

# 12 EROSION, FLOOD, STORMWATER AND WATERSHED PROVISIONS

## 12.1 GENERAL PURPOSE AND INTENT [Updates SM-46.1-2, 31 and Z 8.35.1]

### 12.1.1 FINDINGS OF FACT

- A. Erosion and Sedimentation Control:** The erosion of soil from uncovered development sites has adverse impacts on the condition of public and private property, impairs the City of Wilson stormwater system, and causes pollution and accelerated siltation of lakes, streams and other watercourses.
- B. Flood Damage Prevention:** The flood prone areas within the jurisdiction of the City of Wilson are subject to periodic inundation which may result 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. 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 by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, floodproofed, or otherwise unprotected from flood damages.
- C. Stormwater Management:** The North Carolina Department of Environment and Natural Resources has issued regulations entitled “Neuse River Basin - Nutrient Sensitive Waters Management Strategy: Basinwide Stormwater Requirements (15A NCAC 2B.0235).” These regulations require that local governments within the Neuse River watershed establish a program to reduce nitrogen runoff in new developments, to prevent, identify, and remove illegal discharges, to identify potential retrofit sites, and to implement a stormwater public education program.
- D. Watershed Protection:** The Legislature of the State of North Carolina has, in NCGS 143-21, Watershed Protection Rules, directed local governmental units to adopt regulations that meet or exceed the minimum requirements of NCGS 143-214.5 and water supply watershed protection rules adopted by the State Environmental Management Commission in order to protect the water supplies throughout the state.

### 12.1.2 AUTHORITY AND ENACTMENT

- A. Erosion and Sedimentation Control:** In accordance with 15A NCAC 04 and the North Carolina Sedimentation Pollution Control Act of 1973, the Erosion and Sedimentation Control Regulations of this ordinance were adopted, effective May 15, 2008.
- B. Flood Damage Prevention:** In accordance with the National Flood Insurance Program (NFIP) and the Federal Emergency Management Agency (FEMA) the Flood Damage Prevention Regulations of this ordinance are hereby adopted, effective as detailed in Section 12.4.4.A.
- C. Stormwater Management:** In accordance with 15A NCAC 2B.0235 and consistent with the adopted Neuse River Basin Requirements, the Stormwater Management and Neuse River Basin Regulations of this ordinance were adopted, effective March 9, 2001.

**D. Watershed Protection:** In accordance with NCGS. 160A-381 and NCGS 143-214.5, the Watershed Protection Regulations of this ordinance were adopted, effective July 1, 1993.

### 12.1.3 PURPOSE

**E. Erosion and Sedimentation Control:** The erosion and sedimentation control provisions of this ordinance are adopted for the purposes of regulating certain land-disturbing activity to control accelerated erosion and sedimentation in order to prevent the pollution of water and other damage to lakes, watercourses, and other public and private property by sedimentation.

**F. Flood Damage Prevention:**

1. It is the purpose of the flood damage prevention provisions of this chapter to minimize public and private losses due to flood conditions within flood prone areas by:
  - a. Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion, flood heights or velocities;
  - b. Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
  - c. Controlling the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;
  - d. Controlling filling, grading, dredging, and all other development which may increase erosion or flood damage; and
  - e. Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.
2. Specific objectives of the flood damage prevention provisions are as follows:
  - a. To protect human life and health;
  - b. To minimize expenditure of public money for costly flood control projects;
  - c. To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
  - d. To minimize prolonged business losses and interruptions;
  - e. To 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. To help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas; and
  - g. To insure that potential homebuyers are notified that property is in a special flood hazard area.

**G. Stormwater Management:** The stormwater management provisions of this chapter are intended to protect water quality for present and future residents

of the city and surrounding regions by limiting the amount of pollutants including, but not limited to, nitrogen in stormwater runoff that makes its way into the city's stormwater drainage system. Specific objectives include protection of riparian buffers, control of nitrogen export from development, control of peak stormwater runoff, and the use of best management practices. The stormwater management provisions of this chapter are further intended to provide for the enforcement of the city's stormwater management program; to prohibit non-stormwater discharges to the city stormwater drainage system, require the removal of illicit connections to the city stormwater drainage system and prevent improper disposal of materials that degrade water quality.

**H. Watershed Protection:** The Watershed Protection regulations are established to preserve water quality and provide safe drinking water for present and future residents.

#### 12.1.4 PERMITS REQUIRED

- A. Grading (Erosion and Sedimentation Control) Permit:** No person shall undertake any land-disturbing activity as specified by the erosion and sedimentation control provisions of this chapter until plans for controlling erosion associated with the activity have been reviewed and approved in accordance with the procedures set forth in Sections 15.7.1 and 15.7.2.
- B. Floodplain Development Permit:** A Floodplain Development Permit shall be required in conformance with the flood damage prevention provisions of this chapter and Section 15.7.3 prior to the commencement of any development activities within a Flood Hazard Area Overlay District.
- C. Stormwater Management Permit:** No person shall construct, repair or alter the stormwater drainage system for the purpose of draining water from any land or premises, or commence any development activities before receiving a Stormwater Management Permit according to the provisions of Section 15.7.5.
- D. Watershed Development Permit:** A Watershed Development Permit shall be required in conformance with the watershed protection provisions of this chapter and Section 15.7.4 prior to the commencement of any development activities within Watershed Area Overlay District.

#### 12.1.5 REQUIRED CONFORMANCE TO THE WILSON SPECIFICATIONS MANUAL

The City of Wilson Manual of Specifications, Standards and Design is herein incorporated by reference. Conformance to the Manual of Specifications, Standards and Design is required in addition to the provisions in this ordinance.

**12.2 APPLICABILITY** [Updates SM-46.3 and Z-8.35.3.A]

**12.2.1 APPLICABILITY BY DISTRICT**

The various erosion control, flood damage prevention, stormwater management and watershed protection provisions of this chapter apply according to the table below:

Regulation Type	Geographic Applicability	Applicable Subsections
Erosion and Sedimentation Control Regulations	All Districts	12.3 (also see 8.9)
Flood Damage Prevention Regulations	FHA-O and FHCA-O Districts	12.4 (also see 2.8.6)
Stormwater Management Regulations	All Districts	12.5, 12.6, 12.7 and 12.9 (also see 8.9)
Watershed Protection Regulations	WS3-P, WS3-C, WS4-P and WS4-C Districts	12.8 and 12.9 (also see 2.8.5 and 8.9)

**12.3 EROSION AND SEDIMENTATION CONTROL** [Adapts City Code Part III Chapter 32.5]

**12.3.1 SCOPE AND EXCLUSIONS**

- A. Land-Disturbing Activity:** This section shall apply to land-disturbing activity within the territorial jurisdiction of the City of Wilson and to the extraterritorial jurisdiction of the City of Wilson as allowed by agreement between local governments, the extent of annexation or other appropriate legal instrument or law.
- B. Applicability**
  - 1. Erosion control devices must be installed to prevent any offsite sedimentation for any construction site regardless of the size of the land disturbance, except as provided in Section 12.3.1.C, below, however;
  - 2. Land-disturbing activity of 1 acre in surface area or greater shall only be conducted in accordance with an approved erosion control plan and grading permit pursuant to the provisions of this section and the procedures set forth in Sections 15.7.1 and 15.7.2. In determining the area of land-disturbing activity, lands under being developed as a unit, whether under single or diverse ownership, will be aggregated.
- C. Exemptions:** This section shall not apply to the following types of land-disturbing activity:
  - 1. An activity, including breeding and grazing of livestock, undertaken on agricultural land for the production of plants and animals useful to man such as,
    - Forage and sod crops, grain and feed crops, tobacco, cotton, and peanuts;
    - Dairy animals and dairy products;
    - Poultry and poultry products;
    - Livestock, including beef cattle, sheep swine, horses, ponies, mules, and goats;
    - Bees and apiary products; and

Fur-producing animals.

