ARTICLE 4
ENVIRONMENTAL/LAND-DISTURBING ACTIVITIES

***Summary**: This article regulates land-disturbing activities. All properties are subject to the requirements of Sec. 4-4, 4-5, and 4-6. The requirements in Sec. 4-2, 4-3, and 4-7 are location-dependent and most relevant for properties adjacent to or in close proximity to waterbodies. Property near waterbodies may be subject to water supply source watershed protection, waterbody protection, and floodplain life and property protection requirements.*

The first two sections after the Purpose focus on the protection of water quality. Sec. 4-2 regulates land uses and densities in the proximity of drinking water reservoirs to protect them from pollution. Sec. 4-3 establishes undisturbed buffers and vegetative setbacks to protect surface waters from soil erosion and pollutants.

The next two sections focus on minimizing negative impacts from stormwater. Sec. 4-4 mandates engineered stormwater controls to minimize the qualitative and quantitative impacts of runoff and ensure compliance with federal point source discharge requirements. These requirements are based on the permit conditions in NPDES Permit No. NCS000423 (the City's Phase II stormwater permit). The phase II provisions became effective upon the adoption of an ordinance amendment on January 12, 2006. Sec. 4-5 mandates the control of sedimentation and erosion; however, the sedimentation and erosion control regulatory program is administered by the State of North Carolina.

The next two sections focus on the protection of life and property. Sec. 4-6 regulates grading to protect existing vegetation and utilities. Sec. 4-7 regulates land uses to minimize loss of life and property due to flood conditions. Previously, these requirements were located in CDO Section 4.14 (Floodplain Protection Overlay District).

Areas regulated by Section 4-2, 4-3, and 4-7 are located in overlay districts. These districts are established and boundaries are interpreted in accordance with Article 7: Zoning Districts and Dimensional Regulations.

Submittal requirements and process information for permits and plans required by this article are provided in Article 6: Permits and Approval Processes.

TABLE OF CONTENTS

4.1. PURPOSE

Alterations to the natural contour and vegetation of land can negatively impact the environment, property, and people in the immediate vicinity of the land disturbance and the environment, property, and people living beyond the immediate vicinity of the land disturbance. The purpose of this article regulating land-disturbing activities is to:

1. Protect water supply sources from pollution in accordance with the Water Supply Watershed Protection Act (NCGS §§ 143-214.5 and 143-214.6) and to protect surface water quality as required by the U.S. Clean Water Act, and NPDES Permit, commonly known as the "Phase II Permit",

2. Minimize soil erosion and pollutants entering waterways in accordance with the Federal Clean Water Act (33 USC §1251 et seq.) and abide by the permit conditions imposed on Cabarrus County by the U.S. Army Corps of Engineers for the filling and operation of Lake Don T. Howell,

3. Control and minimize the negative impacts of stormwater runoff regardless of a development's proximity to waterways in accordance with the National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges (40 CFR Parts 9, 122, 123, and 124),

4. Protect property and waterways from damage created by sedimentation and erosion in accordance with the Sedimentation Pollution Control Act of 1973 (NCGS § 113A-52) and 15A NCAC 04A,

5. Preserve existing trees and vegetation to the greatest extent possible and protect existing utilities from damage created by land disturbing activities, and

6. Minimize loss of life and property due to flood conditions.

4.2. WATER SUPPLY SOURCE WATERSHED PROTECTION

4.2.1. APPLICABILITY.

No person shall perform land-disturbing activities that cause or contribute to the contamination of the City's water supply. Property lying within a Watershed Protection Overlay District shall be subject to the remainder of the requirements of this section and subject to the N.C. Division of Water Quality's Surface Waters and Wetlands Standards (15A N.C. Administrative Code 02B).

4.2.2. WATERSHED PROTECTION OVERLAY DISTRICTS.

Watershed Protection Overlay Districts (WPODs) are established and their boundaries are interpreted in accordance with new Article 9. WPODs are shown on the City's official Zoning Map. Water quality classifications are assigned by the North Carolina Environmental Management Commission in accordance with 15A NCAC 02B .0100.

A. Coddle Creek Reservoir: WS-II Critical Area and WS-II Balance of Watershed, and

B. Lake Concord: WS-IV Critical Area and WS-IV Balance of Watershed.

4.2.3. TYPES OF DEVELOPMENT.

Water supply watershed protection requirements are based on the intensity of the development and the classification of the watershed area. There are different standards for each type of watershed. There is one set of standards for WS-II watersheds and another for WS-IV watersheds. In turn each watershed is divided into two areas – the critical area within one-half mile of the water and the remainder of the area in the watershed. The four watershed areas are shown on the zoning map.

A. WS-II CODDLE CREEK WATERSHED: LAND IN THE CRITICAL AREAS.

1. Low-Density Developments. Developments in the critical areas shall be classified as low-density if no more than one dwelling unit per two acres or no more than 6% built-upon area is created.

2. High-Density Developments. Developments in the critical areas shall be classified as high-density if the development is not a Low Density Development as defined in the previous paragraph. High density developments in the critical areas shall not exceed one dwelling unit per two acres or no more than 24% built-upon area is created.

B. LAND IN THE BALANCE OF WS II CODDLE CREEK WATERSHED OUTSIDE OF THE CRITICAL AREAS.

1. Low-Density Developments. Developments in the balance of the watershed shall be classified as low-density if no more than one dwelling unit per acre or no more than 12% built-upon area is created.

2. High-Density Developments. Developments in the balance of the watershed

shall be classified as high-density if the development is not a Low Density Development as defined in the previous paragraph. Developments in this area shall not exceed one dwelling unit per two acres or no more than 30% built-upon area is created.

C. WS-IV LAKE CONCORD WATERSHED: LAND IN THE CRITICAL AREAS.

1. Low-Density Developments. Developments in the critical areas shall be classified as low-density if no more than two dwelling units per one acre or no more than 24% built-upon area is created.

2. High-Density Developments. Developments in the critical areas shall be classified as high-density if the development is not a Low Density Development as defined in the previous paragraph. New developments shall not exceed 50% built-upon area. Engineered stormwater controls shall be used to control the first inch of rainfall.

D. LAND IN THE BALANCE OF WS IV LAKE CONCORD WATERSHED OUTSIDE OF THE CRITICAL AREAS.

1. Low-Density Developments. Developments in the balance of the watershed shall be classified as low-density if no more than two dwelling unit per acre or no more than 24% built-upon area is created, for developments with curb-and-gutter.

2. High-Density Developments. Developments in the balance of the watershed shall be classified as high-density if the development is not a Low Density Development as defined in the previous paragraph. New developments shall not exceed 70% built-upon area. Engineered stormwater controls shall be used to control the first inch of rainfall.

E. LAND IN THE BALANCE OF THE CITY OUTSIDE OF EITHER WATER SUPPLY WATERSHED AREA.

1. Shall meet the requirements found later in this Article at § 4.4.3.

F. STANDARDS FOR ALL DEVELOPMENTS IN THE WATERSHED AREAS.

1. A vegetative buffer at least 100-feet wide shall be provided around the built-upon area.

4.2.4. ENGINEERED STORMWATER CONTROLS

All engineered stormwater controls shall meet the standards of Section 4.3 through 4.5, inclusively, and 4.7 as well as the other standards of the CDO.

4.2.5. UNDISTURBED, VEGETATIVE BUFFER WIDTHS.

Within Watershed Protection Overlay Districts, an undisturbed, vegetative buffer shall be maintained along all waterbodies in accordance with the widths specified in Section 4.3 of this Ordinance.

4.2.6. ACTIVITIES AND STRUCTURES WITHIN THE UNDISTURBED, VEGETATIVE BUFFER.

No land-disturbing activity shall occur within the undisturbed, vegetative buffer, except those provided for in the following subsection.

A. Permitted Activities and Structures. The following activities and structures shall only be allowed if no practicable alternative exists and provided that the activity and/or structure does not pose a threat to the quality of the water supply. These activities shall minimize built-upon surface area, direct runoff away from the surface water, and maximize the utilization of BMPs.

1. Stabilization of streambanks and shorelines approved by the U.S. Army Corps of Engineers;

2. Construction of water dependent structures as approved by N.C. Division of Water Resources, Department of Environment and Natural Resources;

3. Construction of structures such as flagpoles, signs, and security lights, which result in only *de minimis* increase in impervious area as approved by the Administrator;

4. Repair and/or reconstruction of any existing building or built-upon area that has been damaged or removed for any reason, provided:

- Repair or reconstruction is initiated within twelve (12) months and completed within two (2) years of such damage or removal;
- The total amount of space devoted to built-upon area is not increased; and
- The repair or reconstruction is otherwise permitted under the provisions of this ordinance.

