maintain the natural and beneficial functions of floodplains;
9. Help maintain a stable tax base by providing for the sound use and development of flood prone areas; and
10. Ensure that potential buyers are aware that property is in a Special flood hazard area (SFHA).

11.4.2. Definitions

Unless specifically defined below, words or phrases used in Section 11.4. shall be interpreted so as to give them the meaning they have in common usage and to give Section 11.4. its most reasonable application. The definitions listed below apply to Section 11.4. only.

Accessory structure (appurtenant structure). A structure located on the same parcel of property as the principal structure and the use of which is incidental to the use of the principal structure. Garages, carports, and storage sheds are common urban accessory structures. Pole barns, hay sheds, and the like qualify as accessory structures on farms, and may or may not be located on the same parcel as the farm dwelling or shop building.

Addition (to an existing building). An extension or increase in the floor area or height of a building or structure.

Alteration of a watercourse. A dam, impoundment, channel relocation, change in channel alignment, channelization, or change in cross-sectional area of the channel or the channel capacity, or any other form of modification which may alter, impede, retard or change the direction and/or velocity of the riverine flow of water during conditions of the base flood.

Appeal. A request for a review of the Floodplain Administrator's interpretation of any provision of Section 11.4.

Area of shallow flooding. A designated Zone AO or AH on a community's flood insurance rate map (FIRM) with base flood depths determined to be from one to three feet. These areas are located where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident.

Area of special flood hazard. See "Special flood hazard area (SFHA)".

Area of future-conditions flood hazard. The land area that would be inundated by the one-percent-annual-chance (100-year) flood based on future-conditions hydrology.

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

Base flood. The flood having a one percent chance of being equaled or exceeded in any given year.

Base flood elevation (BFE). A determination of the water surface elevations of the base flood as published in the flood insurance study. When the BFE has not been provided in a SFHA, it may be obtained from engineering studies available from federal or state or other source using FEMA approved engineering methodologies. This elevation, when combined with the "freeboard", establishes the "regulatory flood protection elevation".

Building. See "Structure".

Chemical storage facility. A building, portion of a building, or exterior area adjacent to a building used for the storage of any chemical or chemically reactive products.

Design Flood. See "Regulatory flood protection elevation".

Development. Any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials.

Development Activity. Any activity defined as Development which will necessitate a Floodplain Development Permit. This includes buildings, structures, and non-structural items, including (but not limited to) fill, bulkheads, piers, pools, docks, landings, ramps, and erosion control/stabilization measures.

Digital flood insurance rate map (DFIRM). The digital official map of a community, issued by the Federal Emergency Management Agency (FEMA), on which both the special flood hazard areas and the risk premium zones applicable to the community are delineated.

Disposal. As defined in G.S. §130A-290(a)(6), the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste into or on any land or water so that the solid waste or any constituent part of the solid waste may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

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.

Encroachment. The advance or infringement of uses, fill, excavation, buildings, permanent structures, or development into a floodplain, which may impede or alter the flow capacity of a floodplain.

Existing building and existing structure. Any building and/or structure for which the “start of construction” commenced before March 1984.

Existing manufactured home park or manufactured home 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 streets, and either final site grading or the pouring of concrete pads) was completed before March 1984.

Flood or flooding. A general and temporary condition of partial or complete inundation of normally dry land areas from:

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

Flood boundary and floodway map (FBFM). An official map of a community, issued by the federal emergency management agency, on which the SFHAs and the floodways are delineated. This official map is a supplement to and shall be used in conjunction with the flood insurance rate map (FIRM).

Flood hazard boundary map (FHBM). An official map of a community, issued by the federal emergency management agency, where the boundaries of the SFHAs have been defined as Zone A.

Flood insurance. The insurance coverage provided under the National Flood Insurance Program.

Flood insurance rate map (FIRM). An official map of a community, issued by the federal emergency management agency, on which both the SFHAs and the risk premium zones applicable to the community are delineated.

Flood insurance study (FIS). An examination, evaluation, and determination of flood hazards, corresponding water surface elevations (if appropriate), flood hazard risk zones, and other flood data in a community issued by the federal emergency management agency. The flood insurance study report includes flood insurance rate maps (FIRMs) and flood boundary and floodway maps (FBFMs), if published.

Flood prone area. See "Floodplain".

Floodplain. Any land area susceptible to being inundated by water from any source.

Floodplain administrator. The individual appointed to administer and enforce the floodplain management regulations.

Floodplain development permit. Any type of permit that is required in conformance with the provisions of Section 11.4., prior to the commencement of any development activity.

Floodplain management. The operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including, but not limited to, emergency preparedness plans, flood control works, floodplain management regulations, and open space plans.

Floodplain management regulations. Section 11.4. and other zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances, and other applications of police power which control development in flood-prone areas. This term describes federal, state, or local regulations, in any combination thereof, which provide standards for preventing and reducing flood loss and damage.

Floodproofing. Any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce or eliminate flood damage to real estate or improved real property, water and sanitation facilities, structures, and their contents.

Flood-resistant material. Any building product (material, component, or system) capable of withstanding direct and prolonged contact (minimum 72 hours) with floodwaters without sustaining damage that requires more than low-cost cosmetic repair. Any material that is water-soluble or is not resistant to alkali or acid in water, including normal adhesives for above-grade use, is not flood-resistant. Pressure-treated lumber or

naturally decay-resistant lumbers are acceptable flooring materials. Sheet-type flooring coverings that restrict evaporation from below and materials that are impervious, but dimensionally unstable are not acceptable. Materials that absorb or retain water excessively after submergence are not flood-resistant. Please refer to Technical Bulletin 2, Flood Damage-Resistant Materials Requirements, and available from the FEMA. Class 4 and 5 materials, referenced therein, are acceptable flood-resistant materials.

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 one foot.

Floodway encroachment analysis. An engineering analysis of the impact that a proposed encroachment into a floodway or non-encroachment area is expected to have on the floodway boundaries and flood levels during the occurrence of the base flood discharge. The evaluation shall be prepared by a qualified North Carolina licensed engineer using standard engineering methods and models.

Flood zone. A geographical area shown on a flood hazard boundary map or flood insurance rate map that reflects the severity or type of flooding in the area.

Freeboard. The height added to the base flood elevation (BFE) or the Future Conditions Flood Elevation to account for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization on the watershed. The base flood elevation plus the freeboard establishes the "regulatory flood protection elevation".

Future conditions flood. The flood having a one percent chance of being equaled or exceeded in any given year based on future conditions hydrology.

Future conditions flood elevation. A determination of the water surface elevations of the one percent annual chance flood based on future conditions hydrology as published in the Flood Insurance Study. This elevation, when combined with the freeboard, establishes the "Regulatory Flood Protection Elevation" in Future Conditions Flood Hazard Areas.

Future conditions flood hazard area. The land area that would be inundated by the one percent annual chance flood based on future conditions hydrology as determined in Section 11.4.3.B of this ordinance.

Future conditions hydrology. The flood discharges associated with project land-use conditions based on Wake County's comprehensive

land-use plans and without consideration of projected future construction of flood detention structures or projected future hydraulic modifications within a stream or other waterway such as bridge and culvert construction, fill, and excavation. Future conditions flood discharges are published in the Flood Insurance Study.

Functionally dependent facility. A facility which cannot be used for its intended purpose unless it is located in close proximity to water, such as a docking or port facility necessary for the loading and unloading of cargo or passengers, shipbuilding, or ship repair. The term does not include long-term storage, manufacture, sales, or service facilities.

Hazardous waste facility. As defined in G.S. § 130A-290(a)(9), a facility for the collection, storage, processing, treatment, recycling, recovery, or disposal of hazardous waste.

Highest adjacent grade (HAG). The highest natural elevation of the ground surface, prior to construction, immediately next to the proposed walls of the structure.