2. An activity undertaken on forestland for the production and harvesting of timber and timber products and conducted in accordance with best management practices set out in Forest Practice Guidelines Related to Water Quality, as adopted by the North Carolina Department of Environment and Natural Resources (NCDENR). If land-disturbing activity undertaken on forestland for the production and harvesting of timber and timber products is not conducted in accordance with Forest Practice Guidelines Related to Water Quality, the provisions of this ordinance shall apply to such activity and any related land-disturbing activity on the tract.
  3. An activity for which a permit is required under the Mining Act of 1971, Article 7 of NCGS Chapter 74.
  4. A land-disturbing activity over which the state has exclusive regulatory jurisdiction as provided in NCGS 113A-56(a).
  5. An activity which is essential to protect human life during an emergency.
- D. Protection of Property:** Persons conducting land-disturbing activity shall take all reasonable measures to protect all public and private property from damage caused by such activity.

### 12.3.2 STANDARDS FOR LAND-DISTURBING ACTIVITY

No land-disturbing activity subject to the control of this section shall be undertaken except in accordance with the following mandatory standards:

- A. Construction Buffer Zone:** No land-disturbing activity during periods of construction or improvement to land shall be permitted in proximity to a lake or natural watercourse unless a buffer zone is provided along the margin of the watercourse as provided for in Section 8.9.3.
- B. Graded Slopes and Fills:** The angle for graded slopes and fills shall be no greater than the angle which can be retained by vegetative cover or other adequate erosion control devices or structures. In any event, slopes left exposed shall be planted or otherwise provided with ground cover, devices, or structures sufficient to restrain erosion in accordance with the City of Wilson Manual of Specifications, Standards and Design. The angle for graded slopes and fills must be demonstrated to be stable, where the soil remains in its original configuration, with or without mechanical constraints.
- C. Fill Material:** Unless a permit from the NCDENR Division of Waste Management to operate a landfill is on file for the official site, acceptable fill material shall be free of organic or other degradable materials, masonry, concrete and brick in sizes exceeding 12 inches, and any materials which would cause the site to be regulated as a landfill by the State of North Carolina.
- D. Ground Cover:** Whenever land-disturbing activity that will disturb more than 1 acre on a tract is undertaken on a tract, the person conducting the land-disturbing activity shall install erosion and sedimentation control devices and practices that are sufficient to retain the sediment generated by the land disturbing activity within the boundaries of the tract during construction upon and development of said tract, and shall plant or otherwise provide a permanent ground cover sufficient to restrain erosion after completion of construction or development. Except as provided in Section 12.3.5.B.5, provisions for a ground cover sufficient to restrain

erosion must be accomplished in accordance with the City of Wilson Manual of Specifications, Standards and Design.

- E. Prior Plan Approval:** No person shall initiate any land-disturbing activity that will disturb more than 1 acre on a tract if more than 1 acre is to be uncovered unless, 30 or more days prior to initiating the activity, a plan for such activity is filed with and approved by the City of Wilson. The City of Wilson shall forward to the Director of the NCDENR Division of Water Quality a copy of each plan for a land-disturbing activity that involves the utilization of ditches for the purpose of de-watering or lowering the water table of the tract.

### 12.3.3 VIOLATIONS

Any person engaged in land-disturbing activity who fails to file a Sedimentation and Erosion Control Plan in accordance with this section and Section 15.7.2, or who conducts a land-disturbing activity except in accordance with provisions of an approved plan, shall be deemed in violation of this section and subject to the enforcement procedures outlined in Section 16.2.1.

### 12.3.4 BASIC CONTROL OBJECTIVES

An erosion and sedimentation control plan must address the following control objectives:

- A. Identify Critical Areas:** On-site areas which are subject to severe erosion and off-site areas which are especially vulnerable to damage from erosion.
- B. Limit Time of Exposure:** All land-disturbing activities are to be planned and conducted to limit exposure to the shortest feasible time.
- C. Limit Exposed Areas:** All land-disturbing activity is to be planned and conducted to minimize the size of the area to be exposed at any one time.
- D. Control Surface Water:** Surface water runoff originating upgrade of exposed areas should be controlled to reduce erosion and sediment loss during the period of exposure.
- E. Control Sedimentation:** All land-disturbing activity is to be planned and conducted so as to prevent off-site sedimentation damage.
- F. Manage Storm Water Runoff:** When the increase in the velocity of storm water runoff resulting from a land-disturbing activity is sufficient to cause accelerated erosion of the receiving watercourse, an erosion and sedimentation control plan is to include measures to control the velocity to the point of discharge so as to minimize accelerated erosion of the site and increased sedimentation of the stream.

### 12.3.5 DESIGN AND PERFORMANCE STANDARDS

- A. Typical Design Standards:** Except as provided in Section 12.3.5.B.2, below, erosion and sedimentation control measures, structures, and devices shall be planned, designed, and constructed to provide protection from the calculated maximum peak rate of runoff from the 10-year storm. Runoff rates shall be calculated using the procedures in the USDA, Soil Conservation Service's "National Engineering Field Manual for Conservation Practices," or other acceptable calculation procedures.
- B. HQW Zones.** In High Quality Water (HQW) zones, the following design standards shall apply:

1. **Limit on Uncovered Area:** Uncovered areas in HQW zones shall be limited to a maximum total area of 20 acres within the boundaries of the tract. Only the portion of the land-disturbing activity within a HQW zone shall be governed by this section. Larger areas may be uncovered within the boundaries of the tract with the written approval of the Director of the NCDENR Division of Land Resources.
2. **Maximum Peak Rate of Runoff Protection:** Erosion and sedimentation control measures, structures, and devices within HQW zones shall be planned, designed and constructed to provide protection from the runoff of the 25-year storm which produces the maximum peak rate of runoff as calculated according to procedures in the United States Department of Agriculture Soil Conservation Service's "National Engineering Field Manual for Conservation Practices" or according to procedures adopted by any other agency of this state or the United States or any generally recognized organization or association.
3. **Settling Efficiency:** Sediment basins within HQW zones shall be designed and constructed such that the basin will have a settling efficiency of at least 70% for the 40 micron (0.04 millimeter) size soil particle transported into the basin by the runoff of that 2-year storm which produces the maximum peak rate of runoff as calculated according to procedures in the United States Department of Agriculture Soil Conservation Service's "National Engineering Field Manual for Conservation Practices," or according to procedures adopted by any other agency of this state or the United States or any generally recognized organization or association.
4. **Grade:** Newly constructed open channels in HQW zones shall be designed and constructed with side slopes no steeper than 2 horizontal to 1 vertical if a vegetative cover is used for stabilization, unless soil conditions permit a steeper slope, or where the slopes are stabilized by using mechanical devices, structural devices or other acceptable ditch liners. In any event, the angle for side slopes shall be sufficient to restrain accelerated erosion.
5. **Ground Cover:** Ground cover sufficient to restrain erosion must be provided for any portion of a land-disturbing activity in a HQW zone in accordance with the City of Wilson Manual of Specifications, Standards and Design.

### 12.3.6 STORM WATER OUTLET PROTECTION

- A. **Intent:** Stream banks and channels downstream from any land-disturbing activity shall be protected from increased degradation by accelerated erosion caused by increased velocity of runoff from the land-disturbing activity.
- B. **Performance Standard:** Persons shall conduct land-disturbing activity so that the post construction velocity of the 10-year storm runoff in the receiving watercourse to the discharge point does not exceed the greater of:
  1. The velocity established by the Maximum Permissible Velocities Table below;  
or
  2. The velocity of the 10-year storm runoff in the receiving watercourse prior to development.

If condition (1) or (2) of this paragraph cannot be met, then the receiving watercourse to and including the discharge point shall be designed and constructed to withstand the expected velocity anywhere the velocity exceeds the "prior to development" velocity by 10%.