5. Construction of public works projects such as road crossings and greenways. To the extent practicable, the construction of new roads in the critical areas should be avoided. The N.C. Department of Transportation BMPs outlined in "Best Management Practices for the Protection of Surface Waters" shall be used for all road and bridge construction projects and shall meet all of the standards of Section 4.3 though 4.5, inclusively, including the requirements of Section 4.4.6, Maintenance of Stormwater Control Structures. At a minimum, utility corridors shall be fifteen (15) feet landward from waterbodies; the N.C. Division of Water Quality must approve exceptions.

4.2.7. PROHIBITED ACTIVITIES AND STRUCTURES.

The following activities and structures shall not be located within the undisturbed, vegetative buffer:

1. New development, except as provided in Section 4.2.5.1 above;

2. New or failing on-site sewage systems that utilize ground absorption;

3. New or inadequate sedimentation and erosion control structures;

4. Storage or disposal of junk, trash, or other refuse;

5. New facilities that would require spill containment for toxic and hazardous materials or existing facilities with inadequate spill containment structures and plans for toxic and hazardous materials;

6. Improper management of stormwater runoff; or

7. Any other activity or structure found to pose a threat to the quality of the water supply.

4.2.8. SPECIAL INTENSITY ALLOCATIONS.

New development may be established with up to seventy percent (70%) of built-upon area as Special Intensity Allocations (SIAs). SIAs shall be allocated by the Administrator through the zoning compliance permit process. The Administrator shall maintain a record of the total acreage within each overlay district that has been used as of the latest date. In no case shall allocated acreage exceed the acreage eligible for allocation. Up to 205.1 acres in the balance of the Lake Concord watershed may be allocated. The right to develop an SIA shall terminate with the loss of the right to develop due to the expiration of a Zoning Compliance permit or building permit. In such cases, allocated acreage or unused allocated acreage shall be returned to the unallocated total acreage eligible for allocation. In no case shall the built-upon area of an SIA exceed the built-upon limitations of the underlying zoning district.

4.2.9. DUTIES OF THE ADMINISTRATOR.

The City Manager, or his designee, the Director of Water Resources (the "Director") shall maintain records of the administration of the Water Supply Source Watershed Protection regulations and shall submit any modifications of the regulations to the Division of Water Quality, Division of Environmental Health, and Division of Community Assistance. Additionally, the City Manager or the Director shall submit an annual report of each project receiving a variance and the reason for the variance granted by the Board of Adjustment during the previous calendar year on or before January 1 of the following year.

4.3. WATERBODY BUFFERS

4.3.1. APPLICABILITY.

No person shall perform land-disturbing activities that cause or contribute to a violation of water quality standards. Protective vegetated and revegetated strips of land shall be maintained on all sides of regulated rivers and streams, including perennial streams, intermittent streams, lakes, and other natural waterbodies outside of the Reservoir Watershed Protection Overlay Districts. All areas of the City not located in a Reservoir Watershed Protection Overlay District are located in the River/Stream Overlay District. *Class 1 streams* include all rivers or streams shown on USGS Quadrangle maps as a solid blue line. *Class 2 streams* include all rivers or streams:

- shown on USGS Quadrangle Maps as a dotted blue line, or
- if not already classified as a *Class 1 stream*, identified as a stream on the NRCS soil survey map for Cabarrus County, or
- identified as a stream by a qualified stream classification professional as defined in subsection B.

Class 1 and *Class 2 streams* shall be subject to these requirements. Lakes and other natural or man-made waterbodies receive the same classification as the stream leaving the lake and other natural or man-made waterbody. Both *Class 1* and *Class 2 streams*, and lakes and impoundments drained by the streams are classified as Waters of the State.

A. The following areas are not subject to the remainder of the requirements of this section:

1. Areas along streams or waterbodies shown on the most recent United States Geodetic Survey (USGS) 1:24,000-scale topographic map or NRCS soils map when such streams or waterbodies do not exist;

2. Impoundments used primarily for bona fide agricultural purposes, including animal watering, irrigation, or other agricultural uses unless the waterbody is part of a natural drainage way (i.e., unless the waterbody is located on a Class 1 or Class 2 stream;

3. Water dependent structures located, designed, constructed, and maintained to provide minimal disturbance to the waterbody, the maximum practicable nutrient and bacterial removal, and the least practicable adverse effects on aquatic habitat and water quality;

4. Roads, bridges, stormwater management facilities, impoundments, and utilities where no other practical alternative exists. These structures shall be located, designed, constructed, and maintained to provide minimal disturbance to the waterbody, the maximum practicable nutrient and bacterial removal, and the least practicable adverse effects on aquatic habitat and water quality. At a minimum, utility corridors shall be fifteen (15) feet landward from waterbodies; exceptions must be approved by the N.C. Division of Water Quality; and

5. Wet-weather ditches or ephemeral streams that have been approved as part of a stormwater management plan.

B. Streams may exist even if they are not mapped on USGS Quadrangle maps or NRCS Soil Survey maps. A qualified professional must identify streams that exist, but are not mapped. For the purposes of this article, a qualified professional shall mean an individual that has attended wetlands delineation training using application of the 1987 Wetland Delineation Manual by the US Army Corps of Engineers and Identification of Perennial and Intermittent Streams training supported by the North Carolina Division of Water Quality.

C. The determination that a stream indicated on a USGS Quadrangle map or NRCS soil survey map does not exist must be concurred by NCDENR's Division of Water Quality.

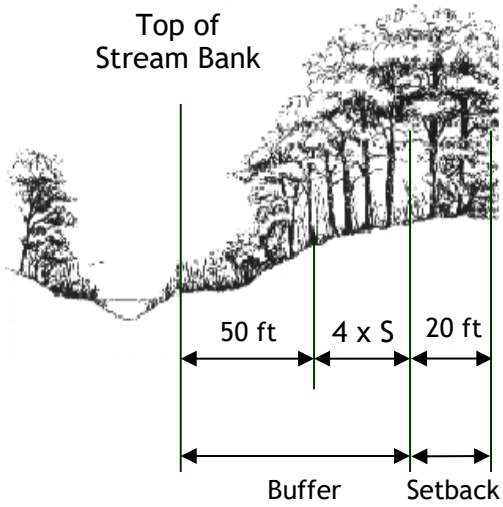
4.3.2. BUFFER AND SETBACK WIDTHS

Class 1 and *Class 2 streams* shall be protected by an undisturbed buffer and a vegetated setback. An undisturbed buffer shall protect lakes and impoundments.

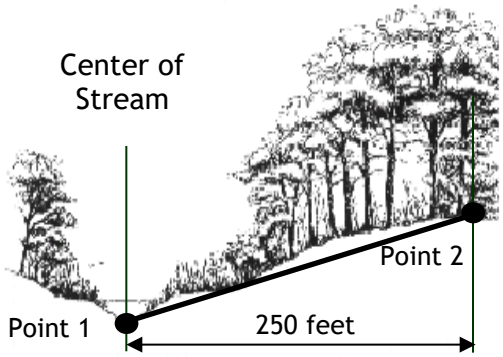
A. ***Class 1 Streams.*** Buffers shall be measured from the top of the stream bank landward in a direction perpendicular to the movement of the water in the stream. Setbacks shall be measured from the buffer boundary landward in a direction perpendicular to the edge of the buffer.

1. *Undisturbed Buffers*. The width of the undisturbed buffer shall be fifty (50) feet plus four (4) times the average percent slope of the land area adjacent to the stream. This slope shall be calculated by measuring a distance of two hundred and fifty (250) feet landward from the center of the stream. The maximum width of the undisturbed buffer shall be one hundred twenty (120) feet from the top of the stream bank.

2. *Vegetated Setbacks*. The width of the vegetative setback shall be twenty (20) feet of non-built upon area adjacent to and in addition to the undisturbed buffer.



Width = [50 + (4 x S)]
Minimum width: 50 feet (areas with flat slopes)
Maximum width: 120 feet (areas with steep slopes)



Pre-development elevation of Point 1 in feet = E_1
Pre-development elevation of Point 2 in feet = E_2

$$S = \frac{E_2 - E_1 \text{ (feet)}}{250 \text{ feet}} \times 100$$

Figure 4.3.2: Sample Calculation for Class 1 Stream Undisturbed Buffer.

B. ***Class 2 Streams.*** Buffers shall be measured from the top of the stream bank landward in a direction perpendicular to the movement of the water in the stream. Setbacks shall be measured from the buffer boundary landward in a direction perpendicular to the edge of the buffer.