Historic structure. Any structure that is:

1. Listed individually in the National Register of Historic Places (a listing maintained by the U.S. Department of Interior) or preliminarily determined by the Secretary of Interior as meeting the requirements for individual listing on the National Register;
2. Certified or preliminarily determined by the Secretary of 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 local inventory of historic landmarks in communities with a "Certified Local Government (CLG) Program"; or
4. Certified as contributing to the historical significance of a historic district designated by a community with a CLG Program.

CLG programs are approved by the U.S. Department of the Interior in cooperation with the North Carolina Department of Cultural Resources through the State Historic Preservation Officer as having met the requirements of the National Historic Preservation Act of 1966 as amended in 1980.

Letter of map change (LOMC). An official determination issued by FEMA that amends or revises an effective Flood Insurance Rate Map or Flood Insurance Study. Letters of Map Change include:

- (a) Letter of Map Amendment (LOMA): An official amendment, by letter, to an effective National Flood Insurance Program map. A LOMA is based on technical data showing that a property had been inadvertently mapped as being in the floodplain, but is actually on natural high ground above the base flood elevation. A LOMA amends the current effective Flood Insurance Rate Map and establishes that a specific property, portion of a property, or structure is not located in a special flood hazard area.
- (b) Letter of Map Revision (LOMR): A revision based on technical data that may show changes to flood zones, flood elevations, special flood hazard area boundaries and floodway delineations, and other planimetric features.
- (c) Letter of Map Revision Based on Fill (LOMR-F): A determination that a structure or parcel of land has been elevated by fill above the BFE and is, therefore, no longer located within the special flood hazard area. In order to qualify for this determination, the fill must have been permitted and placed in accordance with the community's floodplain management regulations.
- (d) Conditional Letter of Map Revision (CLOMR): A formal review and comment as to whether a proposed project complies with the minimum NFIP requirements for such projects with respect to delineation of special flood hazard areas. A CLOMR does not revise the effective Flood Insurance Rate Map or Flood Insurance Study; upon submission and approval of certified as-built documentation, a Letter of Map Revision may be issued by FEMA to revise the effective FIRM.

Light Duty Truck. Any motor vehicle rated at 8,500 pounds Gross Vehicular Weight Rating or less which has a vehicular curb weight of 6,000 pounds or less and which has a basic vehicle frontal area of 45 square feet or less as defined in 40 CFR 86.082-2 and is:

- (a) Designed primarily for purposes of transportation of property or is a derivation of such a vehicle, or
- (b) Designed primarily for transportation of persons and has a capacity of more than 12 persons; or
- (c) Available with special features enabling off-street or off-highway operation and use.

Lowest adjacent grade (LAG). The elevation of the ground, sidewalk, or patio slab immediately next to the building, or deck support, after completion of the building.

Lowest floor. 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 limited storage in an area other than a basement area is not considered a building's lowest floor,

provided that such an enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Section 11.4 .

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

Manufactured home park or subdivision. A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Map repository. The location of the official flood hazard data to be applied for floodplain management. It is a central location in which flood data is stored and managed; in North Carolina, FEMA has recognized that the application of digital flood hazard data products have the same authority as hard copy products. Therefore, the NCEM's Floodplain Mapping Program websites house current and historical flood hazard data. For effective flood hazard data the NC FRIS website (<http://FRIS.NC.GOV/FRIS>) is the map repository, and for historical flood hazard data the FloodNC website (<http://FLOODNC.GOV/NCFLOOD>) is the map repository.

Market value. The building value, not including the land value and that of any accessory structures or other improvements on the lot. Market value may be established by independent certified appraisal; replacement cost depreciated for age of building and quality of construction (actual cash value); or adjusted tax assessed values.

New construction. Structures for which the "start of construction" commenced on or after March 1, 1984 and includes any subsequent improvements to such structures.

Non-conversion agreement. A document stating that the owner will not convert or alter what has been constructed and approved. Violation of the agreement is considered a violation of the ordinance and, therefore, subject to the same enforcement procedures and penalties. The agreement must be filed with the recorded deed for the property. The agreement must show the clerk's or recorder's stamps and/or notations that the filing has been completed.

Non-encroachment area. The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot as designated in the flood insurance study report.

Post-FIRM. Construction or other development for which the "start of construction" occurred on or after the effective date of the initial flood insurance rate map for the area, July 3, 1978.

Pre-FIRM. Construction or other development for which the "start of construction" occurred before the effective date of the initial flood insurance rate map for the area, July 3, 1978.

Principally above ground. At least 51 percent of the actual cash value of the structure is above ground.

Public safety and/or nuisance. Anything which is injurious to the safety or health of an entire community or neighborhood, or any considerable number of persons, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin.

Recreational vehicle (RV). A vehicle, which is:

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.

Reference level. The top of the lowest floor for structures within SFHAs designated as Zone A1--A30, AE, A, AO, A99 or Zone X (Future).

Regulatory flood protection elevation. The BFE plus the "freeboard". In SFHAs where BFEs have been determined, this elevation shall be the BFE plus two feet of freeboard. In SFHAs where no BFE has been established, this elevation shall be at least two feet above the highest adjacent grade. In Future Conditions Flood Hazard Areas this elevation shall be the Future Conditions Flood Elevation plus two feet of freeboard.

Remedy a violation. To bring the structure or other development into compliance with state and community floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impact may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of Section 11.4. or otherwise deterring future similar violations, or reducing federal financial exposure with regard to the structure or other development.

Riverine. Relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Salvage yard. Any non-residential property used for the storage, collection, and/or recycling of any type of equipment, and including but not limited to vehicles, appliances, and related machinery.

Solid waste disposal facility. Any facility involved in the disposal of solid waste as that term is defined in G.S. § 130A- 290(a)(35).

Solid waste disposal site. As defined in G.S. § 130A-290(a)(36), any place at which solid wastes are disposed of by incineration, sanitary landfill, or any other method.

Special flood hazard area (SFHA). The land in the floodplain subject to a one percent or greater chance of being flooded in any given year, as determined in Section 11.4.34.

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 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 the building, whether or not that alteration affects the external dimensions of the building.

Structure. A walled and roofed building, a manufactured home, or a gas, liquid, or liquefied gas storage tank that is principally above ground.

Substantial damage. Damage of any origin sustained by a structure during any one-year period 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. See definition of "substantial improvement". Substantial damage also means flood-related damage sustained by a structure on separate occasions during a 5-year period for which the cumulative cost of repairs equals or exceeds 50 percent of the market value of the structure before the damage occurred.

Substantial improvement. Any combination of repairs, reconstruction, rehabilitation, addition, or other improvement of a structure, taking place during any one-year period for which the cost equals or exceeds

50 percent of the market value of the structure before the "start of construction" of the improvement. Substantial improvement also means improvement to a structure on separate occasions during a 5-year period for which the cumulative cost equals or exceeds 50 percent of the market value of the structure before improvements occurred. 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 correction of existing violations of state or community health, sanitary, or safety code specifications which have been identified by the community 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.

Technical bulletin and technical fact sheet. A FEMA publication that provides guidance concerning the building performance standards of the NFIP, which are contained in Title 44 of the U.S. Code of Federal Regulations at Section 60.3. The bulletins and fact sheets are intended for use primarily by State and local officials responsible for interpreting and enforcing NFIP regulations and by members of the development community, such as design professionals and builders. New bulletins, as well as updates of existing bulletins, are issued periodically as needed. The bulletins do not create regulations; rather they provide specific guidance for complying with the minimum requirements of existing NFIP regulations.

Temperature controlled. Having the temperature regulated by a heating and/or cooling system, built-in or appliance.

Variance. A grant of relief from the requirements of Section 11.4.

Violation. 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 section 11.4.5. are presumed to be in violation until such time as that documentation is provided.

Water surface elevation (WSE). The height, in relation to mean sea level, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

Watercourse. A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.