**C. Maximum Permissible Velocities Table**

Material	Feet Per Second	Meters Per Second
Fine sand (noncolloidal)	2.5	.8
Sandy loam (noncolloidal)	2.5	.8
Silt loam (noncolloidal)	3.0	.9
Ordinary firm loam	3.5	1.1
Fine gravel	5.0	1.5
Stiff clay (very colloidal)	5.0	1.5
Graded, loam to cobbles (noncolloidal)	5.0	1.5
Graded, silt to cobbles (colloidal)	5.5	1.7
Alluvial silts (noncolloidal)	3.5	1.1
Alluvial silts (colloidal)	5.0	1.5
Coarse gravel (noncolloidal)	6.0	1.8
Cobbles and shingles	5.5	1.7
Shales and hard pans	6.0	1.8

Source: Adapted from recommendations by Special Committee on Irrigation Research, American Society of Civil Engineers, 1926, for channels with straight alignment. For sinuous channels, multiply allowable velocity by 0.95 for slightly sinuous, by 0.9 for moderately sinuous channels, and by 0.8 for highly sinuous channels.

**D. Acceptable Management Measures:** Measures applied alone or in combination to satisfy the intent of this section are acceptable if there are no objectionable secondary consequences. The city recognizes that the management of storm water runoff to minimize or control downstream channel and bank erosion is a developing technology. Innovative techniques and ideas will be considered and may be used when shown to have the potential to produce successful results. Some alternatives, while not exhaustive, are to:

1. Avoid increases in surface runoff volume and velocity by including measures to promote infiltration to compensate for increased runoff from areas rendered impervious;
2. Avoid increases in storm water discharge velocities by using vegetated or roughened swales and waterways in place of closed drains and high velocity paved sections;
3. Provide energy dissipaters at outlets of storm drainage facilities to reduce flow velocities to the point of discharge;
4. Protect watercourses subject to accelerated erosion by improving cross sections and/or providing erosion-resistant lining; and
5. Upgrade or replace the receiving device structure, or watercourse such that it will receive and conduct the flow to a point where it is no longer subject to degradation from the increased rate of flow or increased velocity.

**E. Exceptions:** This rule shall not apply where it can be demonstrated to the city that storm water discharge velocities will not create an erosion problem in the receiving watercourse.

**12.3.7 BORROW AND WASTE AREAS**

When the person conducting the land-disturbing activity is also the person conducting the borrow or waste disposal activity, areas from which borrow is obtained and which are not regulated by the provisions of the Mining Act of 1971, and waste areas for surplus materials other than landfills regulated by the NCDENR Division of Waste Management, shall be considered as part of the land-disturbing activity where the borrow material is being used or from which the waste material originated. When the

person conducting the land-disturbing activity is not the person obtaining the borrow and/or disposing of the waste, these areas shall be considered a separate land-disturbing activity.

#### **12.3.8 ACCESS AND HAUL ROADS**

Temporary access and haul roads, other than public roads, constructed or used in connection with any land-disturbing activity shall be considered a part of such activity.

#### **12.3.9 OPERATIONS IN LAKES OR NATURAL WATERCOURSES**

Land-disturbing activity in connection with construction in, on, over, or under a lake or natural watercourse shall minimize the extent and duration of disruption of the stream channel. Where relocation of a stream forms an essential part of the proposed activity, the relocation shall minimize unnecessary changes in the stream flow characteristics.

#### **12.3.10 RESPONSIBILITY FOR MAINTENANCE**

During the development of a site, the person conducting the land-disturbing activity shall install and maintain all temporary and permanent erosion and sedimentation control measures as required by the approved erosion and sedimentation control plan or any provision of this section, the North Carolina Sedimentation Pollution Control Act of 1973, or any order adopted pursuant to this section or that Act. After site development, the landowner or person in possession or control of the land shall install and/or maintain all necessary permanent erosion and sediment control measures, except those measures installed within a road or street right-of-way or easement accepted for maintenance by a governmental agency.

#### **12.3.11 ADDITIONAL MEASURES**

Whenever the city determines that significant erosion and sedimentation is occurring as a result of land-disturbing activity, despite application and maintenance of protective practices, the person conducting the land-disturbing activity will be required to and shall take additional protective action.

#### **12.3.12 EXISTING UNCOVERED AREAS**

- A.** All uncovered areas existing on the effective date of this section which resulted from land-disturbing activity that exceed 1 acre, are subject to continued accelerated erosion, and are causing off-site damage from sedimentation, shall be provided with a ground cover or other protective measures, structures, or devices sufficient to restrain accelerated erosion and control off-site sedimentation.
- B.** The city shall serve upon the landowner or other person in possession or control of the land a written notice to comply with the North Carolina Sedimentation Pollution Control Act of 1973, this section, and/or a rule or order adopted or issued pursuant to that Act by the North Carolina Sedimentation Control Commission or by the city. The notice to comply shall be sent by registered or certified mail, return receipt requested, or other means provided in NCGS 1A-1, Rule 4. The notice will set forth the measures needed to comply and will state the time within which such measures must be completed. In determining the measures required and the time allowed for compliance, the authority serving notice shall take into consideration the economic feasibility, technology, and quantity of work required, and shall set reasonable and attainable time limits of compliance.

- C. The city reserves the right to require preparation and approval of an erosion and sedimentation control plan in any instance where extensive control measures are required.
- D. This rule shall not require ground cover on cleared land forming the future basin of a planned reservoir.

### 12.3.13 INSPECTIONS

- A. **Inspection:** Agents, officials, or other qualified persons authorized by the city will periodically inspect land-disturbing activities to ensure compliance with the North Carolina Sedimentation Pollution Control Act of 1973, this section, or rules or orders adopted or issued pursuant to this section, and to determine whether the measures required in the erosion and sedimentation control plan are effective in controlling erosion and sedimentation resulting from land-disturbing activity. Notice of the right to inspect shall be included in the certificate of approval of each erosion and sedimentation control plan.
- B. **Self-Inspection:** The landowner, the financially responsible party, or the landowner's or the financially responsible party's agent shall perform an inspection of the area covered by the erosion and sedimentation control plan after each phase of the plan has been completed and after establishment of temporary ground cover in accordance with NCGS 113A-57(2). The person who performs the inspection shall maintain and make available a record of the inspection at the site of the land-disturbing activity. The record shall set out any significant deviation from the approved erosion and sedimentation control plan, identify any measures that may be required to correct the deviation, and document the completion of those measures. The record shall be maintained until permanent ground cover has been established as required by the approved erosion and sedimentation control plan. The inspections required by this subsection shall be in addition to inspections required by NCGS 113A-61.1.
- C. **Willful Resistance, Delay or Obstruction:** No person shall willfully resist, delay, or obstruct an authorized representative, employee, or agent of the city while that person is inspecting or attempting to inspect a land-disturbing activity under this section.

## 12.4 FLOOD DAMAGE PREVENTION *[Updates Z-8.35]*

### 12.4.1 GENERAL PROVISIONS

- A. **Applicability:** This section shall apply to all special flood hazard areas within the City of Wilson and its extraterritorial jurisdiction.
- B. **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 flood insurance study (FIS) for Wilson County dated April 16, 2013 and its accompanying Flood Insurance Rate Map (FIRM) Panels (2783K, 2791K, 2792K, 2793K, 2794K, 3629K, 3639K, 3648K, 3700J, 3701K, 3702K, 3703K, 3704K, 3710K, 3711K, 3712J, 3713K, 3714K, 3715J, 3720K, 3721K, 3722K, 3723K, 3724K, 3730K, 3731K, 3732K, 3733J, and 3740K), which are adopted by reference and declared to be a part of this ordinance. Subsequent revisions to the FIRM should be adopted within six months. The initial Flood Insurance Rate Map for Wilson County is dated January 6, 1983. The initial Flood Insurance Rate Map for the City of Wilson is dated July 19, 1982.

- C. 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. Floods larger than those considered by this ordinance can and will occur on rare occasions. 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 Wilson 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.