1. *Undisturbed Buffers.* The width of the undisturbed buffer shall be thirty (30) feet.

2. *Vegetated Setbacks.* The width of the vegetative setback shall be ten (10) feet of non-built upon area adjacent to and in addition to the undisturbed buffer.

C. Lakes and Impoundments. Buffers are required around all lakes and impoundments, whether man-made or naturally occurring, if directly connected to the Waters of the State. Buffers shall be measured from the normal high-water elevation landward in a direction perpendicular to the edge of the water. Buffers for lakes and impoundments shall be calculated in the same manner as required above for the stream exiting the lake or impoundment.

1. For existing *Class 1 streams*, an undisturbed buffer shall be maintained with a minimum of fifty (50) feet plus four (4) times the average percent slope of the land between the highest normal elevation of the water and two hundred fifty (250) feet landward. For lakes and impoundments built on or over *Class 1 streams*, other than those identified in Sec. 4-2, the maximum width of the undisturbed buffer shall be one hundred twenty (120) feet from the normal high-water elevation. A minimum 150-foot undisturbed, vegetative buffer from the normal high-water level shall be maintained on water supply sources identified in Section 4.2.

2. For existing *Class 2 streams*, other than those identified in Sec. 4-2, the minimum width of the undisturbed buffer shall be thirty (30) feet from the normal high-water elevation. The additional ten (10)-foot vegetated non-built upon setback shall also apply.

4.3.3. ACTIVITIES AND STRUCTURES WITHIN THE UNDISTURBED BUFFER.

No land disturbing activity shall occur within the undisturbed buffer, except those provided for in the following subsections. Property owners shall maintain undisturbed buffers in such a way to maximize sheet flow of stormwater runoff to the maximum extent practicable to reduce stormwater velocity and filter pollutants. All disturbed areas within the undisturbed buffer, allowed in accordance with this section or not, shall be revegetated with perennial vegetation as soon as practical after the disturbance.

A. Permitted Activities And Structures. The following activities and structures shall only be allowed if no practicable alternative exists and provided that the activity and/or structure does not pose a threat to the quality of surrounding waterbodies. These activities shall direct runoff away from the surface water and maximize the utilization of BMPs.

1. Construction of utilities and maintenance of utility easements, provided that utility corridors are at least fifteen (15) feet landward from waterbodies or their locations have been approved by the N.C. Dept. of Environment and Natural Resources, Division of Water Quality;

2. Construction and maintenance of greenways;

3. Agricultural soil disturbing activities such as plowing, grading, ditching, excavating that conform to appropriate state and federal regulations;

4. Public roads, driveways and other activities allowed in accordance with the Concord Technical Standards Manual Article 1 - Stormwater;

5. Activities permitted by the US Army Corps of Engineers and the NC Department of Environment and Natural Resources; and

6. Storm debris removal or vegetation maintenance activities.

B. Prohibited Activities and Structures. The following activities and structures shall not be located within the undisturbed buffer:

1. New on-site sewage systems utilizing ground adsorption;

2. New structures or built-upon area that includes gravel, concrete, asphalt, and other impervious or semi-impervious surfaces;

3. Mechanized land clearing activities unless allowed in 4.3.3.A; and

4. Other prohibited activities in accordance with the Concord Technical Standards Manual Article 1 – Stormwater.

C. Activities and Structures Within The Vegetative Setback. Property owners shall maintain perennial vegetation within the vegetative setback. All disturbed areas within the vegetative setback shall be revegetated with perennial vegetation as soon as practical after the disturbance.

D. Easements. Undisturbed buffers may be recorded as easements with the Cabarrus County Register of Deeds at the expense of the developer and dedicated to:

1. A property owners association; or

2. The Cabarrus Soil and Water Conservation District; or

3. The City of Concord; or

4. A conservation organization.

4.4. STORMWATER CONTROL

4.4.1. APPLICABILITY.

No person shall perform land-disturbing activities that cause or contribute to damage resulting from the improper control of stormwater. All developments shall control stormwater drainage and minimize the negative qualitative and quantitative impacts of stormwater runoff from the development regardless of the development's proximity to waterbodies. All property within Concord's planning jurisdiction is within one of three water-related overlay districts. The water shed around the Coddle Creek Reservoir (Lake Howell) and Coddle Creek is a WS II watershed and is discussed at Section 4.2. The watershed around Lake Concord is WS IV watershed and can also be found at Section 4.2. All of Concord is located in the watersheds controlled by the National Pollution Discharge Elimination System Phase II Stormwater Permit issued by the State of North Carolina. The strictest standards apply. Sections 4.3 through 4.7 contain the standards for the balance of Concord outside the Coddle Creek and Lake Concord watersheds.

4.4.2. TYPES OF DEVELOPMENT.

Stormwater control requirements are based on the intensity of the development.

A. **Low-Density Developments.** Developments shall be classified as low-density if at least one of the following is true:

1. No more than two dwelling units per acre are created, or

2. No more than 24% built-upon area is created.

B. **High-Density Developments.** Developments shall be classified as high-density if at least one of the following is true:

1. More than two dwelling units per acre are created, or

2. Greater than 24% built-upon area is created.

4.4.3. STANDARDS.

A. **Low-Density Developments.** Phase II low density developments shall:

1. Use vegetative conveyances to the maximum extent practicable; and

2. Provide limited stormwater collection systems including piping- to get under a road or driveway, and no inverted crown streets; and

3. Where curb & gutter streets are used, curb-cut outlets or catch basin outlets to swale systems designed to convey stormwater must be provided; and

4. Impose deed restrictions and protective covenants to ensure that subsequent development activities maintain the stormwater controls consistent with the approved site plan or construction plan; and

5. No area(s) of the project shall have such high density that runoff threatens water quality (i.e. pocket of high density) without utilizing stormwater control measures equivalent to those described for High-Density Developments in Section 4.4.3.B below at pages 4-16 and 4-17, and locates the higher density in upland areas and away from surface waters and drainage ways to the maximum extent practicable. ("High density pocket" is defined as, "If the density for any drainage basin or sub-basin exceeds 34-percent built upon area, structural BMPs sufficient to achieve 85-percent average annual TSS removal shall be required for that basin or sub-basin, even if the total project density is 24-percent built upon area or less."); and

6. Discharge stormwater at a rate equal to or less than the pre-development discharge rate for both the one-year 24-hour storm and the ten-year 24-hour storm.

B. High-Density Developments. Phase II high-density developments shall:

1. Utilize stormwater control measures that control and treat the runoff from the first one inch of rain; and;

2. Discharge stormwater at a rate equal to or less than the pre-development discharge rate for BOTH the 1-year 24-hour storm AND the 10-year 24-hour storm; and

3. The runoff volume drawdown time shall be a minimum of 24 hours, but not more than 120 hours; and

4. Design all structural stormwater treatment systems to achieve 85% average annual removal of total suspended solids; and

5. Utilize stormwater management measures shall comply with the requirements listed in the N.C. Administrative Code 15A NCAC 2H .1008(c), entitled General Engineering Design Criteria for all Projects, the NCDENR Stormwater BMP Manual, and the Manual; and

6. Impose deed restrictions and protective covenants to ensure that subsequent development activities maintain the stormwater controls consistent with the approved site plan or construction plan.

7. Locate all built-upon areas at least thirty feet landward of Class 1 and 2 streams; and

8. For best management practices that require a separation from the seasonal high water table, provide separation by at least twelve (12) inches of naturally occurring soil above the seasonal high water table.

4.4.4. STORMWATER MANAGEMENT PLANS.

For all land disturbances one acre or greater or developments that create 20,000 square feet or more of built upon area, including smaller projects that are a part of a larger common plan of development, subdivision or sale, stormwater management plans shall be prepared for, and shall be approved by, the Director of Water Resources upon the recommendation of the Development Review Committee pursuant to the application for a stormwater permit. Stormwater management plans shall:

A. Meet or exceed the criteria contained in N.C. Admin. Code 15A NCAC 2H .0126.;

B. Demonstrate that proposed stormwater facilities control the impacts of the development to the maximum extent practicable and that those facilities are designed to meet the criteria described in the NCDENR Stormwater BMP Manual and the *Manual*;

C. Be signed and sealed by a qualified professional engineer or registered landscape architect in the State of North Carolina;

D. Include drawings, maps, supporting calculations, specifications, and summaries as outlined in the *Manual*;

E. Identify the stormwater impacts of the proposed development. Stormwater impacts may include:

1. Effects on existing upstream and/or downstream drainage systems and property,

2. The ability of the natural drainage way to accommodate additional stormwater runoff,

3. Water quality impacts to receiving waterbodies, and

4. Site-specific criteria;

F. Demonstrate that stormwater runoff is adequately conveyed through the development in a drainage system. The drainage system shall meet all the standards of section 4.4.3. B. 1. through 8. (See above at page 4-13).