11.4.3. General Provisions

A. Lands to which Section 11.4. Applies

This ordinance shall apply to all SFHAs and Future Conditions Flood Hazard Areas within the jurisdiction, including ETJs, of Town of Garner and within the jurisdiction of any other community whose governing body agrees, by resolution, to such applicability.

B. Basis for Establishing the SHFAs

The SFHAs and Future Conditions Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its FIS dated July 19, 2022, for Wake County and associated DFIRM panels, including any digital data developed as part of the FIS, and any revision thereto, which are adopted by reference and declared a part of this ordinance.

C. Establishment of Floodplain Development Permit

A floodplain development permit shall be required in conformance with the provisions of Section 11.4. prior to the commencement of any development activities within SFHAs and Future Conditions Flood Hazard Areas determined in accordance with Section 11.4. of this ordinance.

D. Compliance

No structure or land shall hereafter be located, extended, converted, altered, or developed in any way without full compliance with the terms of Section 11.4. and other applicable regulations.

E. Abrogation and Greater Restrictions

Section 11.4. is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where Section 11.4. and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

F. Interpretation

In the interpretation and application of Section 11.4., all provisions shall be:

1. Considered as minimum requirements.
2. Liberally construed in favor of the governing body.
3. Deemed neither to limit nor repeal any other powers granted under North Carolina state law.

G. Warning and Disclaimer of Liability

The degree of flood protection required by Section 11.4. is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur. Actual flood heights may be increased by man-made or natural causes. Section 11.4.

does not imply that land outside the SFHAs and Future Conditions Flood Hazard Areas or uses permitted within such areas will be free from flooding or flood damages. Section 11.4. shall not create liability on the part of Town of Garner or by any officer or employee thereof for any flood damages that result from reliance on Section 11.4. or any administrative decision lawfully made hereunder.

- H. Penalties for Violation of the provisions of this ordinance or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall constitute a Class 1 misdemeanor pursuant to NC G.S. § 143-215.58. Any person who violates this ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than \$100.00 or imprisoned for not more than thirty (30) days, or both. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent Town of Garner from taking such other lawful action as is necessary to prevent or remedy any violation.

11.4.4. Administration

- A. Designation of Floodplain Administrator

The Town Engineer or their designee, hereinafter referred to as the "Floodplain Administrator", is hereby appointed to administer and implement the provisions of Section 11.4.

- B. Floodplain Development Permits

1. Application Requirements

Application for a floodplain development permit shall be made to the Floodplain Administrator prior to any development activities located within SFHAs and Future Conditions Flood Hazard Areas. An application for a floodplain development permit must be preceded by the issuance of a variance from the BOA for any new development. The following items shall be presented to the Floodplain Administrator to apply for a floodplain development permit:

- a. A plot plan drawn to scale which shall include, but shall not be limited to, the following specific details of the proposed floodplain development:
 - i. The nature, location, dimensions, and elevations of the area of development/disturbance; existing and proposed structures, utility systems, grading/pavement areas, fill materials, storage areas, drainage facilities, and other development.
 - ii. The boundary of the SFHA and Future Conditions Flood Hazard Areas as delineated on the FIRM or other flood map as determined in Section 11.4.4. or a statement that the entire lot is within the SFHA or Future Conditions Flood Hazard Area.
 - iii. Flood zone(s) designation of the proposed development area as determined on the FIRM or other flood map as determined in Section 11.4.3, the boundary of the floodway(s) or non-

- encroachment area(s) as determined in Section 11.4.3.
- iv. The BFE or Future Conditions Flood Elevation where provided as set forth in Section 11.4.3.
 - v. The old and new location of any watercourse that will be altered or relocated as a result of proposed development.
 - vi. Certification of the plot plan by a registered land surveyor or professional engineer.
- b. Proposed elevation, and method thereof, of all development within a SFHA or Future Conditions Flood Hazard Area including but not limited to:
- i. Elevation in relation to NAVD 1988 of the proposed reference level (including basement) of all structures.
 - ii. Elevation in relation to NAVD 1988 to which any non-residential structure in Zone AE, A, or AO will be flood-proofed.
 - iii. Elevation in relation to NAVD 1988 to which any proposed utility systems will be elevated or floodproofed.
- c. If floodproofing, a floodproofing certificate (FEMA Form 086-0-34) with supporting data and an operational plan that includes, but is not limited to, installation, exercise, and maintenance of floodproofing measures.
- d. A foundation plan, drawn to scale, which shall include details of the proposed foundation system to ensure all provisions of Section 11.4. are met. These details include but are not limited to:
- i. The proposed method of elevation, if applicable (i.e., fill, solid foundation perimeter wall, solid backfilled foundation, open foundation on columns, posts, piers, piles, and/or shear walls).
 - ii. Openings to facilitate equalization of hydrostatic flood forces on walls in accordance with Section 11.4.7.B.4., when solid foundation perimeter walls are used in Zones A, AO, AE, AH, A99 and Zone X (Future).
- e. Usage details of any enclosed areas below the regulatory flood protection elevation.
- f. Plans and/or details for the protection of public utilities and facilities such as sewer, gas, electrical, and water systems to be located and constructed to minimize flood damage;
- g. Certification that all other Local, State, and Federal permits required prior to floodplain development permit issuance have

been received.

- h. Documentation for placement of recreational vehicles and/or temporary structures, when applicable, to ensure sections 11.4.7.D. and 11.4.7.E. of this ordinance are met.
- i. A description of proposed watercourse alteration or relocation, when applicable, including an engineering report on the effects of the proposed project on the flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and a map (if not shown on plot plan) showing the location of the proposed watercourse alteration or relocation.

2. Permit Requirements

The floodplain development permit shall include, but not be limited to:

- a. A complete description of all development to be permitted under the floodplain development permit (e.g. house, garage, pool, septic, bulkhead, cabana, pier, bridge, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials, etc.).
- b. The SFHA or Future Conditions Flood Hazard Area determination for the proposed development per available data specified in Section 11.4.4.
- c. The regulatory flood protection elevation required for the reference level and all attendant utilities.
- d. The regulatory flood protection elevation required for the protection of all public utilities.
- e. All certification submittal requirements with timelines.
- f. A statement that no fill material or other development shall encroach into the floodway or non-encroachment area of any watercourse, as applicable.
- g. The flood openings requirements, if in Zones A, AO, AE, AH, A99 or Zone X (Future).

11.4.5. Certification Requirements

A. Elevation Certificates

- 1. An elevation certificate (FEMA Form 086-0-33) is required prior to the actual start of any new construction. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the elevation of the reference level, in relation to NAVD 1988. The floodplain administrator shall review the certificate data submitted. Deficiencies detected by such review shall be

corrected by the permit holder prior to the beginning of construction. Failure to submit the certification or failure to make required corrections shall be cause to deny a floodplain development permit.

2. A final as-built elevation certificate (FEMA Form 086-0-33) is required after construction is completed and prior to certificate of compliance/occupancy issuance. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of final as-built construction of the elevation of the reference level and all attendant utilities. The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to certificate of compliance/occupancy issuance. In some instances, another certification may be required to certify corrected as-built construction. Failure to submit the certification or failure to make required corrections shall be cause to withhold the issuance of a certificate of compliance/occupancy. The Finished Construction Elevation Certificate certifier shall provide at least 2 photographs showing the front and rear of the building taken within 90 days from the date of certification. The photographs must be taken with views confirming the building description and diagram number provided in Section A. To the extent possible, these photographs should show the entire building including foundation. If the building has split-level or multi-level areas, provide at least 2 additional photographs showing side views of the building. In addition, when applicable, provide a photograph of the foundation showing a representative example of the flood openings or vents. All photographs must be in color and measure at least 3" x 3". Digital photographs are acceptable.