#### 12.4.2 PROVISIONS FOR SPECIAL FLOOD HAZARD AREAS

- A. General Standards:** The following provisions shall apply to all development in special flood hazard areas:
1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
  2. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
  3. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damages.
  4. Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding. These include but are not limited to HVAC equipment, water softener units, bath/kitchen fixtures, ductwork, electric meter panels/boxes, utility/cable boxes, appliances (i.e., washers, dryers, refrigerator, etc.), hot water heaters, electric outlets/switches.
  5. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
  6. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters 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. Any alteration, repair, reconstruction, or improvements to a structure which is in compliance with the provisions of this ordinance shall meet the requirements of "new construction" as contained in this ordinance.
- B. Specific Standards:** In all special flood hazard areas where Base Flood Elevation (BFE) data has been provided, the elevation to which all structures and other development located within the special flood hazard areas must be elevated, or floodproofed if non-residential, shall be the BFE plus 2.5 feet of freeboard. The following additional provisions are required:
1. **Residential Construction:** New construction and/or substantial improvement of any residential structure (including manufactured homes) shall have the lowest floor, including basement, elevated no lower than the regulatory flood protection elevation.
  2. **Non-Residential Construction:** New construction or substantial improvement of any commercial, industrial, or other non-residential structure

shall have the lowest floor, including basement, elevated no lower than the regulatory flood protection elevation. Structures located in A, AO, AE and A1-30 Zones, as designated on the FIRM, may be floodproofed to the regulatory flood protection elevation in lieu of elevation provided that all areas of the structure below the required flood protection elevation are watertight with walls, doors, and/or windows substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the official as set forth in Section 15.7.3.E. Installation of, or full deployment of, floodproofing measures for the purpose of their inspection will be required prior to the issuance of a Certificate of Occupancy (a full demonstration using water to test the measures is not required).

**3. Manufactured Homes:**

- a. New or replacement manufactured homes shall be elevated so that the lowest floor of the manufactured home is no lower than the regulatory flood protection elevation.
- b. Manufactured homes shall be securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement in accordance with the State of North Carolina Regulations for Manufactured/Mobile Homes, 1995 Edition, and any revision thereto adopted by the Commissioner of Insurance pursuant to NCGS 143-143.15 or a certified engineered foundation. Additionally, when the elevation would be met by an elevation of the chassis 36 inches or less above the grade at the site, the chassis shall be supported by reinforced piers or other foundation elements of at least equivalent strength. When the elevation of the chassis is above 36 inches in height, an engineering certification is required.
- c. All foundation enclosures or skirting shall be in accordance with Section 12.4.2.B.4 (Elevated Buildings).
- 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:** In new construction or substantial improvements of elevated buildings, fully-enclosed areas below the lowest floor shall not be designed to be used for human habitation, but shall be designed to be used only for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises, be constructed entirely of flood-resistant materials below the regulatory flood protection level in A, AO, AE, and A1-30 zones and meet the following design criteria:

- a. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator). The interior portion of such enclosed area shall not be partitioned or finished into separate rooms, except to enclose storage areas.

- b. Such areas shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. To meet this requirement, the foundation must either be certified by a professional engineer or architect or meet the following minimum design criteria:
  - i. Provide a minimum of 2 openings on different sides of each enclosed area subject to flooding;
  - ii. The total net area of all openings must be at least 1 square inch for each square foot of each enclosed area subject to flooding;
  - iii. If a building has more than 1 enclosed area, each area must have openings on exterior walls to allow floodwater to directly enter and exit;
  - iv. The bottom of all required openings shall be no higher than 1 foot above the adjacent grade; and
  - v. Openings may be equipped with screens, louvers, or other opening coverings or devices provided they permit the automatic flow of floodwaters in both directions.
- c. Foundation enclosures:
  - i. Vinyl or sheet metal skirting is not considered an enclosure for regulatory and flood insurance rating purposes, therefore, such skirting does not require hydrostatic openings as outlined above; and
  - ii. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires hydrostatic openings as outlined above to comply with this ordinance.

**5. Additions/Improvements**

- a. When additions and/or improvements to pre-FIRM structures whereas the addition and/or improvements in combination with any interior modifications to the existing structure:
  - i. 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;
  - ii. Are a substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.
- b. Additions to post-FIRM structures with no modifications to the existing structure shall require only the addition to comply with the standards for new construction.
- c. When additions and/or improvements to post-FIRM structures whereas the addition and/or improvements in combination with any interior modifications to the existing structure:
  - i. Are not a substantial improvement, the addition and/or improvements only must comply with the standards for new construction;
  - ii. Are a substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.

6. **Recreational Vehicles:** Recreation vehicles placed on sites within a special flood hazard area shall either:
  - a. Be on site for fewer than 180 consecutive days, be fully licensed, and ready for highway use (a recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities, and has no permanently attached additions); or
  - b. Meet all the requirements for new construction, including anchoring and elevation requirements of Sections 15.7.3 .E and 12.4.2.B.3.
7. **Temporary Structures:** Prior to the issuance of a floodplain development permit for a temporary structure, applicants must submit in writing to the floodplain administrator a plan for the removal of such structure(s) in the event of a hurricane or flash flood warning notification. The plan must include the following information:
  - a. A specified time period for which the temporary structure will be permitted;
  - 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 a trucking company to insure the availability of removal equipment when needed; 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 work, sleeping, living, cooking or restroom areas);
  - b. Accessory structures shall be designed to have low flood-damage potential;
  - c. Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters; Accessory structures shall be firmly anchored in accordance with Section 12.4.2.A.1;
  - d. All service facilities such as electrical and heating equipment shall be installed in accordance with Section 12.4.2.A.4;
  - e. Openings to relieve hydrostatic pressure during a flood shall be provided below regulatory flood protection elevation in conformance with Section 12.4.2.B.4.
  - f. An accessory structure with a footprint less than 150 square feet does not require an elevation or floodproofing certificate.
  - g. Elevation or floodproofing certifications are required for all other accessory structures in accordance with Section 15.7.3.E.

- C. Subdivisions, Manufactured Home Parks and Other Developments:** All subdivision, manufactured home park, and other development proposals located within special flood hazard areas shall:
1. Be consistent with the need to minimize flood damage;
  2. Have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage; and
  3. Have adequate drainage provided to reduce exposure to flood hazards.
- D. Standards for Floodplains Without Established Base Flood Elevations and Floodways:** Within the special flood hazard areas, where no base flood elevation (BFE) data has been provided, the following provisions shall apply:
1. No encroachments, including fill, new construction, substantial improvements or new development shall be permitted within a distance of 30 feet on each side from top of the bank, or 5 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. If 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 elevations established by the Floodplain Administrator. When Base Flood Elevation (BFE) data is not available from a Federal, State, or other source, the lowest floor, including basement, shall be elevated at least 2.5 feet above the highest adjacent grade.
  3. Have base flood elevation (BFE) data provided if subdivision or development proposed is greater than the lesser of 5 acres or 50 lots/manufactured home sites. Such base flood elevation (BFE) data shall be adopted by reference to be utilized in implementing this ordinance.
- E. Standards for Floodplains with BFE but without Established Floodways or Non-Encroachment Areas:** Along rivers and streams where base flood elevation (BFE) data is provided but neither floodway nor non-encroachment areas are identified for a special flood hazard area on the FIRM or in the FIS, 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 1 foot at any point within the community.
- F. Floodways and Non-Encroachment Areas:** Located within the special flood hazard areas are areas designated as floodways or non-encroachment areas. 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 additional provisions shall apply to all development within such areas:
1. No encroachments, including fill, new construction, substantial improvements and other developments shall be permitted unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in the flood levels during the occurrence of the base

- flood. Such certification and technical data shall be presented to the floodplain administrator prior to issuance of floodplain development permit;
2. If paragraph 1, above, 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 12.4.2.B.3; and
    - b. The no-encroachment standards of Section 12.4.2.F.1 are met.
- G. Standards for Areas of Shallow Flooding (AO Zones):** Located within the special flood hazard areas, are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of 1 to 3 feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate. The following additional provisions shall apply within such areas:
1. All new construction and substantial improvements of all structures shall have the lowest floor, including basement, elevated at least as high as the depth number specified on the flood insurance rate map (FIRM), in feet, plus 2.5 feet of freeboard, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated at least 4.5 feet (the 2-foot minimum required by FEMA, plus the local freeboard) above the highest adjacent grade.
  2. All new construction and substantial improvements of non-residential structures shall have the option to, in lieu of elevation, be completely floodproofed, together with attendant utilities and sanitary facilities, to or above that level (as in (1), above) so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Certification is required as per Section 15.7.3.E.3 and Section 12.4.2.B.2.
- H. Prohibited Uses:** New solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities shall not be permitted in special flood hazard areas. 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 according to the provisions of this section.
- I. Non-Conforming Structures:** Non-conforming structures or other development may not be enlarged, replaced, or rebuilt unless such enlargement or reconstruction is accomplished in conformance with the provisions of this ordinance. Provided, however, nothing in this ordinance shall prevent the repair, reconstruction, or replacement of a building or structure existing on July 19, 1982 and located totally or partially within the floodway, non-encroachment area, or stream setback, provided that the bulk of the building or structure below the regulatory flood protection elevation in the floodway, non-encroachment area, or stream setback is not increased, and provided that such repair, reconstruction, or replacement meets all of the other requirements of this ordinance.