G. Control pollutants to levels required by the NCDENR Stormwater BMP Manual and the *Manual*.

H. **Design Standards.** Stormwater conveyance and control system extensions and/or modifications shall be designed in accordance with all applicable federal; state, including but not limited to 15A NCAC 2H .1008 and the NCDENR Stormwater BMP Manual; local regulations; and the City's Technical Standards Manual.

I. Required Design Calculations. The engineer shall provide all necessary evaluations, justifications, and calculations to the City's Stormwater Department deemed necessary to meet the requirements of all federal, state, and local requirements and to ensure that the design conforms to good engineering practice.

4.4.5. STORMWATER INSTALLATION/GRADING PERMITS.

A stormwater/grading permit shall be received prior to all land disturbances that require stormwater management plans. The application process and requirements for issuance of this permit are provided in Article 6.1 and the *Manual*.

4.4.6. MAINTENANCE OF STORMWATER CONTROL MEASURES AND DEVICES.

A. General. The landowner or person in possession or control of the land shall maintain all stormwater control measures and devices and all open space areas required by the approved stormwater management plan and/or permit unless those measures, devices, and open space areas are accepted for maintenance by a governmental agency.

B. Agreements Governing Ongoing Maintenance. For all off-site stormwater control facilities and for all other stormwater control facilities, that are not accepted for maintenance by a governmental agency, the following document(s) are required: (1) A maintenance agreement between the City and the owner describing the rights and responsibilities of each party in maintaining the stormwater control structures; (2) For all off-site stormwater control facilities and all on-site stormwater facilities that serve more than one (1) lot, a contract and maintenance agreement or covenants are required. If a homeowners association is created, then the agreement and covenants shall also apply to the association and its members; and (3) Access easement giving City right to inspect and maintain the BMP (stormwater control facility).

1. Stormwater replacement protection easement and access maintenance agreement or covenants. For all stormwater control facilities, which are to be or are owned and maintained by a developer, owner, property owner's association or similar entity, an access easement and maintenance agreement (or covenants) with the City are required. All maintenance agreements (or covenants) shall contain without limitation the following provisions:

A. A description of the property on which the stormwater control facility is located and all easements from the site to the facility;

B. Size and configuration of the stormwater control facility;

C. A statement that properties which will be served by the stormwater control facility are granted rights to construct, use, inspect, replace, reconstruct, repair, maintain, access to the device and to transport, store, and discharge stormwater to and from the device;

D. If applicable, a statement that each lot (if now or in the future to be in separate ownership) served by the stormwater control facility is jointly or severally responsible for repairs and maintenance of the device A right of

contribution in favor of each owner shall be included in the maintenance agreement. A statement that failure to maintain stormwater control facilities is a violation of the City Code potentially subjecting each lot owner subject to this legal document to significant daily civil penalties and other enforcement actions.

E. If an association is delegated these responsibilities, then membership into the association shall be mandatory for each parcel served by the device and any successive owner, the association shall have the power to levy assessments for these obligations, and that all unpaid assessments levied by the association shall become a lien on the individual parcel. Common expenses include maintenance of stormwater control measures, premiums for liability insurance in an amount of not less than one million dollars ($1,000,000.00) of coverage.

F. An operation and maintenance plan or manual shall be provided by the initial developer. The plan or manual shall indicate what operation and maintenance actions are needed, and what specific quantitative criteria will be used to determine when those actions are to be undertaken. The plan or manual must indicate the steps that will be taken to restore a stormwater system to design specifications if a failure occurs.

G. A statement that stormwater control measures shall be maintained in accordance with the attached stormwater operations and maintenance manual and at all times the stormwater control measures shall comply with all applicable laws, ordinances, regulations, rules and directives of governmental authorities, and that the stormwater control measures shall perform as designed.

H. That stormwater control facilities shall be maintained by the owner, developer, homeowners' association, property owners' association, or designated commercial lot owner(s) in accordance with the stormwater operations and maintenance manual approved by the Stormwater Administrator, which manual shall be attached to the maintenance covenant as an exhibit, and at all times the stormwater control measures shall comply with all applicable laws, ordinances, regulations, rules and directives of governmental authorities, and that the stormwater control facilities shall perform as designed.

I. A warning statement stating that the stormwater control measures are required to comply with Concord City Code of Ordinances and Technical Standards Manual and that failure to maintain stormwater control measures is a violation of the City Code potentially subjecting each lot owner subject to this legal document to significant daily civil penalties and other enforcement actions.

J. Acknowledgment that the owner, developer, property owner's association or similar entity shall continuously operate and maintain the stormwater control facilities.

K. Granting to the City a permanent irrevocable easement to enter, inspect, monitor, maintain, repair, and reconstruct stormwater control facilities.

L. A statement that says in the event that the owner, developer, property owner's association or similar entity fails to continuously operate and maintain the stormwater control facilities that the City may perform such work as owner, developer, property association or similar entity and its members are responsible for any and all costs the City expends to maintain or repair the stormwater control facility or to correct any operational deficiencies.

M. A statement that this agreement shall not obligate the City to maintain or repair any stormwater control measure or device, and that the City shall not be liable to any person for the condition or operation of stormwater control facilities.

N. A statement that this agreement shall not in any way diminish, limit, or restrict the right of the City to enforce any of its ordinances as authorized by law.

C. Prior to recording the easement and maintenance agreement or covenant, the City Council shall accept the agreement and easement at a regular or special meeting.

D. The maintenance agreement or covenants and easements shall be recorded with the Cabarrus County register of deeds after acceptance by the City Council but prior to the recording of any new lot served by the stormwater control facility or prior to the issuance of any development permit for any existing lot. The maintenance easement agreement or covenant shall be binding on all subsequent owners of land served by the stormwater control facilities. The agreement/covenants/easement(s) may be recorded by the City Attorney. Additionally, no Certificate of Compliance shall be issued for the property until a recorded copy of the easement and /or maintenance covenant has been received.

4.4.7. ANNUAL INSPECTIONS AND INSPECTION REPORT.

A. The person responsible for maintenance of the stormwater control measures or devices shall submit to the Stormwater Department of the City an inspection report from a qualified registered North Carolina professional engineer. For non-structural BMPs inspection reports may be performed by a qualified registered Landscape Architect.

B. The inspections report shall contain all of the following:

1. The name, address of the landowner;

2. The recorded book and page number of the lot of each required stormwater control facility and required open space areas;

3. A statement that an inspection was made of all required stormwater control facilities, including open space areas;

4. The date the inspection was made;

5. A statement that all inspected stormwater control facilities and open space areas are performing properly and are in compliance with the approved stormwater management plan, the applicable maintenance manual required by Section 4.4.6, the Technical Standards Manual, and the Concord Development Ordinance. No sampling of pollutant loading is required as part of the inspection;

6. The original signature and seal of the engineer, surveyor, or landscape architect.

C. All inspections reports shall be on forms supplied by the City. An original inspection report shall be given to the Stormwater Department of the City beginning from the date the as-built was first certified in accordance with Chapter 60 Article V and each year thereafter on the anniversary date of said certification.

4.5. SEDIMENTATION AND EROSION CONTROL

4.5.1. APPLICABILITY.

No person shall perform land-disturbing activities that cause or contribute to the violation of a water quality standard or property damage resulting from the improper control of sedimentation and erosion. All developments shall control sedimentation and erosion and minimize the negative impacts of sedimentation and erosion on water quality and property. SEDIMENTATION AND EROSION CONTROL PERMITS ARE ISSUED ONLY BY CABARRUS THE STATE OF NORTH CAROLINA. The following areas are not subject to the remainder of the requirements of this section:

A. Land disturbance of less than one acre of land, provided that all of the following is true:

1. Less than ten thousand square feet (10,000 ft^2) of land will be disturbed within a Class II or Class III water supply watershed and all other applicable water supply watershed protection requirements are met, and

2. Less than twenty thousand square feet (20,000 ft^2) of land will be disturbed within a Class IV water supply watershed and all other applicable water supply watershed protection requirements are met, and

3. No land disturbance will occur within an undisturbed stream buffer or vegetative setback as required in Sec. 4.3.2, and

4. No land disturbance will occur within an undisturbed lake or impoundment buffer or setback.

B. Land disturbance for farm purposes on a bona fide farm;

C. Land disturbance for harvesting timber in forestland;

D. Land disturbance requiring a permit in accordance with the Mining Act of 1971, Article 7 of Chapter 74 of the General Statutes;

E. Land disturbance over which the State has exclusive regulatory jurisdiction as provided in G.S. 113A-56(a); and

F. Land disturbance essential to protect human life for the duration of an emergency.

4.5.2. SEDIMENTATION AND EROSION CONTROL PLANS.

For all land disturbances subject to this section, sedimentation and erosion control plans shall be prepared for, and shall be approved by the State of North Carolina pursuant to the authority delegated to Cabarrus County by the N.C. Department of Environment and Natural Resources.