B. Floodproofing Certificate

1. If non-residential floodproofing is used to meet the regulatory flood protection elevation requirements, a floodproofing certificate (FEMA Form 086-0-34), with supporting data, an operational plan, and an inspection and maintenance plan is required prior to the actual start of any new construction. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to NAVD1988. Floodproofing certification shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. The Floodplain Administrator shall review the certificate data, the operational plan, and the inspection and maintenance plan. Deficiencies detected by such review shall be corrected by the applicant prior to permit approval. Failure to submit the certification or failure to make required corrections shall be cause to deny a

floodplain development permit. Failure to construct in accordance with the certified design shall be cause to withhold the issuance of a certificate of compliance/occupancy.

2. A final Finished Construction Floodproofing Certificate (FEMA Form 086-0-34), with supporting data, an operational plan, and an inspection and maintenance plan are required prior to the issuance of a Certificate of Compliance/Occupancy. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to NAVD 1988. Floodproofing certificate shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. The Floodplain Administrator shall review the certificate data, the operational plan, and the inspection and maintenance plan. Deficiencies detected by such review shall be corrected by the applicant prior to Certificate of Occupancy. Failure to submit the certification or failure to make required corrections shall be cause to deny a Floodplain Development Permit. Failure to construct in accordance with the certified design shall be cause to deny a Certificate of Compliance/Occupancy.

C. If a manufactured home is placed within Zone A, AO, AE, AH, A99 or or Zone X (Future) and the elevation of the chassis is more than 36 inches in height above grade, an engineered foundation certification is required per Section 11.4.7.B.3.

D. If a watercourse is to be altered or relocated, a description of the extent of watercourse alteration or relocation; a professional engineer's certified report on the effects of the proposed project on the flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and a map showing the location of the proposed watercourse alteration or relocation shall all be submitted by the permit applicant prior to issuance of a floodplain development permit.

E. Certification Exemptions

The following structures, if located within Zone A, AO, AE, AH, A99 or or Zone X (Future), are exempt from the elevation/floodproofing certification requirements specified in the preceding subsection A.:

1. Recreational vehicles meeting requirements of Section 11.4.7.D.1.;
2. Temporary structures meeting requirements of Section 11.4.7.E.;
- and
3. Accessory structures less than 150 square feet meeting requirements of Section 11.4.7.F.

F. Determination for Existing Buildings and Structures

For applications for building permits to improve buildings and structures, including alterations, movement, enlargement, replacement, repair, change of occupancy, additions, rehabilitations, renovations, substantial improvements, repairs of substantial damage, and any other improvement of or work on such buildings and structures, the Floodplain Administrator, in coordination with the Building Official, shall:

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 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; and
4. Notify the applicant if it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the NC Building Code and this ordinance is required.

G. Duties and Responsibilities of the Floodplain Administrator

The Floodplain Administrator shall perform, but not be limited to, the following duties:

1. Review all floodplain development applications and issue permits for all proposed development within SFHA and Future Conditions Flood Hazard Areasto assure that the requirements of Section 11.4. have been satisfied.
2. Advise permittee that additional federal or state permits (wetlands, endangered species, erosion and sedimentation control, riparian buffers, mining, etc.) may be required, and require that copies of such permits be provided and maintained on file with the floodplain development permit.
3. Notify adjacent communities and the North Carolina Department of Public Safety, Division of Emergency Management, State Coordinator for the National Flood Insurance Program prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the federal emergency management agency (FEMA).
4. Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood- carrying capacity is not diminished.

5. Prevent encroachments into floodways and non-encroachment areas unless the certification and flood hazard reduction provisions of Section 11.4.7.C. are met.
6. Obtain actual elevation (in relation to NAVD 1988) of the reference level (including basement) and all attendant utilities of all new or substantially improved structures, in accordance with Section 11.4.4.B.1.d.
7. Obtain actual elevation (in relation to mean sea level) to which all new and substantially improved structures and utilities have been floodproofed, in accordance with Section 11.4.4.B.1.d.
8. Obtain actual elevation (in relation to NAVD 1988) of all public utilities in accordance with Section 11.4.4.B.1.d.
9. When floodproofing is utilized for a particular structure, obtain certifications from a registered professional engineer or architect in accordance with Section 11.4.4.B.1.d. and Section 11.4.7.B.2.
10. Where interpretation is needed as to the exact location of boundaries of the SFHA or Future Conditions Flood Hazard Areas, floodways, or non-encroachment areas (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), make the necessary interpretation. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.
11. When BFE data has not been provided in accordance with Section 11.4.4., obtain, review, and reasonably utilize any BFE data, along with floodway data or non-encroachment area data available from a Federal, State, or other source, including data developed pursuant to Section 11.4.8.A.2.c., in order to administer the provisions of this ordinance.
12. When BFE data is provided but no floodway nor non-encroachment area data has been provided in accordance with Section 11.4.5., obtain, review, and reasonably utilize any floodway data or non-encroachment area data available from a federal, state, or other source in order to administer the provisions of this ordinance.
13. When the lowest ground elevation of a parcel or structure in a SFHA is above the BFE, advise the property owner of the option to apply for a letter of map amendment (LOMA) from FEMA. Maintain a copy of the LOMA issued by FEMA in the floodplain development permit file.
14. Permanently maintain all records that pertain to the administration of Section 11.4. and make these records available for public inspection, recognizing that such information may be subject to the Privacy Act of 1974, as amended.

15. Make on-site inspections of work in progress. As the work pursuant to a floodplain development permit progresses, the Floodplain Administrator shall make as many inspections of the work as may be necessary to ensure that the work is being done according to the provisions of Section 11.4 and the terms of the permit. In exercising this power, the Floodplain Administrator has a right, upon presentation of proper credentials, to enter on any premises within the jurisdiction (including ETJ) of the Town of Garner at any reasonable hour for the purposes of inspection or other enforcement action.
16. Issue stop-work orders as required. Whenever a building or part thereof is being constructed, reconstructed, altered, or repaired in violation of this ordinance, the Floodplain Administrator may order the work to be immediately stopped. The stop-work order shall be in writing and directed to the person doing the work. The stop-work order shall state the specific work to be stopped, the specific reason(s) for the stoppage, and the condition(s) under which the work may be resumed.
17. Revoke floodplain development permits as required. The Floodplain Administrator may revoke and require the return of the floodplain development permit by notifying the permit holder in writing stating the reason(s) for the revocation. Permits shall be revoked for any substantial departure from the approved application, plans, or specifications; for refusal or failure to comply with the requirements of State or local laws; or for false statements or misrepresentations made in securing the permit. Any floodplain development permit mistakenly issued in violation of an applicable state or local law may also be revoked.
18. Make periodic inspections throughout all SFHAs within the jurisdiction (including ETJ) of the Town of Garner. The Floodplain Administrator and each member of his or her inspections department shall have a right, upon presentation of proper credentials, to enter on any premises within the territorial jurisdiction of the department at any reasonable hour for the purposes of inspection or other enforcement action.
19. Follow through with corrective procedures of Section 11.4.6.
20. Review, provide input, and make recommendations for variance requests.
21. Maintain a current map repository to include, but not limited to, the FIS Report, FIRM and other official flood maps and studies adopted in accordance with Section 11.4.5., including any revisions thereto including letters of map change, issued by FEMA. Notify state and FEMA of mapping needs.

22. Coordinate revisions to FIS reports and FIRMs, including letters of map revision based on fill (LOMR-F) and LOMAs.

11.4.6. Corrective Procedures

A. Violations to Be Corrected

When the Floodplain Administrator finds violations of applicable state and local laws, it shall be his or her duty to notify the owner or occupant of the building of the violation. The owner or occupant shall immediately remedy each of the violations of law cited in such notification.