- J. All Other Permits Obtained:** All necessary permits shall be obtained from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 USC 1334.

#### 12.4.3 PROVISIONS FOR SPECIAL FLOOD HAZARD CONSERVATION AREAS

The following restrictions shall apply in all Special Flood Hazard Conservation Areas (SFHCAs) in addition to the requirements for the Special Flood Hazard Areas (SFHAs):

- A. Areas Restricted:** There shall be no new development, fill, or structures in the SFHCAs except as otherwise provided herein.
- B. Permitted Uses:** Only those uses permitted in the floodway shall be permitted in SFHCAs.
- C. Existing Uses:** Existing uses rendered nonconforming by the adoption of these SFHCA provisions may continue as "nonconforming uses" and shall be regulated as other nonconforming uses (see Chapter 13) and as per the provisions of Section 12.4 except that no SFHCA restrictions are placed on single family residential and associated accessory structures existing prior to September 16, 2004. Such existing buildings and structures must follow the regulations for building in the Special Flood Hazard Areas (SFHAs) (see also Section 12.4.2.I).
- D. Residential Platted Lots:** No SFHCA restrictions are placed on single family residential and associated accessory structures, existing or future, except that no fill on such lots is permitted. Such buildings and structures must follow the regulations for building in the Special Flood Hazard Areas (SFHAs) (see also Section 12.4.2.I).
- E. Existing Non-Residential Lots:** Existing lots appearing on final subdivision plats recorded prior to September 16, 2004, which are to be used for purposes other than single family residences, may be built on and used in accordance with the other provisions of this ordinance, provided that the ground area covered by any buildings in the SFHCA shall not exceed 25% of the total SFHCA on any given lot, however, such uses will be considered "nonconforming uses" and thereafter shall be subject to all provisions of this section (meaning that, at that point, they will be regulated as other nonconforming uses as described in paragraph C, above).
- F. Map Amendments:** An owner or lessee of property who believes his property has been inadvertently included in designated in the Special Flood Hazard Conservation Area (SFHCA) OR a different delineation of the SFHCA provides equal or better protection to life and property, may submit scientific or technical information to the Administrator for the Administrator's review to amend the SFHCA pursuant to Section 15.7.6.

#### 12.4.4 LEGAL STATUS PROVISIONS

- A. Effect on Rights and Liabilities Under the Existing Flood Damage Prevention Provisions:** This section in part comes forward by re-enactment of some of the provisions of the flood damage prevention ordinance enacted July 27, 1978 as amended, and it is not the intention to repeal but rather to reenact 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 Wilson enacted on July 27, 1978, as amended, which are not reenacted herein, are repealed.

- B. Effect Upon Outstanding Building Permits:** The provisions of this section shall not require any change in the plans, construction, size or designated use of any development or any part thereof for which a floodplain development permit has been granted by the floodplain administrator, or his 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 6 months subsequent to passage of this ordinance or any revision thereto, construction or use shall be in conformity with the provisions of this ordinance.

## 12.5 STORMWATER MANAGEMENT (NEUSE RIVER BASIN) REQUIREMENTS [SM-46.5]

### 12.5.1 APPLICABILITY

- A. Land Disturbance Threshold:** Unless otherwise specified, for purposes of this section, development or land disturbance shall be defined to include the following:
1. Any activity that disturbs greater than 1 acre of land in order to establish, expand or modify a single family or duplex residential development or a recreational facility.
  2. Any activity that disturbs greater than ½ acre of land in order to establish, expand or modify a multifamily residential development or a commercial, industrial or institutional facility.
- B. All Development to be Cumulative:** All development on a site will be considered to be cumulative from the effective date of the state's regulations for nitrogen reduction so that each exempt property must provide statistics to show the amount of disturbed land. When the total additions to a site exceed the appropriate exempt amount, then the entire development must meet the requirements of this section.
- C. Exemptions:** For purposes of this section, development shall not include agriculture, mining or forestry activities.

### 12.5.2 NUTRIENT REDUCTION REQUIREMENTS

- A. Calculation of Nitrogen Export:** The nitrogen export from each development must be calculated. This export will be calculated in pounds per acre per year (lbs/ac/yr). There are 2 different methodologies for calculating nitrogen export from development (refer to the City Stormwater Design Manual in the City of Wilson Manual of Specifications, Standards and Design, for calculating nitrogen export loading).
- B. Nitrogen Export Standard:** All developments must achieve a nitrogen export of less than or equal to 3.6 pounds per acre per year.
- C. Nitrogen Reduction Options:** If the development contributes greater than 3.6 pounds per acre per year of nitrogen, the applicant shall bring the development into compliance as outlined in the table below.

Residential Development	Commercial/Industrial Development
<p>If the computed export is less than 6.0 lbs/ac/yr then the owner may either:</p> <ol style="list-style-type: none"> <li>1) Install BMPs (as specified in Section 12.6) to remove enough nitrogen to bring the development down to 3.6 lbs/ac/yr</li> <li>2) Pay a one-time offset payment to bring the nitrogen down to the 3.6 lbs/ac/yr</li> <li>3) Utilize a combination of BMPs and offset payment to achieve a 3.6 lbs/ac/yr export</li> </ol>	<p>If the computed export is less than 10 lbs/ac/yr, then the owner may either:</p> <ol style="list-style-type: none"> <li>1) Install BMPs (as specified in Section 12.6) to remove enough nitrogen to bring the development down to 3.6 lbs/ac/yr</li> <li>2) Pay a one-time offset payment to bring the nitrogen down to the 3.6 lbs/ac/yr</li> <li>3) Utilize a combination of BMPs and offset payment to achieve a 3.6 lbs/ac/yr export</li> </ol>
<p>If the computed export is greater than 6.0 lbs/ac/yr, the owner must use on-site BMPs to bring the development's export down to 6.0 lbs/ac/yr. Then, the owner may use one of the three options above to achieve the reduction between 6.0 and 3.6 lbs/ac/yr.</p>	<p>If the computed export is greater than 10.0 lbs/ac/yr, the owner must use on-site BMPs to bring the development's export down to 10.0 lbs/ac/yr. Then, the owner may use one of the three options above to achieve the reduction between 10 and 3.6 lbs/ac/yr.</p>

**D. Offset Payment:** If it is determined that an offset payment is to be used, the owner shall furnish the city with evidence that a nutrient mitigation bank approved by the NCDWQ within the same hydrologic unit has received payment prior to the city's issuance of a building permit. Refer to the City of Wilson Manual of Specifications for more information on the calculation of offset payments.

**E. Variances:** Only the State Environmental Management Commission shall have the authority to grant variances from any provisions of the Neuse River Basin Program for Nitrogen Reduction unless future rule changes by the state address the handling of variances by the local government.

### 12.5.3 RUNOFF VOLUME STANDARD [SM-46.6]

**A. One-Year 24-Hour Storm:** There shall be no net increase in peak stormwater runoff flow leaving a development from predevelopment conditions for the 1-year, 24-hour storm. Refer to Appendix C of the City Stormwater Management Plan for more information on how to calculate the 1-year, 24-hour storm.

**B. Calculation of Runoff Volume:** Acceptable methodologies for computing pre- and post-development conditions for the 1-year, 24-hour storm are outlined below. The same method must be used for both the pre- and post-development conditions.