A. Sedimentation and erosion control plans shall include drawings, maps, supporting calculations, specifications, and summaries as outlined in the *Manual*.

B. Sedimentation and erosion control plans shall:

1. Identify areas that are subject to severe erosion,

2. Identify off-site areas that are vulnerable to damage from sedimentation and/or erosion,

3. Demonstrate techniques that will be used to minimize the time of exposure of bare soil,

4. Demonstrate techniques that will be used to minimize the area of exposed bare soil at any one particular instant in time,

5. Demonstrate techniques that will be used to control stormwater runoff originating upgrade of areas of exposed bare soil,

6. Demonstrate techniques that will prevent off-site sedimentation damage,

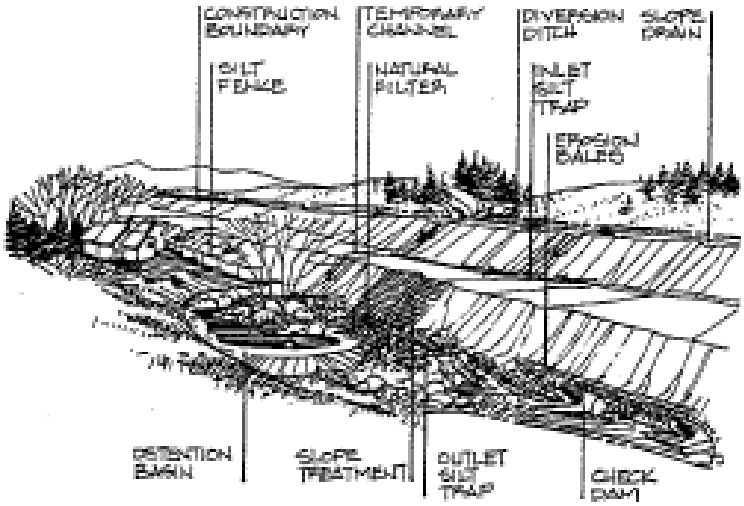
7. Demonstrate measures that will be taken to prevent the accelerated erosion of the waterbody receiving stormwater runoff and to minimize increased sedimentation of the waterbody, and

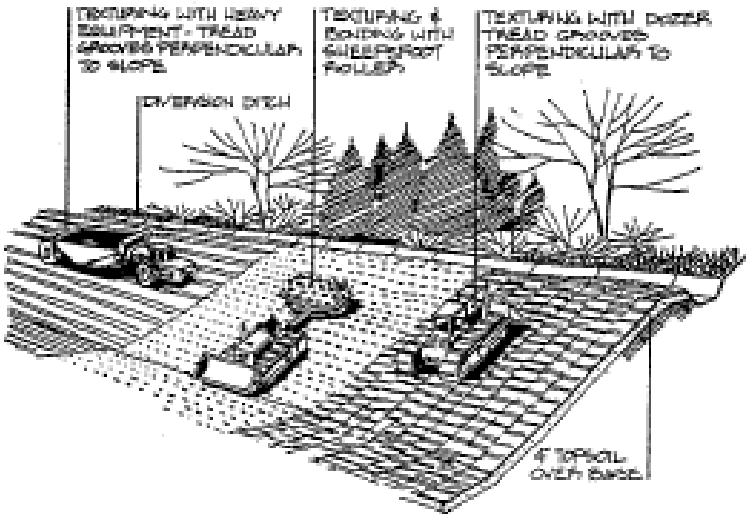
8. Identify devices and practices proposed to keep wash-down water from storm drains and waterways.

4.5.3. SEDIMENTATION AND EROSION CONTROL PERMITS.

A sedimentation and erosion control permit shall be received prior to all land disturbances subject to this section. The application process and requirements for issuance of this permit are administered by the State of North Carolina. This ordinance shall not be deemed to interfere with or annul or otherwise affect in any manner whatsoever any ordinance, rules, regulations, permits, or easements, covenants, or other agreements between parties, provided however that, where this ordinance imposes greater restrictions and controls with respect to sedimentation and erosion control, the provisions of this ordinance shall prevail.

EXAMPLES OF SEDIMENT AND EROSION CONTROL METHODS





4.6. VEGETATION AND UTILITY PROTECTION

4.6.1. APPLICABILITY.

No person shall perform land-disturbing activities that remove natural vegetation without performing the appropriate mitigation needed to protect water quality and the aesthetics of the area. No person shall perform land-disturbing activities that negatively impact utilities. The following activities are not subject to the remainder of the requirements of this section:

A. Land disturbances of less than one acre of land, provided that all of the following is true:

1. No land disturbance will occur within a utility corridor, and

2. No land disturbance will occur within a Watershed Protection Overlay District, and

3. No land disturbance will occur within an undisturbed perennial stream buffer or vegetative setback, and

4. No land disturbance will occur within an undisturbed intermittent stream buffer or vegetative setback, and

5. No land disturbance will occur within an undisturbed lake or impoundment buffer or setback.

6. Existing tree canopy and significant trees have been assessed to meet tree preservation requirements of Article 11 or related modification has been obtained, where applicable.

B. Land disturbance for farm purposes on a bona fide farm; or

C. Land disturbance for harvesting timber in forestland.

4.6.2. Stormwater Installation/Grading Permits.

A. For all land disturbances subject to this section, grading/stormwater plans shall be prepared for, and shall be approved by the Administrator pursuant to the application for a grading/stormwater permit. Grading/stormwater permits shall be issued before developing or disturbing land. The application process for grading/stormwater plans and permits are found in Section 6.1.7. Grading/stormwater plans shall:

1. Include drawings, maps, supporting calculations, specifications, and summaries as outlined in the Manual[1];

[1] EDITOR'S FOOTNOTE Requirements now at Appendix B7. Add stormwater requirements to Grading permits.

2. Demonstrate techniques that will be used to protect existing trees and vegetation from land-disturbing activities. Removal of existing trees and vegetation shall only be allowed if no practicable alternative exists and their removal does violate any other provisions of this ordinance; and

3. Demonstrate techniques that will be used to protect existing utilities from land-disturbing activities.

B. Vegetation Protection and Retention. Grading/stormwater plans shall be designed to preserve existing trees and vegetation to the greatest extent possible and shall seek to incorporate existing significant stands of trees as well as individual trees; these plans shall also account for meeting tree preservation requirements in accordance with Article 11, where applicable. Certain excavation techniques used by utility companies and others can cause removal of vital roots, change drainage patterns and create conditions that could kill trees and plant materials or make them more susceptible to disease and deterioration. The intent of these regulations is to recognize the need to alter the landscape during site development activities while setting out standards necessary to ensure tree preservation to the greatest extent possible.

C. General Requirements. Existing trees and vegetation that are to be preserved shall be protected from all construction activities including installation and/or replacement of utilities, earthwork operations, movement and storage of equipment and materials and dumping of toxic materials. Tree and vegetation protection techniques shall be shown in the Grading/stormwater Plans and shall be in conformance with standard practices set forth in the NCDENR Stormwater BMP Manual, the City of Concord Technical Standards Manual, and Section 11.9 of this ordinance for tree preservation.

D. Repair of Damaged Buffers. Any buffers lost due to any unapproved activity, including construction, shall be replaced with similar size and number of plants and revegetated using native plant species in accordance to the criteria established for riparian buffer restoration by the N.C. Department of Environment and Natural resources Ecosystem Enhancement Program and as required and approved by the Administrator. Violations of Section 11.9 related to removal, damage, or death of trees in established tree save areas are subject to tree replacement requirements of Section 11.9.6.

4.7 FLOODPLAIN LIFE AND PROPERTY PROTECTION

4.7.1 FINDINGS OF FACT

A. The flood prone areas within the City of Concord 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.

B. 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.

4.7.2 STATEMENT OF PURPOSE

It is the purpose of this ordinance 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:

A. 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;

B. require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;

C. control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters;

D. control filling, grading, dredging, and all other development that may increase erosion or flood damage; and

E. prevent or regulate the construction of flood barriers that will unnaturally divert flood waters or which may increase flood hazards to other lands.