B. Actions in Event of Failure to Take Corrective Action

If the owner of a building or property shall fail to take prompt corrective action, the Floodplain Administrator shall give the owner written notice, by certified or registered mail to the owner's last known address or by personal service, stating:

1. That the building or property is in violation of the flood damage prevention ordinance;
2. That a hearing will be held before the Floodplain Administrator at a designated place and time, not later than 10 days after the date of the notice, at which time the owner shall be entitled to be heard in person or by legal counsel and to present arguments and evidence pertaining to the matter; and
3. That following the hearing, the Floodplain Administrator may issue an order to alter, vacate, or demolish the building; or to remove fill as appears appropriate.

C. Order to Take Corrective Action

If, upon a hearing held pursuant to the notice prescribed in subsection B, the Floodplain Administrator shall find that the building or development is in violation of the flood damage prevention ordinance, they shall issue an order in writing to the owner, requiring the owner to remedy the violation within a specified time period, not less than 60 calendar days, nor more than 180 calendar days. Where the Floodplain Administrator finds that there is imminent danger to life or other property, they may order that corrective action be taken in such lesser period as may be feasible.

D. Appeal

Any owner who has received an order to take corrective action may appeal the order to the BOA by giving notice of appeal in writing to the Floodplain Administrator and the clerk within 10 days following issuance of the final order. In the absence of an appeal, the order of the Floodplain Administrator shall be final. The BOA shall hear an appeal within a reasonable time and may affirm, modify, and affirm, or revoke the order.

E. Failure to Comply with Order

If the owner of a building or property fails to comply with an order to take corrective action for which no appeal has been made or fails to comply with an order of the governing body following an appeal, the owner shall be guilty of a misdemeanor, pursuant to G.S. §143-215.58, and shall be punished at the discretion of the court.

F. Variance Procedures

1. The BOA as established by the Town of Garner, hereinafter referred to as the "appeal board", shall hear and decide requests for variances from the requirements of Section 11.4.
2. Any person aggrieved by the decision of the appeal board may appeal such decision to the Court, as provided in G.S. Chapter 160D Article 14.
3. Variances may be issued for:
 - a. The repair or rehabilitation of historic structures upon the determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and that the variance is the minimum necessary to preserve the historic character and design of the structure.
 - b. Functionally dependent facilities if determined to meet the definition as stated in Section 11.4.2. of this ordinance, provided provisions of sections 11.4.6.F.9.b., 11.4.6.F.9.c., and 11.4.6.F.9.e. have been satisfied, and such facilities are protected by methods that minimize flood damages.
 - c. Any other type of development, provided it meets the requirements stated in this section.
4. In passing upon variances, the appeal board shall consider all technical evaluations, all relevant factors, all standards specified in other subsections of Section 11.4., and the following:
 - a. The danger that materials may be swept onto other lands to the injury of others.
 - b. The danger to life and property due to flooding or erosion damage.
 - c. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
 - d. The importance of the services provided by the proposed facility to the community.
 - e. The necessity to the facility of a waterfront location as defined under Section 11.4.2. as a functionally dependent facility, where

- applicable.
- f. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.
 - g. The compatibility of the proposed use with existing and anticipated development.
 - h. The relationship of the proposed use to the Comprehensive Growth Plan and floodplain management program for that area.
 - i. The safety of access to the property in times of flood for ordinary and emergency vehicles.
 - j. The expected heights, velocity, duration, rate of rise, and sediment transport of the floodwaters.
 - k. The effects of wave action, if applicable, expected at the site.
 - l. The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, and streets and bridges.
5. A written report addressing each of the above factors shall be submitted with the application for a variance.
 6. Upon consideration of the factors listed above and the purposes of Section 11.4., the appeal board may attach such conditions to the granting of variances as it deems necessary to further the purposes of Section 11.4.
 7. Any applicant to whom a variance is granted shall be given written notice specifying the difference between the BFE and the elevation to which the structure is to be built and that such construction below the BFE increases risks to life and property, and that the issuance of a variance to construct a structure below the BFE will result in increased premium rates for flood insurance up to \$25.00 per \$100.00 of insurance coverage. Such notification shall be maintained with a record of all variance actions, including justification for their issuance.
 8. The Floodplain Administrator shall maintain the records of all appeal actions and report any variances to the federal emergency management agency and the State of North Carolina upon request.
 9. Conditions for variances:
 - a. Variances shall not be issued when the variance will make the structure in violation of other federal, state, or local laws, regulations, or ordinances.
 - b. Variances shall not be issued within any designated floodway or non-encroachment area if the variance would result in any

- increase in flood levels during the base flood discharge.
- c. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
 - d. Variances shall only be issued prior to development permit approval.
 - e. Variances shall only be issued upon:
 - i. A showing of good and sufficient cause;
 - ii. A determination that failure to grant the variance would result in exceptional hardship; and
 - iii. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense, create nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
 - f. A variance may be issued for solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities that are located in SFHAs or Future Conditions Flood Hazard Areas provided that all of the following conditions are met:
 - i. The use serves a critical need in the community.
 - ii. No feasible location exists for the use outside the SFHA or Future Conditions Flood Hazard Area.
 - iii. The reference level of any structure is elevated or floodproofed to at least the regulatory flood protection elevation.
 - iv. The use complies with all other applicable federal, state, and local laws.
 - v. The Town of Garner has notified the Secretary of the North Carolina Department of Crime Control and Public Safety of its intention to grant a variance at least 30 calendar days prior to granting the variance.

11.4.7. Provisions for Flood Hazard Reduction

A. General Standards

In all SFHAs and Future Conditions Flood Hazard Areas, the following provisions are required:

1. All new construction and substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse, and lateral movement of the structure.

2. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage in accordance with the FEMA Technical Bulletin 2, Flood Damage-Resistant Materials Requirements.
3. All new construction and substantial improvements shall be constructed by methods and practices that minimize flood damages.
4. Electrical, heating, ventilation, plumbing, 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. These include, but are not limited to, HVAC equipment, water softener units, bath/kitchen fixtures, ductwork, electric/gas meter panels/boxes, utility/cable boxes, appliances (washers, dryers, refrigerators, freezers, etc.), hot water heaters, and electric outlets/switches.
5. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
6. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into flood waters.
7. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.
8. Nothing in this ordinance shall prevent the repair, reconstruction, or replacement of a building or structure existing prior to March 1, 1984, and located totally or partially within the floodway, non-encroachment area, or stream setback, provided there is no additional encroachment below the regulatory flood protection elevation in the floodway, non-encroachment area, or stream setback, and provided that such repair, reconstruction, or replacement meets all of the other requirements of this ordinance.
9. New solid waste disposal facilities and sites, hazardous waste management facilities, salvage yards, and chemical storage facilities shall not be permitted, except by variance as specified in Section 11.4.6.F.9.f. A structure or tank for chemical or fuel storage incidental to an allowed use or to the operation of a water treatment plant or wastewater treatment facility may be located in a SFHA or Future Conditions Flood Hazard Area only if the structure or tank is either elevated or floodproofed to at least the regulatory flood protection elevation and certified according to Section 11.4.5. of this ordinance.
10. All subdivision proposals and other development proposals shall be consistent with the need to minimize flood damage.
11. All subdivision proposals and other development proposals shall

have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.

12. All subdivision proposals and other development proposals shall have adequate drainage provided to reduce exposure to flood hazards.
13. All subdivision proposals and other development proposals shall have received all necessary permits from those governmental agencies for which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1344.
14. When a structure is partially located in a SFHA, the entire structure shall meet the requirements for new construction and substantial improvements.
15. When a structure is located in multiple flood hazard zones or in a flood hazard risk zone with multiple base flood elevations, the provisions for the more restrictive flood hazard risk zone and highest BFE shall apply.
16. Fill material located within any SFHA or Future Conditions Flood Hazard Area used for a proposed development shall require certification by a professional engineer, supported by appropriate documentation, that such fill material will not raise the 100-year floodplain elevation on any upstream property during a base flood event.