1. The rational method (used when the drainage area is 200 acres or less);
2. The peak discharge method as described in USDA Technical Release Number 55 (TR-55) (drainage area is 2,000 acres or less);
3. The putnam method (drainage area is greater than 2,000 acres).

### 12.5.4 NEUSE RIVER BASIN BUFFERS

Buffers shall be maintained along all perennial and intermittent streams according to the requirements for Neuse River Basin Buffers in Section 8.9.

**12.6 STORMWATER BEST MANAGEMENT PRACTICES [Revises SM-46.7-8 and Subdivision 10.G.1]**

**12.6.1 DESIGN CRITERIA**

All stormwater systems shall be designed by a North Carolina registered professional engineer or landscape architect in accordance with the City of Wilson Manual of Specifications, Standards and Design and the North Carolina Division of Water Quality Stormwater Best Management Practices Manual.

**12.6.2 SELECTION OF BEST MANAGEMENT PRACTICES**

Stormwater Best Management Practices (BMPs) for nitrogen reduction shall be selected in response to the site’s location within the city, the recommendations of the *North Carolina Division of Water Quality: Stormwater Best Management Practices Manual* (NC BMP Manual). Because of Wilson’s unique geologic and hydrologic conditions (i.e., poorly drained soils and a shallow water table), the types of appropriate BMPs that can be effectively utilized in Wilson is limited.

**A. Preferred BMPs by District:** The following table includes BMPs from the State Manual that are recommended for use in Wilson because they are effective in areas with both poorly drained soils and a shallow water table (NC BMP Manual Section 4.5). The table does NOT indicate required BMPs in each district; rather it is simply intended to provide general guidance as to the most appropriate location for these BMPs within each of the city’s zoning districts based on the desired development pattern for that district. Applicants are encouraged to develop innovative and creative solutions for managing stormwater that satisfy the stormwater requirements of this section and the overall intent of this ordinance. The Stormwater Administrator will have final discretion in making a site specific determination for the most appropriate use of BMPs on a project-by-project basis in accordance with the NC BMP Manual and the functional and visual goals of this ordinance. The Administrator shall have discretion to establish alternate methods of compliance with this ordinance where it is determined that necessary stormwater management structures make strict compliance with this ordinance arduous or impractical.

BMP Tool (as listed in the NC BMP Manual)	R/A, OS	MHR, SR4, SR6, GR6	NC, GC, HC, LI, HI, ICD	UR, RMX	NMX, IMX, CCMX
Stormwater Wetland	•	•	•		
Wet Detention Basin	•	•	•		
Grassed Swale	•	•	•		
Restored Riparian Buffers	•	•	•		
Rooftop Runoff Management			•	•	•
Proprietary BMPs			•	•	•
Filter Strips	•	•	•	•	•
Others (as approved by the Administrator)	•	•	•	•	•

**B. Preferred Location of BMPs:** Generally, BMPs should not be located along any public right-of-way, in the first layer of a lot (as defined in Section 9.3), or along any required buffer yard areas. When no other acceptable location for BMPs can be found, only those BMPs which are compatible with perimeter landscaping, as outlined in the NC BMP Manual shall be located in such areas. Where the stormwater and landscaping requirements of this ordinance are found to conflict, the Administrator may approve alternate methods of compliance that satisfy the intent of this ordinance.

**C. Nutrient Removal Rates:** The regulatory credits for the total nitrogen (TN) removal rate of each BMP are outlined in the NC BMP Manual.

**12.7 OWNERSHIP, MAINTENANCE AND INSPECTION OF STORMWATER STRUCTURES** [Updates SM 46.37-38 and Subdivision 10.G.3]

**12.7.1 OWNERSHIP AND MAINTENANCE**

Stormwater structures which are constructed on public land, within public rights-of-way and/or within public easements shall be maintained by the public body with ownership/jurisdiction of the subject property according to the infrastructure acceptance provisions of Section 6.10.4. All other stormwater structures shall be privately operated and maintained according to the provisions below.

- A. Individual Lots:** The operation and maintenance of stormwater control structures which serve only 1 lot or unit shall be the responsibility of the owner of such lot or unit.
- B. Owners' Associations:** The operation and maintenance of stormwater control structures which serve more than 1 lot or unit shall be the responsibility of an Owners' Association. Prior to or concurrently with the submission of the Final Plat for review and approval, the subdivider or developer shall submit to the Administrator a copy of the Owners' Association Declaration and the proposed Bylaws. The Owners' Association Declaration shall contain, at a minimum, the following:
  - 1. Responsibilities:** That the Owners' Association is responsible for: the payment of any premiums for liability insurance and local taxes with respect to common areas which include stormwater control structures; the operation and maintenance of stormwater control structures in accordance with the approved plans and specifications and the approved Operation and Maintenance Agreement; and the payment of any application and/or inspection or other fees assessed by the City of Wilson and any assessments for improvements made to or for the benefit of any stormwater control structure by the City of Wilson or on its behalf.
  - 2. Default:** Upon default by the Owners' Association in the payment of any fees or assessments with respect to, or ad valorem taxes levied against, any common areas which include stormwater control structures, which default shall continue for a period of 3 months, the owners of each lot or unit in the development shall become personally liable for the proportionate amount of unpaid taxes or assessments, which proportionate amount shall be determined by dividing the total amount of the taxes and/or assessments due by the total number of lots or units in the development. If the sum thus determined is not paid by the owners within 30 days following receipt of notice thereof, then such amount shall become a continuing lien on the property of each owner, his heirs, devisees, personal representatives, successors and assigns. The taxing or assessing authority also may either bring an action at law against the owner or may elect to foreclose the lien against the owner's property.
  - 3. Powers:** That the Owners' Association is empowered to levy assessments against the owners of lots or units in the development for the payment of expenditures made by the Owners' Association for the items set forth herein, and any such assessments not paid by the owners shall constitute a lien against their property.
  - 4. Easements:** That easements over the development for access, ingress and egress from and to common areas which include stormwater control structures shall be granted to the City of Wilson for purposes of inspection and maintenance and any other acts and things deemed necessary for proper

upkeep and maintenance of such stormwater control structures and/or enforcement of these provisions.

5. **Maintenance and Restoration:** References to the applicable provisions of the Operation and Maintenance Agreement and/or the approved plans and specifications, as applicable, which set forth the procedures whereby stormwater control structures are to be repaired and/or restored in the event of damage or destruction.
  6. **Covenants and Restraints:** The Bylaws shall contain all covenants and restraints governing the Owners' Association, the plats, and a description of the common areas which include any stormwater control structures.
  7. **Existence Before Any Conveyance.** The Owners' Association shall be organized and in legal existence prior to the conveyance, lease-option, or other long-term transfer of control of any unit or lot in the development.
  8. **Membership:** Membership in the Owners' Association shall be mandatory for each original purchaser and each successive purchaser of a lot or unit. There also shall be set forth provisions for the assimilation of owners in subsequent sections of the development.
- C. **Operation and Maintenance Agreement:** An Operation and Maintenance Agreement for all stormwater control structures must be reviewed and approved in advance by the Administrator and executed by the developer/permit applicant and the Owner's Association/owner. While title to the stormwater control structure may be in a separate entity, the ultimate responsibility and funding for maintenance and upkeep shall be the responsibility of the Owners' Association/owner or the owners of record of the property described in the Operation and Maintenance Agreement, as applicable. The Operation and Maintenance Agreement shall require the developer/permit applicant and the Owner's Association/owner to perpetually maintain, repair and reconstruct (if necessary) all stormwater control structures which serve the development in accordance therewith or in accordance with the approved plans and specifications. Following execution and approval by the Administrator, the Operation and Maintenance Agreement shall be filed with the Wilson County Register of Deeds. At a minimum, the Operation and Maintenance Agreement shall contain the following provisions:
1. A detailed description of all necessary operation and maintenance duties and responsibilities with respect to the stormwater control structures;
  2. The specific quantitative criteria for determining when such operation and maintenance activities must be undertaken;
  3. A detailed description of the procedures to be followed for such operation and maintenance activities;
  4. A detailed description of the procedures to be followed for restoring stormwater control structures to design specifications in the event of failure;
  5. That no vegetation shall be allowed to mature to the extent that the integrity of any stormwater control structure is diminished or threatened, or to the extent of interfering with any easement or access to any stormwater control structure;
  6. A legal description of all the property obligated to maintain the stormwater control structure;
  7. Estimated costs of ongoing maintenance;