4.7.3 OBJECTIVES

The objectives of this ordinance are to:

A. protect human life, safety, and health;

B. minimize expenditure of public money for costly flood control projects;

C. minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

D. minimize prolonged business losses and interruptions;

E. 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;

F. minimize damage to private and public property due to flooding;

G. Make flood insurance available to the community through the National Flood Insurance Program;

H. Maintain the natural and beneficial functions of floodplains;

I. help maintain a stable tax base by providing for the sound use and development of flood prone areas; and

J. ensure that potential buyers are aware that property is in a Special Flood Hazard Area.

4.7.4 DEFINITIONS (SEE ARTICLE 14)

4.7.5 GENERAL PROVISIONS

A. LANDS TO WHICH THIS ORDINANCE APPLIES.

This ordinance shall apply to all Special Flood Hazard Areas within the jurisdiction, including Extra-Territorial Jurisdictions (ETJs) if applicable, of the City of Concord.

B. ACTIVITIES AND STRUCTURES WITHIN SPECIAL FLOOD HAZARD AREAS

All development within the Special Flood Hazard Areas shall meet the Water Supply Source Watershed Protection (Section 4.2), Waterbody Buffers (Section 4.3), Stormwater Control (Section 4.4), Sedimentation and Erosion Control (Section 4.5) and Vegetation and Utility Protection (Section 4.6) requirements.

1. **General.** New construction and substantial improvements shall be:
   a. Constructed with materials and utility equipment resistant to flood damage; and
   b. Constructed by methods and practices that minimize flood damage.
2. **Utilities**
   a. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
   b. New and replacement sanitary sewer and disposal systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from the system into the floodwaters.

C. BASIS FOR ESTABLISHING THE SPECIAL FLOOD HAZARD AREAS.

The Special 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 November 16, 2018 for Cabarrus County and associated DFIRM panels, including any digital data developed as part of the FIS, which are adopted by reference and declared a part of this ordinance. Future revisions to the FIS and DFIRM panels that do not change flood hazard data within the jurisdictional authority of the City of Concord are also adopted by reference and declared a part of this ordinance. Subsequent Letter of Map Revisions (LOMRs) and/or Physical Map Revisions (PMRs) shall be adopted within 3 months.

The initial Flood Insurance Rate Maps are as follows for the jurisdictional areas at the initial date: Cabarrus County Unincorporated Area, dated Nov. 2, 1994.

D. ESTABLISHMENT OF FLOODPLAIN DEVELOPMENT PERMIT (ZCP)

A Floodplain Development Permit (ZCP) shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities within Special Flood Hazard Areas determined in accordance with the provisions of Section 4.7.5(C) of this ordinance.

E. COMPLIANCE

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

F. ABROGATION AND GREATER RESTRICTIONS.

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

G. INTERPRETATION

In the interpretation and application of this ordinance, all provisions shall be:

1. considered as minimum requirements;

2. liberally construed in favor of the governing body; and

3.deemed neither to limit nor repeal any other powers granted under State statutes.

H. WARNING AND DISCLAIMER OF LIABILITY

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

I. PENALITIES FOR VIOLATION

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 use permits, 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 the City of Concord from taking such other lawful action as is necessary to prevent or remedy any violation.

4.7.6 ADMINISTRATION

A. DESIGNATION OF FLOODPLAIN ADMINISTRATOR

In accordance with Section 2.1.2, the Planning and Neighborhood Development Director or his/her designee, hereinafter referred to as the "Floodplain Administrator", is hereby appointed to administer and implement the provisions of this ordinance.

B. FLOODPLAIN DEVELOPMENT APPLICATION, PERMIT AND CERTIFICATION REQUIREMENTS

1. Application Requirements

Application for a Floodplain Development Permit (ZCP) shall be made to the Floodplain Administrator prior to any development activities located within Special Flood Hazard Areas. The following items shall be presented to the Floodplain Administrator to apply for a Floodplain Development Permit (ZCP):

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:
- 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;
- the boundary of the Special Flood Hazard Area as delineated on the FIRM or other flood map as determined in Section 4.7.5(C), or a statement that the entire lot is within the Special Flood Hazard Area;
- flood zone(s) designation of the proposed development area as determined on the FIRM or other flood map as determined in Section 4.7.5(C);
- the boundary of the floodway(s) or non-encroachment area(s) as determined in Section 4.7.5(C);
- the Base Flood Elevation (BFE) where provided as set forth in Sections 4.7.5(C); 4.7.6(C); or 4.7.7(C).
- the old and new location of any watercourse that will be altered or relocated as a result of proposed development;
- the certification of the plot plan by a registered land surveyor or professional engineer.

b. Proposed elevation, and method thereof, of all development within a Special Flood Hazard Area including but not limited to:
- Elevation in relation to NAVD 1988 of the proposed reference level (including basement) of all structures;
- Elevation in relation to NAVD 1988 to which any non-residential structure in Zone AE, A or AO will be flood-proofed; and
- 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 81-65) 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 this ordinance are met. These details include but are not limited to:
- The proposed method of elevation, if applicable (i.e., fill, solid foundation perimeter wall, solid backfilled foundation, open foundation on columns/posts/piers/piles/shear walls);
- Openings to facilitate automatic equalization of hydrostatic flood forces on walls in accordance with Section 4.7.7(B)(4)(c) when solid foundation perimeter walls are used in Zones A, AO, AE, and A1-30;

e. Usage details of any enclosed areas below the lowest floor.
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 (ZCP) issuance have been received.
h. Documentation for placement of Recreational Vehicles and/or Temporary Structures, when applicable, to ensure that the provisions of Sections 4.7.7(B)(6) and 4.7.7(B)(7) 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 (ZCP) shall include, but not be limited to:
a. A complete description of all the 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 Special Flood Hazard Area determination for the proposed development in accordance with available data specified in Section 4.7.5(C).
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 unless the requirements of Section 4.7.7(E) have been met.
g. The flood openings requirements, if in Zones A, AO, AE or A1-30.

3. Certification Requirements
a. Elevation Certificates
- 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 mean sea level. 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 (ZCP).
- An Elevation Certificate (FEMA Form 086-0-33) is required after the reference level is established. Within seven (7) calendar days of establishment of the reference level elevation, 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 mean sea level. . Any work done within the seven (7) day calendar period and prior to submission of the certification shall be at the permit holder's risk. 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 further work being permitted to proceed. Failure to submit the certification or failure to make required corrections shall be cause to issue a stop-work order for the project.

- 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.

b. Floodproofing Certificate

- 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 are 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 NAVD 1988. 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.
- 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, or A1-30 and the elevation of the chassis is more than 36 inches in height above grade, an engineered foundation certification is required in accordance with the provisions of Section 4.7.7(B)(3)(b).

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 (ZCP).

e. Certification Exemptions. The following structures, if located within Zone A, AO, AE or A1-30, are exempt from the elevation/floodproofing certification requirements specified in items (a) and (b) of this subsection:

- Recreational Vehicles meeting requirements of Section 4.7.7(B)(6)(a);
- Temporary Structures meeting requirements of Section 4.7.7(B)(7); and
- Accessory Structures less than 150 square feet meeting requirements of Section 4.7.7(B)(8).

4. Determinations 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:

- 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;
- 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;
- Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; and
- 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.

C. 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 Special Flood Hazard Areas to assure that the requirements of this ordinance have been satisfied.
2. Review all proposed development within Special Flood Hazard Areas to assure that all necessary Local, State and Federal permits have been received.
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 maintained.
5. Prevent encroachments into floodways and non-encroachment areas unless the certification and flood hazard reduction provisions of Section 4.7.7(E) are met.
6. Obtain actual elevation (in relation to mean sea level) of the reference level (including basement) and all attendant utilities of all new and substantially improved structures, in accordance with Section 4.7.6(B)(3).
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 the provisions of Section 4.7.6(B)(3).
8. Obtain actual elevation (in relation to mean sea level) of all public utilities in accordance with the provisions of Section 4.7.6(B)(3).
9. When floodproofing is utilized for a particular structure, obtain certifications from a registered professional engineer or architect in accordance with the provisions of Section 4.7.6(B)(3) and Section 4.7.7(B)(2).
10. Where interpretation is needed as to the exact location of boundaries of the Special 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 Base Flood Elevation (BFE) data has not been provided in accordance with Section 4.7.5(C), obtain, review, and reasonably utilize any Base Flood Elevation (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 4.7.7(C)(2)(b) in order to administer the provisions of this ordinance.
12. When Base Flood Elevation (BFE) data is provided but no floodway or non-encroachment area data has been provided in accordance with Section 4.7.5(C), 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 floor and the lowest adjacent grade of a structure or the lowest ground elevation of a parcel in a Special Flood Hazard Area is above the Base Flood Elevation, advise the property owner of the option to apply for a Letter of Map Amendment (LOMA) from FEMA. Maintain a copy of the Letter of

Map Amendment (LOMA) issued by FEMA in the Floodplain Development Permit (ZCP) file.