B. Specific Standards

In all SFHAs and Future Conditions Flood Hazard Areas where BFE data has been provided, as set forth in Section 11.4.3, the following provisions, in addition to Section 11.4.7.A., are required:

1. Residential Construction

New construction and substantial improvement of any residential structure (including manufactured homes) shall have the reference level, including basement, elevated no lower than the regulatory flood protection elevation, as defined in Section 11.4.2. of this ordinance.

2. Nonresidential Construction

New construction and substantial improvement of any commercial, industrial, or other non-residential structure shall have the reference level, including basement, elevated no lower than the regulatory flood protection elevation, as defined in Section 11.4.5. of this ordinance. Structures located in Zones A, AE, AH, AO, and and X (Future) may be floodproofed to the regulatory flood protection elevation in lieu of elevation provided that all areas of the structure, together with attendant utility and sanitary facilities, below the

regulatory flood protection elevation are watertight with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. For AO Zones, the floodproofing elevation shall be in accordance with Section 11.4.8.D.2. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator as set forth in Section 11.4.5.D., along with the operational and maintenance plans.

3. Manufactured Homes

- a. New or replacement manufactured homes shall be elevated so that the reference level of the manufactured home is no lower than the regulatory flood protection elevation, as defined in Section 11.4.2. of this ordinance.
- b. Manufactured homes shall be securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement, either by engineer certification, or in accordance with the most current edition of the State of North Carolina Regulations for Manufactured Homes adopted by the Commissioner of Insurance pursuant to G.S. § 143-143.15. Additionally, when the elevation would be met by an elevation of the chassis 36 inches or less above the grade at the site, the chassis shall be supported by reinforced piers or engineered foundation. When the elevation of the chassis is above 36 inches in height, an engineering certification is required.
- c. All enclosures or skirting below the lowest floor shall meet the requirements of Section 11.4.7.B.4.
- d. An evacuation plan must be developed for evacuation of all residents of all new, substantially improved or substantially damaged manufactured home parks or subdivisions located within flood prone areas. This plan shall be filed with and approved by the Floodplain Administrator and the local emergency management coordinator.

4. Elevated Buildings

Fully enclosed area, of new construction and substantially improved structures, which is below the lowest floor:

- a. Shall not be designed or used for human habitation, but shall only be used for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment (standard exterior door), or

entry to the living area (stairway or elevator). The interior portion of such enclosed area shall not be finished or partitioned into separate rooms, except to enclose storage areas;

- b. Shall not be temperature-controlled or conditioned;
- c. Shall be constructed entirely of flood resistant materials below the regulatory flood protection elevation;
- d. Shall include, in Zones A, AO, AE, AH, A99 and X (Future), flood openings to automatically equalize hydrostatic flood forces on walls by allowing for the entry and exit of floodwaters. To meet this requirement, the openings must either be certified by a professional engineer or architect or meet or exceed all of the following minimum design criteria:
 - i. A minimum of two flood openings on different sides of each enclosed area subject to flooding.
 - ii. The total net area of all flood openings must be at least one square inch for each square foot of enclosed area subject to flooding.
 - iii. If a building has more than one enclosed area, each enclosed area must have flood openings to allow floodwaters to automatically enter and exit.
 - iv. The bottom of all required flood openings shall be no higher than one foot above the adjacent grade.
 - v. Flood openings may be equipped with screens, louvers, or other coverings or devices, provided they permit the automatic flow of floodwaters in both directions.
 - vi. Enclosures made of flexible skirting are not considered enclosures for regulatory purposes, and, therefore, do not require flood openings. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires flood openings as outlined above.
- e. Property owners shall be required to execute and record a non-conversion agreement prior to issuance of a building permit declaring that the area below the lowest floor shall not be improved, finished or otherwise converted to habitable space; Town of Garner will have the right to inspect the enclosed area. This agreement shall be recorded with the Wake County Register of Deeds and shall transfer with the property in perpetuity.

C. Additions / Improvements

- 1. Additions and/or improvements to pre-FIRM structures when the addition and/or improvements in combination with any interior modifications to the existing structure are:

- a. Not a substantial improvement, the addition and/or improvements must be designed to minimize flood damages and must not be any more non-conforming than the existing structure.
 - b. A substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.
2. Additions to post-FIRM structures with no modifications to the existing structure other than a standard door in the common wall shall require only the addition to comply with the standards for new construction.
3. Additions and/or improvements to post-FIRM structures when the addition and/or improvements in combination with any interior modifications to the existing structure are:
 - a. Not a substantial improvement, the addition and/or improvements only must comply with the standards for new construction.
 - b. A substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.
4. Any combination of repair, reconstruction, rehabilitation, addition or improvement of a building or structure taking place during a five year period, the cumulative cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started must comply with the standards for new construction. For each building or structure, the five year period begins on the date of the first improvement or repair of that building or structure subsequent to the effective date of this ordinance. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The requirement 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 assume safe living conditions; or
 - b. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.
5. Where an independent perimeter load-bearing wall is provided between the addition and the existing building, the addition(s) shall be considered a separate building and only the addition must comply with the standards for new construction.

D. Recreational Vehicles

Recreational vehicles shall either:

1. Be on site for fewer than 180 consecutive days and 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 has no permanently attached additions); or
2. Meet all the requirements for new construction.

E. Temporary Nonresidential Structures

Prior to the issuance of a floodplain development permit for a temporary structure, the applicant must submit to the Floodplain Administrator a plan for the removal of such structure(s) in the event of a hurricane, flash flood or other type of flood warning notification. The following information shall be submitted in writing to the Floodplain Administrator for review and written approval;

1. A specified time period for which the temporary use will be permitted. Time specified may not exceed three months, renewable up to one year;
2. The name, address, and phone number of the individual responsible for the removal of the temporary structure;
3. The time frame prior to the event at which a structure will be removed (i.e., minimum of 72 hours before landfall of a hurricane or immediately upon flood warning notification);
4. A copy of the contract or other suitable instrument with the entity responsible for physical removal of the structure; and
5. Designation, accompanied by documentation, of a location outside the SFHA or Future Conditions Flood Hazard Area, to which the temporary structure will be moved.

F. Accessory Structures

When accessory structures (sheds, detached garages, etc.) are to be placed within a SFHA or Future Conditions Flood Hazard Area, the following criteria shall be met:

1. Accessory structures shall not be used for human habitation (including working, sleeping, living, cooking, or restroom areas).
2. Accessory structures shall not be temperature-controlled.
3. Accessory structures shall be designed to have low flood damage potential.
4. Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters.

5. Accessory structures shall be firmly anchored in accordance with Section 11.4.7.A.1.
6. All service facilities such as electrical shall be installed in accordance with Section 11.4.7.A.4.
7. Flood openings to facilitate automatic equalization of hydrostatic flood forces shall be provided below regulatory flood protection elevation in conformance with Section 11.4.7.B.4.c.
8. An accessory structure with a footprint less than 150 square feet that satisfies the criteria outlined above does not require an elevation or floodproofing certificate. Elevation or floodproofing certifications are required for all other accessory structures in accordance with Section 11.4.5.