8. Right of the City of Wilson to assess any costs plus a 25% of total costs service fee incurred by the city in correcting any noncompliance with the Operation and Maintenance Agreement.
9. Rights to the City of Wilson for ingress, egress, and access so that the city may enter onto, inspect, and perform all work necessary to ensure compliance with the Operation and Maintenance Agreement.
10. Except for general landscaping and grounds management, the Owner's Association/owner shall notify the Watershed Administrator prior to any repair or reconstruction of any stormwater control structure. All improvements then shall be made consistent with the approved plans and specifications and/or the Operation and Maintenance Agreement, as applicable. Upon completion and notification thereof by the Owner's Association/owner, the Watershed Administrator shall inspect the completed improvements and shall inform the Owner's Association/owner of any required additional changes or modifications and of the time period to complete said improvements. The Watershed Administrator may consult with an engineer or landscape architect (to the extent that G.S. Ch. 89A allows).
11. Proposed amendments to the plans and specifications for the stormwater control structure and/or the Operation and Maintenance Agreement must be approved in advance by the Watershed Administrator, and shall be prepared by a North Carolina registered professional engineer or landscape architect (to the extent that NCGS 89A allows). When submitted to the Watershed Administrator for review and approval, one of the following shall occur:
  - a. If the Watershed Administrator approves the proposed amendments, the Owner's Association/owner shall file revised copies of the plans and specifications and/or the Operation and Maintenance Agreement, as applicable, with the Watershed Administrator and the Wilson County Register of Deeds.
  - b. If the Watershed Administrator disapproves of the proposed amendments, the proposal may be revised and resubmitted to the Watershed Administrator as a new proposal, which then shall be considered in accordance herewith and denied if not in accordance with the Watershed Administrator's recommendations.
  - c. If, at any time, the Watershed Administrator determines that the plans and specifications and/or the Operation and Maintenance Agreement are inadequate for any reason, the Watershed Administrator shall notify the Owner's Association/owner of the necessary changes. The Owner's Association/owner shall prepare the required revisions and, following review and approval by the Watershed Administrator in accordance herewith, shall file copies of the revised and approved plans and specifications and/or the Operation and Maintenance Agreement, as applicable, with the Watershed Administrator and the Wilson County Register of Deeds.
12. Upon default of the Owner's Association/owner to maintain, repair and reconstruct (if necessary) the stormwater control structures in accordance with the Operation and Maintenance Agreement and/or the approved plans and specifications, the City of Wilson shall have the right to enter onto the property to do all work necessary to ensure compliance with the Operation and Maintenance Agreement, and to assess all costs incurred to the Owner's Association/owner and/or the record owners of each lot or portion of the

property described in the Operation and Maintenance Agreement. An additional 25% of the total costs shall also be assessed as a service fee. Such actions shall be made only after the City of Wilson exhausts all reasonable remedies to seek compliance by the Owner's Association/owner in accordance with Chapter 16 or otherwise.

### 12.7.2 INSPECTION

Consistent with applicable law, the stormwater official is authorized to go upon private property for the purpose of inspecting the stormwater drainage system or to investigate sources of potential illegal discharges to the stormwater drainage system. Such inspections may also include observation, sampling, monitoring, testing, surveying, and measuring compliance. Should any owner or occupant refuse to permit such reasonable access, the public official shall proceed to obtain an administrative search warrant pursuant to NCGS 15-27.2 or its successor.

## 12.8 WATERSHED PROTECTION REGULATIONS *[Revises Z-8.34]*

### 12.8.1 APPLICABILITY

All land in the Watershed Protection Overlay Districts shall be developed in accordance with the requirements of this section subject to the following provisions:

- A. **WS4-P and WS4-C Districts:** Except for the buffer requirements, the basic watershed district development standards for the WS4-P district and WS4-C district apply only to projects that require sedimentation/erosion control plans (i.e., 1 acre or more of land disturbing activity).
- B. **Existing Development:** The built-upon area of any existing development is not subject to the watershed district development standards of this section. Existing development is defined as a project that is already built or a project that, at a minimum, has established a vested right as of the effective date of this ordinance, based on at least one of the following criteria:
  1. Substantial expenditures of resources (time, labor, money) based on a good faith reliance upon having received a valid local government approval to proceed with the project, or
  2. Having an outstanding valid building permit as authorized by NCGS 153A-344.1 and 160A-385.1), or
  3. Having expended substantial resources (time, labor, money) and having an approved site specific or phased development plan as authorized by the NCGS regarding vested rights and set forth in Section 15.16.
- C. **Replacement and Expansion of Built-Upon Area:** Replacement of existing built-upon area is not subject to the watershed district development standards of this section, however any expansion of existing development that increases the built-upon area must meet the watershed development standards.
- D. **Single Family Residential Lots**
  1. Deeded and platted vacant single family lots are exempted from the watershed district development standards of this section.
  2. A deeded single family lot owned by an individual prior to the effective date of this section (July 1, 1993), provided it is developed for single family use, is exempt from the watershed district development standards of this section.

**12.8.2 WATERSHED PROTECTION DISTRICT DEVELOPMENT STANDARDS**

**A. Specific Standards by Watershed Basin Area:** The following standards shall apply to the Watershed Protection Overlay Districts and shall take precedence over the underlying zoning district standards.

1. Watershed Area III – Toisnot Reservoir/Swamp & Lake Wilson Area	Critical Area (WS3-C)	Protected Area (WS3-P)
Low Impervious Surface Option (Residential Only Maximum)	1 unit / 40,000 sq ft	2 units / 40,000 sq ft
Low Impervious Surface Option (Built Upon Area Maximum)	12%	24%
High Impervious Surface Option (Built Upon Area Maximum)	30%	50%, or 70% (see 12.9.2.B)
Stream Buffers (Minimum Each Side)	See 8.9.2	

2. Watershed Area IV – Wiggins Lake and Contentnea Creek Area	Critical Area (WS4-C)	Protected Area (WS4-P)
Low Impervious Surface Option (Residential Only Maximum)	2 units / 40,000 sq ft	2 units / 40,000 sq ft
Low Impervious Surface Option (Built Upon Area Maximum)	24%	24%
High Impervious Surface Option (Built Upon Area Maximum)	50%	70%
Stream Buffers (Minimum Each Side)	See 8.9.2	

**B. Higher Impervious Surface Development Option for WS3-P Districts:** A higher density development option is available for non-residential development within 5% of the WS3-P district, provided the following conditions are met:

1. No more than 70% of an area, lot or project within 5% of the entire protected area in the district can be built upon.
2. The development will minimize impacts on water quality through the use of best management practices (BMP's), directing of stormwater runoff away from surface waters, and provision of increased buffers from perennial waters. (Cluster development arrangements and designs are also encouraged.)
3. The development will be consistent with the Wilson Comprehensive Plan;
4. Careful records are kept by the Watershed Administrator to ensure the 5%/70% rule is not exceeded.
5. Any development that is proposed using this option must provide stormwater runoff control structures to control the 1-inch storm as set forth in Section 12.8.2.D.2.

**C. On-Site Erosion Control Measures**

1. No development permit shall be issued until approved watershed management protection measures are in place.
2. No land disturbing activities shall be allowed until all plans are approved and necessary permits have been obtained.
3. Development shall comply with the regulations of Section 12.3 (Erosion and Sedimentation Control).

**D. Post Construction Controls**

1. Stormwater runoff shall be transported by vegetated conveyances to the maximum extent practicable.
2. For any development activities utilizing the high impervious surface option, engineered stormwater controls shall be required to control the runoff from the first inch of rainfall and designed to remove at least 85% of the Total Suspended Solids (TSS). The operation and maintenance of the required engineered stormwater controls shall be the ultimate responsibility of the property owner.