14. Permanently maintain all records that pertain to the administration of this ordinance 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 (ZCP) 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 the local ordinance 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 of the community 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 or in an illegal or dangerous manner, 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 or in charge of 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. Violation of a stop-work order constitutes a misdemeanor.

17. Revoke Floodplain Development Permit (ZCP)s as required. The Floodplain Administrator may revoke and require the return of the Floodplain Development Permit (ZCP) 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, and 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 (ZCP) mistakenly issued in violation of an applicable State or local law may also be revoked.

18. Make periodic inspections throughout the special flood hazard areas within the jurisdiction of the community. 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 4.7.6(D).

20. Review, provide input, and make recommendations for variance requests.

21. Maintain a current map repository to include, but not limited to, historical and effective FIS Report, historical and effective FIRM and other official flood maps and studies adopted in accordance with the provisions of Section 4.7.5(C) of this ordinance, 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 Letters of Map Revision (LOMR).

D. CORRECTIVE PROCEDURES

1. **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.
2. **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:
   a. that the building or property is in violation of the floodplain management regulations;
   b. that a hearing will be held before the floodplain administrator at a designated place and time, not later than ten (10) days after the date of the notice, at which time the owner shall be entitled to be heard in person or by counsel and to present arguments and evidence pertaining to the matter; and
   c. that following the hearing, the Floodplain Administrator may issue an order to alter, vacate, or demolish the building; or to remove fill as applicable.
3. **Order to Take Corrective Action**: If, upon a hearing held pursuant to the notice prescribed above, 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 sixty (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.
4. **Appeal:** Any owner who has received an order to take corrective action may appeal the order to the local elected governing body by giving notice of appeal in writing to the Floodplain Administrator and the clerk within ten (10) days following issuance of the final order. In the absence of an appeal, the order of the Floodplain Administrator shall be final. The local governing body shall hear an appeal within a reasonable time and may affirm, modify and affirm, or revoke the order.
5. **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 Class 1 misdemeanor pursuant to NC G.S. § 143-215.58 and shall be punished at the discretion of the court.

E. VARIANCE PROCEDURES

1. The Board of Adjustment as established by the City of Concord, hereinafter referred to as the "appeal board", shall hear and decide requests for variances from the requirements of this ordinance.

2. Any person aggrieved by the decision of the appeal board may appeal such decision to the Court, as provided in Chapter 7A of the North Carolina General Statutes.

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 Article 14 of this ordinance, provided provisions of Sections 4.7.6(E)(9)(b), 4.7.6(E)(9)(c), and 4.7.6(E)(9)(e) have been satisfied, and such facilities are protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

c. any other type of development, provided it meets the requirements of this Section.

4. In passing upon variances, the appeal board shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and:

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 Article 2 of this ordinance 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 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 and the effects of wave action, if applicable, expected at the site; and

k. 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 this ordinance, the appeal board may attach such conditions to the granting of variances as it deems necessary to further the purposes and objectives of this ordinance.

7. Any applicant to whom a variance is granted shall be given written notice specifying the difference between the Base Flood Elevation (BFE) and the elevation to which the structure is to be built and that such construction below the Base Flood Elevation increases risks to life and property, and that the issuance of a variance to construct a structure below the Base Flood Elevation will result in increased premium rates for flood insurance up to $25 per $100 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:

- a showing of good and sufficient cause;
- a determination that failure to grant the variance would result in exceptional hardship; and
- 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.

10. A variance may be issued for solid waste disposal facilities or sites, hazardous waste management facilities, salvage yards, and chemical storage facilities that are located in Special Flood Hazard Areas provided that all of the following conditions are met.

a. The use serves a critical need in the community.

b. No feasible location exists for the use outside the Special Flood Hazard Area.

c. The reference level of any structure is elevated or floodproofed to at least the regulatory flood protection elevation.

d. The use complies with all other applicable Federal, State and local laws

e. The City of Concord has notified the Secretary of the North Carolina Department of Public Safety of its intention to grant a variance at least thirty (30) calendar days prior to granting the variance.

4.7.7 PROVISIONS FOR FLOOD HAZARD REDUCTION

A. GENERAL STANDARDS

In all Special Flood Hazard Areas the following provisions are required:

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

2. All substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

3. All substantial improvements shall be constructed by methods and practices that minimize flood damages.

4. All new electrical, heating, ventilation, plumbing, air conditioning equipment, and other service equipment shall be located at or above the RFPE or designed and installed to prevent water from entering or accumulating within the components during the occurrence of the base flood. These include, but are not limited to, HVAC equipment, water softener units, bath/kitchen fixtures, ductwork, electric/gas meter panels/boxes, utility/cable boxes, hot water heaters, and electric outlets/switches.

a. Replacements part of a substantial improvement, electrical, heating, ventilation, plumbing, air conditioning equipment, and other service equipment shall also meet the above provisions.

b. Replacements that are for maintenance and not part of a substantial improvement, may be installed at the original location provided the addition and/or improvements only comply with the standards for new construction consistent with the code and requirements for the original structure.

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 on the effective date of this ordinance 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 4.7.6(E)(10). 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

Special Flood Hazard Area only if the structure or tank is either elevated or floodproofed to at least the regulatory flood protection elevation and certified in accordance with the provisions of Section 4.7.6(B)(3).

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. 1334.

14. When a structure is partially located in a special flood hazard area, the entire structure shall meet the requirements for 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 the highest base flood elevation shall apply.

16. All fill material within the floodplain shall be cut from an adjacent portion of the floodplain on the same deeded parcel, provided that the soil meets the needed structural requirements. If the soil on the same parcel does not meet the structural requirements, fill material may be taken from another parcel. The net result of cut and fill within the floodplain area shall constitute no net loss to the flood storage capacity of the floodplain. A professional engineer shall certify that the activity or development would not result in an increase in the flood level during a base flood outside property boundaries. If change occurs within property boundaries, applicant will be required to obtain a letter of map amendment from FEMA prior to recording of final plat.

17. New construction is not allowed within the Special Flood Hazard Area.

B. SPECIFIC STANDARDS

In all Special Flood Hazard Areas where Base Flood Elevation (BFE) data has been provided, as set forth in Section 4.7.5 (C) or Section 4.7.7(C), the following provisions, in addition to the provisions of Section 4.7.7(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, (two feet above calculated water surface elevation of the base flood) as defined in Article 14 of this ordinance. In addition, new construction must be 100 percent outside of the Special Flood Hazard Area.

2. Non-Residential 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, (two feet above calculated water surface elevation of the base flood) as defined in Article 14 of this ordinance. Structures

(substantial improvement only) located in Zones A, AE, AH, AO, A99 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 4.7.7(F)(2). A registered professional engineer or architect shall certify that the floodproofing standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator as set forth in Section 4.7.6(B)(3), along with the operational plan and the inspection and maintenance plan. In addition, new construction must be 100 percent outside of the Special Flood Hazard Area.