G. Tanks

When gas and liquid storage tanks are to be placed within a SFHA or Future Conditions Flood Hazard Area, the following criteria shall be met:

1. Underground tanks. Underground tanks in flood hazard area shall be anchored to prevent flotation, collapse, or lateral movement resulting from hydrodynamic and hydrostatic loads during conditions of the design flood, including the effects of buoyancy assuming the tank is empty;
2. Above-ground tanks, elevated. Above-ground tanks in flood hazard areas shall be elevated to or above the Regulatory Flood Protection Elevation on a supporting structure that is designed to prevent flotation, collapse or lateral movement during conditions of the design flood. Tank-supporting structures shall meet the foundation requirements of the applicable flood hazard area;
3. Above-ground tanks, not elevated. Above-ground tanks that do not meet the elevation requirements shall be permitted in flood hazard areas provided the tanks are designed, constructed, installed, and anchored to resist all flood-related and other loads, including the effects of buoyancy, during conditions of the design flood and without release of contents in the floodwaters or infiltration by floodwaters into the tanks. Tanks shall be designed, constructed, installed, and anchored to resist the potential buoyant and other flood forces acting on an empty tank during design flood conditions.
4. Tank inlets and vents. Tank inlets, fill openings, outlets and vents shall be:
 - a. At or above the Regulatory Flood Protection Elevation or fitted with covers designed to prevent the inflow of floodwater or outflow of the contents of the tanks during conditions of the design flood; and
 - b. Anchored to prevent lateral movement resulting from

hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of the design flood.

H. Other Development

1. Fences in regulated floodways and NEAs that have the potential to block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the limitations of this Section.
2. Retaining walls, sidewalks and driveways in regulated floodways and NEAs. Retaining walls and sidewalks and driveways that involve the placement of fill in regulated floodways shall meet the limitations of this Section.
3. Roads and watercourse crossings in regulated floodways and NEAs. Roads and watercourse crossings, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other side, that encroach into regulated floodways shall meet the limitations of this Section.

11.4.8. Floodplain Standards

This section provides the standards for floodplains without established BFEs.

- A. Within the SFHAs designated as approximate zone and established in Section 11.4.3.B., where no BFE data has been provided by FEMA, the following provisions, in addition to Section 11.4.7.A. shall apply:
 1. No encroachments, including fill, new construction, substantial improvements or new development shall be permitted within a distance of 20 feet each side from top of bank or five times the width of the stream, whichever is greater, unless certification with supporting technical data by a registered professional engineer is provided demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
 2. The BFE used in determining the regulatory flood protection elevation shall be determined based on one of the following criteria set in priority order:
 - a. If BFE data is available from other sources, all new construction and substantial improvements within such areas shall also comply with all applicable provisions of this ordinance and shall be elevated or floodproofed in accordance with standards in Sections 11.4.7.A. and 11.4.7.B.
 - b. All subdivision, manufactured home park and other development proposals shall provide BFE data if development is greater than five acres or has more than 50 lots/manufactured home sites. Such BFE data shall be adopted by reference per Section

11.4.3.B. to be utilized in implementing this ordinance.

- c. When BFE data is not available from a federal, state, or other source as outlined above, the reference level shall be elevated to or above the regulatory flood protection elevation, as defined in Section 11.4.3.B.

B. Standards for Riverine Floodplains with BFE but without Established Floodways or Non-encroachment Areas

Along rivers and streams where BFE data is provided but neither floodway nor non-encroachment areas are identified for a SFHA on the FIRM or in the FIS report, the following requirements shall apply to all development within such areas:

1. Standards outlined in sections 11.4.7.A. and 11.4.7.B.
2. Until a regulatory floodway or non-encroachment area is designated, no encroachments, including fill, new construction, substantial improvements, or other development, shall be permitted unless certification with supporting technical data by a registered professional engineer is provided demonstrating 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.

C. Floodways and Non-encroachment Areas

Areas designated as floodways or non-encroachment areas are located within the SFHAs established in Section 11.4.4. The floodways and non-encroachment areas are extremely hazardous areas due to the velocity of floodwaters that have erosion potential and carry debris and potential projectiles. The following provisions, in addition to standards outlined in sections 11.4.7.A. and 11.4.7.B., shall apply to all development within such areas:

1. Construction within Floodways Restricted.

No development, including structures, fences, fill, or storage of materials or equipment, are permitted within a floodway or the conservation buffer areas of specified streams, as defined above, except the following:

- a. Pasture, forestry, wildlife sanctuary, game farm, and similar agricultural, wildlife, and related uses.
- b. Lawns, gardens, play areas, and similar areas.
- c. Golf courses, tennis courts, archery ranges, picnic grounds, parks, hiking or horseback riding trails, open space, and similar private and public recreational uses, provided that golf courses must have retention ponds.

- d. Public water, stormwater, or sewer infrastructure and highways.
- e. No artificial obstruction may be located within any floodway, except as provided above. For purposes of this section, an artificial obstruction is any obstruction, other than a natural obstruction, that can reduce the floodcarrying capacity of a stream, or may accumulate debris and thereby reduce the floodcarrying capacity of a stream. A natural obstruction includes any rock, tree, or analogous natural matter located within the floodway by a non-human cause.
- f. The use of fill materials within a floodway is prohibited unless certification by a registered professional engineer is provided demonstrating that no increase in flood levels during a base flood will result. Fill dirt within a floodplain shall be adequately stabilized to withstand the erosive force of the base flood.
- g. No new building construction or substantial improvement of an existing building may take place within any floodway.

2. No encroachments, including fill, new construction, substantial improvements, and other developments shall be permitted unless it has been demonstrated that:
 - a. The proposed encroachment would not result in any increase in the flood levels during the occurrence of the base flood, based on hydrologic and hydraulic analyses performed in accordance with standard engineering practice and presented to the Floodplain Administrator prior to issuance of floodplain development permit, or
 - b. A conditional letter of map revision (CLOMR) has been approved by FEMA. A letter of map revision (LOMR) must also be obtained upon completion of the proposed encroachment.
 3. If Section 11.4.8.C. is satisfied, all development shall comply with all applicable flood hazard reduction provisions of this Section.
 4. No manufactured homes shall be permitted, except replacement manufactured homes in an existing manufactured home park or subdivision, provided the following provisions are met:
 - a. The anchoring and the elevation standards of Section 11.4.7.B.3.;
and
 - b. The no encroachment standard of Section 11.4.8.C.2.a.
- D. Standards for Area of Shallow Flooding (Zone AO)

Located within the SFHAs established in Section 11.4.4., are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one to three feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate. In addition to sections 11.4.7.A. and 11.4.7.B., all new construction and substantial improvements shall meet the following requirements:

1. The reference level shall be elevated at least as high as the depth number specified on the FIRM, in feet, plus a freeboard of two feet, above the highest adjacent grade; or at least two feet above the highest adjacent grade plus a freeboard of two feet if no depth number is specified.
2. Non-residential structures may, in lieu of elevation, be floodproofed to the same level as required in Section 11.4.7.B.2. so that the structure, together with attendant utility and sanitary facilities, below that level shall be watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Certification is required as per Section 11.4.5.B. and Section 11.4.7.B.2. Adequate drainage paths shall be provided around structures on slopes, to

guide floodwaters around and away from proposed structures.

E. Standards for Area of Shallow Flooding (Zone AH)

Located within the Special Flood Hazard Areas established in Section 11.4.4, are areas designated as shallow flooding areas. These areas are subject to inundation by one-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are one to three feet. Base Flood Elevations are derived from detailed hydraulic analyses are shown in this zone. In addition to Section 11.4.4, all new construction and substantial improvements shall meet the following requirements:

1. Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.

11.5. TREE CONSERVATION, PRESERVATION, AND PROTECTION

11.5.1. Purpose

The purpose of this section to preserve and protect existing tree coverage. Existing trees enhance aesthetic appeal, increase land values, produce oxygen, reduce carbon dioxide, and water runoff, and decrease urban heat buildup and soil erosion.