**E. Toxic and Hazardous Materials**

1. Existing and new industrial development shall maintain an inventory of all toxic and hazardous materials used and stored on the premises; and, prepare a spill/failure containment plan and implement safeguards against contamination; and, encourage waste minimization and the appropriate recycling of materials.
2. New industrial development shall incorporate adequately designed, constructed and maintained spill containment structures if toxic or hazardous materials are used, stored or manufactured on the premises.

**F. Road Construction:** Road construction and bridges shall minimize built-upon area and to the extent possible not be placed in critical areas of the watersheds or within the required buffer areas.**G. Cluster Development:** Clustering of development is allowed on a project-by-project basis, provided that:

1. The overall density (number of units or built-upon area) of the project meets the watershed district development standards;
2. Built-upon areas are designed and located so as to minimize the impact of stormwater run-off and concentrated stormwater flow; and
3. The remainder of the project area that is not built upon shall remain in a perpetual vegetated or natural state, properly recorded by deed that restricts the property from being built-upon and perpetually protected by dedication or conveyance.

**H. Prohibited Uses:** The following uses are prohibited in the Watershed Protection Overlay Districts:

1. The storage of toxic and hazardous materials unless a spill containment plan is implemented consistent with Section 12.8.2.E;
2. Landfills are prohibited in WS3-C and WS4-C overlay districts and discharging landfills are prohibited in a WS3-P overlay districts;
3. Sites for land application of sludge/residuals or petroleum contaminated soils are prohibited in a WS3-C and WS4-C overlay districts;
4. Any use found to be detrimental to the quality of water in water supply watersheds by posing a threat of run-off, leaching or other types of pollution, as determined by a decision-making board from which a permit or other approval is sought.

### 12.8.3 GENERAL PROVISIONS

- A. Calculation of Impervious Area:** Impervious or built-upon areas include any portion of a development or construction site, lot, or project that is covered by impervious or partially impervious cover including buildings, pavement, gravel roads, recreational facilities (e.g. tennis courts), and other similar construction. Wooden slatted decks and the water area of a swimming pool are considered pervious. For the purpose of calculating the impervious surface area, total project area shall include total acreage in the tract on which the project is to be developed.
- B. Interpretation of Watershed Area Boundaries:** Where uncertainty exists as to the boundaries of the watershed areas, as shown on the Watershed Protection District Map, the following rules shall apply:
1. Where district boundaries are indicated as approximately following either street, alley, railroad or highway lines or centerlines thereof, such lines shall be construed to be the said boundaries.
  2. Where district boundaries are indicated as approximately following lot lines, such lot lines shall be construed to be said boundaries. However, a surveyed plat prepared by a registered land surveyor may be submitted to the City of Wilson as evidence that one or more properties along these boundaries do not lie within the watershed district.
  3. Where the watershed district boundaries lie at a scaled distance more than 25 feet from any parallel lot line, the location of watershed district boundaries shall be determined by use of the scale appearing on the watershed map.
  4. Where the watershed district boundaries lie at a scaled distance of 25 feet or less from any parallel lot line, the location of watershed district boundaries shall be construed to be the lot line.
  5. Where other uncertainty exists, the Watershed Administrator shall interpret the watershed map as to location of such boundaries.
  6. Such location decisions may be appealed to the Board of Adjustments according to the provisions of Section 15.12.

### 12.9 IMPERVIOUS SURFACE AVERAGING *[Updates SM- 46.10]*

Impervious surface averaging allows development plans for 2 or more noncontiguous parcels to be submitted together and treated as a single project in order to meet the requirements of Sections 12.5 and 12.8.

#### 12.9.1 IMPERVIOUS SURFACE AVERAGING STANDARDS

- A. Combined Impervious Surface Area Limit:** The total amount of development (impervious surface area) allowed for the paired parcels taken together cannot exceed the amount of development that would be allowed if the parcels were developed separately.
- B. Use of Floodplain Properties:** This option is intended to enhance floodplain preservation by providing a means for owners of floodplain properties to obtain value for their properties resulting from the sale of impervious area "credits." Such "credits" can be used to increase development density of non-floodplain properties, provided all other zoning requirements are met and providing that the floodplain property has not already been used in the calculation of impervious area allowance for an existing or approved development project.

- C. Permit Required:** An "impervious surface averaging permit" from the City Engineer shall be required before this option can be exercised for a specific project and a plat showing the 2 (or more) properties and a binding legal agreement must be reviewed, approved, and recorded prior to the issuance of a building permit. The City Engineer has the power to authorize, in specific cases, impervious surface averaging permits for projects that meet the criteria outlined below. The city, in its sole discretion, may accept or reject a proposed paired-parcel, averaged-impervious surface development.
- D. Location:** Parcels pairs being submitted for approval under this provision shall be submitted for development approval as a single proposal and shall be located in the same watershed basin.
- E. Overall Density:** Overall density of the paired-parcel, averaged-impervious surface development, calculated either by dwelling units per acre or built upon area (see Section 12.8.1), shall not exceed the density that would be allowed if the parcels were developed separately.
- F. Location:** Parcels to be used in pairs can be located throughout the city, unless specifically prohibited herein, according to the following standards:
1. If 1 of the parcels is located in a watershed critical area and 1 is located in a protected area, the critical area parcel shall not be developed.
  2. Impervious surface averaging is not allowed between 2 parcels when both are in the critical area of a protected watershed.
- G. Low Impervious Surface Option:** Impervious surface developments that meet the low impervious surface option development requirements of Section 12.8.1 shall transport stormwater runoff from the development by vegetated conveyances to the maximum extent practicable.
- H. High Impervious Surface Option:** Stormwater runoff from paired-parcel, averaged impervious surface development which meets the high impervious surface option of Section 12.8.1 shall be controlled on the parcel(s) where the high impervious surface development is occurring in accordance with the criteria specified in Section 12.8.1.
- I. Buffers:** Buffers shall meet the appropriate minimum protection requirements on both parcels in the parcel-pair according to the density of development occurring on each parcel.
- J. Stormwater Flow:** Site planning guidelines should be considered in the design process to:
1. Minimize stormwater runoff impact to the receiving waters by minimizing concentrated stormwater flow;
  2. Maximize the use of sheet flow through vegetated areas;
  3. Minimize impervious surface areas;
  4. Locate development away from surface waters and drainage ways to the maximum extent practicable; and
  5. Where concentrated flow is unavoidable, convey stormwater from developed areas by vegetated swales to the maximum extent practicable.
- K. Runoff Volume:** Peak flow must be controlled on the developing lot or project using the acreage or area of the developing lot or project only, so as to minimize drainage impact on downstream properties.

- L. Parcels with Approved Variances not Permitted:** No parcel for which a watershed variance has been granted, or would be required, may be included as a part of a parcel pair.
- M. Submittals:** Only owners of both of the paired parcels may submit an application for an impervious surface averaging permit. If such a permit is granted, no change in the development proposal authorized for either parcel shall be made unless the permit is amended and such amendments approved by the City Engineer. Included with the impervious surface averaging permit application shall be a site plan, registered plats for both properties, a description of both properties, and documentation showing the conveyance of the undeveloped parcel to the city.
- N. Engineer Review:** The City Engineer shall ensure that each case is supported by appropriate calculations and documentation. The development proposal for the parcel pair shall conform to the intent and requirements of this section, shall be consistent with the orderly and planned distribution of development throughout the community, and shall propose an agreement which assures protection of the public interest.
- O. Agreements Shall Continue Indefinitely:** Applicants shall agree to bind themselves and their successors in title, individually and collectively, to maintain the pattern of development proposed for so long as the requirements of this section are applicable. Parties to enforcement of such agreement shall include the city. No such agreement shall be accepted without approval of the staff attorney as to the legal sufficiency of the documents involved.
- P. Permit and Easement Must Be Recorded:** At the time of the issuance of a building permit, the city shall ensure that the following has occurred:
  1. The impervious surface averaging permit requirements have been recorded in the plat for each of the parcels in the parcel pair;
  2. The conservation easement has been recorded in the plat for the parcel to which it applies; and
  3. Both the easement and the permit shall be noted on the subdivision plan or site plan that applies to each of the parcels.

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