3. Manufactured Homes.

a. New and replacement manufactured homes shall be elevated so that the reference level of the manufactured home is no lower than the regulatory flood protection elevation, (two feet above calculated water surface elevation of the base flood) as defined in Article 14 of this ordinance. In addition, new construction must be 100 percent outside of the Special Flood Hazard Area.

b. Manufactured homes shall be securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement, either by certified engineered foundation system, 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 NCGS 143-143.15. Additionally, when the elevation would be met by an elevation of the chassis thirty-six (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 thirty-six (36) inches in height, an engineering certification is required.

c. All enclosures or skirting below the lowest floor shall meet the requirements of Section 4.7.7(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 and Regulatory Flood Protection Elevation, (two feet above calculated water surface elevation of the base flood):

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 at least to the regulatory flood protection elevation;

d. shall include, in Zones A, AO, AE, and A1-30, 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 the following minimum design criteria:

- *A minimum of two flood openings on different sides of each enclosed area subject to flooding;*
- *The total net area of all flood openings must be at least one (1) square inch for each square foot of enclosed area subject to flooding;*
- *If a building has more than one enclosed area, each enclosed area must have flood openings to allow floodwaters to automatically enter and exit;*
- *The bottom of all required flood openings shall be no higher than one (1) foot above the adjacent grade;*
- *Flood openings may be equipped with screens, louvers, or other coverings or devices, provided they permit the automatic flow of floodwaters in both directions; and*
- *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.*

5. Additions/Improvements.

a. 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:

- *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.*
- *a substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards of Section 4.7.7(B)(1-4) as applicable.*

b. 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 of Section 4.7.7(B)(1-4) as applicable.

c. 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:

- not a substantial improvement, the addition and/or improvements only must comply with the standards of Section 4.7.7(B)(1-4) as applicable.
- a substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards of Section 4.7.7(B)(1-4) as applicable.

d. Any combination of repair, reconstruction, rehabilitation, addition or improvement of a building or structure taking place during a 1 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 Section 4.7.7(B)(1-4) as applicable. For each building or structure, the 1 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. Substantial damage also means flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred. 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:

- 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.
- Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

6. Recreational Vehicles. Recreational vehicles shall either:

a. Temporary Placement

- Be onsite for fewer than 180 consecutive days; or
- 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.)

b. Permanent Placement. Recreational vehicles that do not meet the limitation of Temporary Placement shall meet all the requirements of Section 4.7.7(B)(1-4) as applicable.

7. Temporary Non-Residential Structures.

Prior to the issuance of a Floodplain Development Permit (ZCP) 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:

a. a specified time period for which the temporary use will be permitted. Time specified may not exceed three (3) months, renewable up to one (1) year;
b. the name, address, and phone number of the individual responsible for the removal of the temporary structure;
c. 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);
d. a copy of the contract or other suitable instrument with the entity responsible for physical removal of the structure; and
e. designation, accompanied by documentation, of a location outside the Special Flood Hazard Area, to which the temporary structure will be moved.

8. Accessory Structures. When accessory structures (sheds, detached garages, etc.) are to be placed within a Special Flood Hazard Area, the following criteria shall be met:

a. Accessory structures shall not be used for human habitation (including working, sleeping, living, cooking or restroom areas);
b. Accessory structures shall not be temperature-controlled;
c. Accessory structures shall be designed to have low flood damage potential;
d. Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters;
e. Accessory structures shall be firmly anchored in accordance with the provisions of Section 4.7.7(A)(1);
f. All service facilities such as electrical shall be installed in accordance with the provisions of Section 4.7.7(A)(4) and
g. Flood openings to facilitate automatic equalization of hydrostatic flood forces shall be provided below regulatory flood protection elevation in conformance with the provisions of Section 4.7.7(B)(4)(c).

******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 4.7.6(B)(3).

9. Tanks. When gas and liquid storage tanks are to be placed within a Special Flood Hazard Area, the following criteria shall be met:

a. Underground tanks. Underground tanks in flood hazard areas 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;

b. 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;

c. Above-ground tanks, not elevated. Above-ground tanks that do not meet the elevation requirements of Section 4.7.7(B)(2) of this ordinance 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.

d. Tank inlets and vents.

10. Other Development. When gas and liquid storage tanks are to be placed within a Special Flood Hazard Area, the following criteria shall be met:

a. 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 Section 4.7.7(E) of this ordinance.

b. 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 Section 4.7.7(E) of this ordinance.

c. 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 Section 4.7.7(E) of this ordinance.

C. STANDARDS FOR FLOODPLAINS WITHOUT ESTABLISHED BASE FLOOD ELEVATIONS

Within the Special Flood Hazard Areas designated as Approximate Zone A and established in Section 4.7.5(C) where no Base Flood Elevation (BFE) data has been provided by FEMA, the following provisions, in addition to the provisions of Section 4.7.7(A) shall apply:

1. No encroachments, including fill, new construction, substantial improvements or new development shall be permitted within a distance of forty (40) 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 the following criteria:

a. When Base Flood Elevation (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 4.7.7(A) and 4.7.7(B).

b. When floodway data is available from a Federal, State, or other source, all new construction and substantial improvements within floodway areas shall also comply with the requirements of Sections 4.7.7(B) and 4.7.7(E).

c. All subdivision, manufactured home park and other development proposals shall provide Base Flood Elevation (BFE) data if development is greater than five (5) acres or has more than fifty (50) lots/manufactured home sites. Such Base Flood Elevation (BFE) data shall be adopted by reference in accordance with Section 4.7.5(C) and utilized in implementing this ordinance.

d. When Base Flood Elevation (BFE) data is not available from a Federal, State, or other source as outlined above, the reference level shall be elevated or floodproofed (nonresidential) to or above the Regulatory Flood Protection Elevation, as defined in Article 14. All other applicable provisions of Section 4.4.7(B) shall also apply.

D. STANDARDS FOR RIVERINE FLOODPLAINS WITH BFE BUT WITHOUT ESTABLISHED FLOODWAYS OR NON-ENCROACHMENT AREAS

Along rivers and streams where BFE data is provided by FEMA or is available from another source but neither floodway nor non-encroachment areas are identified for a Special Flood Hazard Area on the FIRM or in the FIS report, the following requirements shall apply to all development within such areas:

1. Standards of Section 4.7.7(A) and Section 4.7.7(B) and

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 (1) foot at any point within the community.

E. FLOODWAYS AND NON-ENCROACHMENT AREAS

Areas designated as floodways or non-encroachment areas are located within the Special Flood Hazard Areas established in Section 4.7.5(C). 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 4.7.7(A) and 4.7.7(B), shall apply to all development within such areas:

1. No encroachments, including fill, substantial improvements and other developments shall be permitted unless:
   a. it is demonstrated that 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 (ZCP), 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.
2. If Section 4.7.7(E)(1) is satisfied, all development shall comply with all applicable flood hazard reduction provisions of this ordinance.
3. 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 4.7.7(B)(3); and
   b. the no encroachment standard of Section 4.7.7(E)(1).

F. STANDARDS FOR AREAS OF SHALLOW FLOODING (ZONE AO)

Located within the Special Flood Hazard Areas established in Section 4.7.5(C) are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate. In addition to Sections 4.7.7(A) and 4.7.7(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 Flood Insurance Rate Map (FIRM), in feet, plus a freeboard of two(2) feet, above the highest adjacent grade; or at least four (4) feet above the highest adjacent grade 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 4.7.7(F)(1) 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 in accordance with Section 4.7.6(BB(3) and Section 4.7.7(B)(2).
3. Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.
4. New construction must meet the requirements of Section 4.7.7(B)

G. STANDARDS FOR AREAS OF SHALLOW FLOODING (ZONE AH)

Located within the Special Flood Hazard Areas established in Section 4.7.5(C), are areas designated as shallow flooding areas. These areas are subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are one (1) to three (3) feet. Base Flood Elevations are derived from detailed hydraulic analyses are shown in this zone. In addition to Section 4.7.7(A) and 4.7.7(B), 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.
2. New construction must meet the requirements of Section 4.7.7(B)

4.7.8 LEGAL STATUS PROVISIONS.

A. EFFECT ON RIGHTS AND LIABILITIES UNDER THE EXISTING FLOOD DAMAGE PREVENTION ORDINANCE.

This ordinance in part comes forward by re-enactment of some of the provisions of the flood damage prevention ordinance enacted November 13, 1994 as amended, and it is not the intention to repeal but rather to re-enact and continue to enforce without interruption of such existing provisions, so that all rights and liabilities that have accrued thereunder are reserved and may be enforced. The enactment of this ordinance shall not affect any action, suit or proceeding instituted or pending. All provisions of the flood damage prevention ordinance of the City of Concord enacted on November 13, 1994 as amended, which are not reenacted herein are repealed.

B. EFFECT UPON OUTSTANDING FLOODPLAIN DEVELOPMENT PERMIT (ZCP)S.

Nothing herein contained shall require any change in the plans, construction, size, or designated use of any development or any part thereof for which a Floodplain Development Permit (ZCP) has been granted by the floodplain administrator or his or her authorized agents before the time of passage of this ordinance; provided, however, that when construction is not begun under such outstanding permit within a period of six (6) months subsequent to the date of issuance of the outstanding permit, construction or use shall be in conformity with the provisions of this ordinance.

C. SEVERABILITY

If any section, clause, sentence, or phrase of the Ordinance is held to be invalid or unconstitutional by any court of competent jurisdiction, then said holding shall in no way effect the validity of the remaining portions of this Ordinance.

D. EFFECTIVE DATE

This ordinance shall become effective November 16, 2018.