11.5.2. Tree Survey

- A. All applications for grading, building, demolition, land use, change of use, or rezoning permits on all property, except single-family residential development, shall require a tree survey.
- B. For the purposes of single lot residential construction or on a property with an existing structure, a “tree survey” shall be a rendering of the property which indicates the current or proposed footprint of any structures or hardscape, along with an indication of regulated trees which are to be retained, as well as those that are to be removed. In the case of commercial or mixed-use development, the requirement for obtaining a permit is that the survey will be prepared by a surveyor, registered forester, landscape architect, or certified arborist.
- C. When a tree survey is required, it shall include the following:
 1. All trees of eight-inch DBH or greater and all planted trees of two-inch caliper or greater and six feet in height that grow partially or wholly within the right-of-way, with type (abbreviated) and DBH next to each location.
 2. Any trees meeting the DBH standards for preservation.
 3. Any existing tree of eight inches DBH or greater within the first 15 feet of the portion of any buffer closest to the subject development.
 4. Location of mature specimens of other vegetation.
 5. Exception: Specimen trees located within areas identified for permanent protection, including the following areas, are not required to be inventoried:
 - a. Floodway.
 - b. Floodway fringe.
 - c. Preserved wetlands.
 - d. Stream buffers.
 - e. Undisturbed slopes greater than 3:1 (30 percent).

Commentary:

When trees are shown on the landscaping plan, it is sufficient to identify them based on the landscaping materials they are meant to replace (e.g., canopy tree, understory tree, evergreen shrub, 24” DBH pine, etc).

11.5.3. Significant or Specimen Tree Protection

- A. The permit-issuing authority may require any trees meeting the minimum DBH size listed below and or any trees of any diameter listed as rare species listed under the North Carolina Natural Heritage Program to be saved. A tree survey will be required. Such trees shall be required to be saved only when the permit-issuing authority concludes such trees are not inside or within 20 feet of the footprint of a proposed structure or will not require a preservation of more than 1,600 square feet in a vehicular area, parking lot, or other developed area.

Tree Type	Tree Size
Overstory Hardwood Tree	24-inch DBH or greater
Evergreen Tree	30-inch DBH or greater
Understory Tree	10-inch DBH or greater

- B. When development is unreasonably burdened by retaining such trees, the following criteria is used by the developer and staff to jointly prioritize the saving of as many significant or specimen trees as possible based on the following criteria:
1. General health or evidence of disease/insects.
 2. Size and age of tree.
 3. Expected longevity of species.
 4. Size at maturity.
 5. Severity of slope.

11.5.4. Tree Canopy Preservation Requirements

- A. All new development must meet the tree canopy preservation requirements outlined in the tables below. These standards can be achieved by preserving existing trees on the site, or by planting replacement trees. Trees in required buffer yards and easements, and street trees are typically used to meet these requirements. Preference is given to preserving existing trees, rather than preservation and planting, or exclusive planting, and this preference is reflected in the standards of the table.
- B. Water surface areas of ponds, lakes, or other surface water bodies (excluding stormwater control structures) shall be excluded from the total land area for the purposes of calculating tree cover requirements.
- C. Where the site or a portion of the site falls within a Neuse River Basin (NRB) riparian buffer area, at least 2 percent of the gross site area tree cover requirement shall be provided outside of the NRB riparian buffer areas.

D. Tree Canopy Preservation Requirements

1. For residential development:

Preserved Tree Cover Area	Replacement Tree Cover Area	Minimum Total Tree Cover Area
18 percent	Plus 0 percent equals	18 percent
13.5 percent	Plus 5 percent equals	18.5 percent
9 percent	Plus 10 percent equals	19 percent
4.5 percent	Plus 15 percent equals	19.5 percent
0 percent	Plus 20 percent equals	20 percent

2. For nonresidential development:

Preserved Tree Cover Area	Replacement Tree Cover Area	Minimum Total Tree Cover Area
12 percent	Plus 0 percent equals	12 percent
9 percent	Plus 3.5 percent equals	12.5 percent
6 percent	Plus 7 percent equals	13 percent
3 percent	Plus 10.5 percent equals	13.5 percent
0 percent	Plus 14 percent equals	14 percent

E. Areas required to be undisturbed by other requirements of this UDO shall be presumed to meet requirements of this section, provided applicable standards are met.

1. All preliminary major subdivision plans, site plans, final plats, and other types of plans or permits shall clearly indicate all tree preservation areas.
2. Existing or planted tree cover areas in new subdivisions are strongly encouraged to be located in common open space areas or protected buffers, where possible. Where this is not practical, perimeter buffer areas or conservation easement areas may be increased, provided the root zone of such trees can be protected during construction.

F. Tree Preservation Site Handling Requirements

See Article 10, Section 10.3.5., Installation.

G. Replacement or Supplemental Tree Cover Requirements

1. Replacement or supplemental trees are required to meet the standards listed in the table herein.

DBH (inches)	Credit (square feet)
Less than 1.0	No credit
1.0	100 square feet

DBH (inches)	Credit (square feet)
1.5	150 square feet
2.0	175 square feet
2.5	200 square feet
Greater than 2.5	200 square feet + 25 square feet per 0.5 inches DBH greater than 2.5

2. At least 50 percent of the replacement trees shall be 2.5-inch DBH or larger.
3. At least 50 percent of the replacement trees must be large hardwoods native to this region.
4. The permit issuing authority shall have the authority to approve replacement trees of different sizes or species to better meet the purpose and intent of these regulations.

11.5.5. Preservation along Arterials and Major Thoroughfares

For development of new residential lots and new residential subdivisions abutting arterials and major thoroughfares, existing trees at or above four inches in DBH within 25 feet of the ultimate street right-of-way (post-development) must be preserved to the full extent of their drip line (root preservation area). These trees shall count towards the street tree requirement and buffering site interior landscaping, as applicable, as outlined in Article 10. This requirement does not apply to driveways, other planned access points or slope easements related to road widening where tree preservation is impracticable.

11.5.6. Preservation Incentives

A. Substitution

The following schedule outlines the minimum DBH for an existing tree to substitute for a new planting. To qualify, the trees must be in good health and quality, as determined by the Planning Director.

Existing Tree Type	DBH (inches)	Substituted for
Canopy Tree	2.5 to 5.5	1 Canopy Tree
	6.0 to 11.5	2 Canopy Trees
	12.0+	4 Canopy Trees
Understory Tree	2.5 to 4.5	1 Understory Tree
	5.0 to 10.5	2 Understory Trees
	11.0+	2 Canopy Trees, <u>or</u> 4 Understory Trees, <u>or</u> 1 Canopy Tree and 3 Understory Trees
Large Shrub	2.5 to 4.5	1 Large Shrub
	5.0 to 8.5	2 Large Shrubs
	9.0+	4 Large Shrubs

B. Parking Requirement Reduction

1. The Planning Director shall permit up to a 10 percent reduction in the number of off-street parking spaces required on a development site if the reduction will preserve the root zones of existing healthy specimen trees.
2. The amount of reduction shall be determined after considering the following factors:
 - a. Any unique site conditions.
 - b. The parking needs of the use.

11.5.7. Exemptions for Timbering and Silviculture

Normal forestry activities on property taxed under present-use value standard or conducted pursuant to a forestry management plan, prepared, and approved by a forester registered according to G.S. Chapter 89B are exempt from tree preservation requirements.

- A. No forestry activities may take place on property until the property owner or his representative has obtained a forestry permit from the Town of Garner Planning Department. Failure to obtain a permit shall subject the owner to a fine not to exceed \$500.00. Each day the violation continues shall be considered a new violation, subject to a new penalty.
- B. Forestry activities are strongly encouraged to exclude all tree harvesting within the following perimeter buffer areas:
 1. A 60-foot-wide buffer along roadways or adjoining developed properties; and
 2. A 30-foot-wide buffer adjoining undeveloped properties.
- C. In cases where all trees or substantially all trees are removed from future perimeter buffers areas, the Town will not grant site plan or subdivision plan approval for said property for a period of five years following the harvest of such trees. The five-year waiting period may be waived if the Town Council, by a three-fourths majority vote, determines a project to be desirable and grants the right to immediate development on recently timbered land where no perimeter buffer was kept. In these instances, any required perimeter buffers shall be fully planted or installed prior to any development occurring on the site.