Section 11 Buffer and Landscaping Requirements

11.1 Purpose and Applications

Durham County is endowed with an abundance of natural resources, including land, forests, streams and rivers, lakes, wildlife and natural beauty. The increasing urbanization of Durham County threatens the quality of the natural resources that make it a special place to live and work. Durham's governing bodies recognize that establishing standards for the protection of Durham County's natural resources represents prudent stewardship of the land and good business. The multiple purposes of Natural Resource Protection Standards are:

1. To preserve and enhance the quality of the water in rivers, streams, ponds and lakes that flow into and out of Durham County;
2. To minimize future flooding problems by guiding development away from flood prone areas;
3. To preserve the water carrying capacity of watercourses and the natural water storage capacity of the floodplain;
4. To protect land and watercourses from pollutants, sedimentation and erosion;
5. To retain open spaces in order to protect their environmentally-sensitive character;
6. To protect and conserve significant natural resources from degradation due to urbanization. Such natural resources include wildlife and plant life habitats, wetland areas and riparian areas;
7. To minimize the impact of development by controlling the location, intensity, pattern and design of development and construction activities;
8. To enhance the aesthetic appearance of Durham as a means of improving quality of life and attracting new businesses and residents; and
9. To protect environmentally sensitive lands while recognizing the legitimate expectations of property owners and Durham's economic development goals.

1.1.1 Floodplain Protection Standards

The primary objective of floodplain protection standards is to preserve and maintain the natural floodplain in an undisturbed vegetated state in order to maintain flood storage capacity, control stormwater, improve water quality and conserve plant and wildlife habitat.

11.2.1 Development Prohibited in the Floodway and Floodway Fringe

Development and land disturbing activity within the floodway and floodway fringe shall be prohibited, except as provided by Section 11.2.2, Development Allowed in the Floodway and Floodway Fringe or allowed pursuant to a variance approved by the Board of Adjustment in accordance with Section 16, Variances and Interpretations and Section 11.8, Variances.

11.2.2 Development Allowed in the Floodway and Floodway Fringe

1. Land in the floodway and floodway fringe may be used for the following purposes, provided that such uses are designed and constructed to minimize clearing, grading, erosion and water quality degradation.
   a. Crossings by streets, driveways, culverts and railroads;
   b. Active and passive recreational activities;
   c. Intakes, docks, utilities (including water and wastewater treatment, stormwater control and sedimentation and erosion control facilities), bridges, other public facilities and water-dependent structures;

d. Wetlands constructed or restored for mitigation purposes; and

   Land within the floodway and floodway fringe can serve to meet minimum lot size requirements if there is sufficient buildable area remaining on the tract.

2. Land in the floodway fringe may be used for up to 25 percent of the parking required for the development on the tract. However, no more than 1/3 of the floodway fringe land on any development tract shall be used for parking. Parking in the floodway fringe shall require Major Site Plan approval from the governing board. In considering the Major Site Plan, the Development Review Board and the governing board shall consider whether the proposed parking on the site is designed and arranged to minimize adverse environmental impact from placement of parking in the floodway fringe; and whether the proposed development would result in significant degradation of water quality, loss of significant wetlands, increase in sedimentation and erosion, increase in stormwater runoff, loss of significant plant and wildlife habitat or threats to public safety.
3. Streets and driveways may run generally within and parallel to the stream in the floodway and floodway fringe only where no other access to the property is feasible.
4. In order to allow design flexibility to achieve higher quality site design and better utilization of the land adjacent to the floodway fringe, a property owner or developer may fill and/or use for development up to 10 percent of the floodway fringe area contained within the boundaries of any development site provided that the Development Review Board finds that:

a. The proposed fill and/or development provides for a higher quality site design and better utilization of land adjacent to the floodway fringe than would be possible without intrusion into the floodway fringe area; and

b. The proposed fill and/or development represents the minimum amount of floodway fringe intrusion to achieve the high quality design.

Public and private Roads and sidewalks shall not count toward the allowable 10 percent of the floodway fringe on a tract that can be filled and/or used for development in accordance with Section 11.2.2 (4).

5. Any uses, development or land disturbing activity allowed by Section 11.2, Floodplain Protection Standards shall be conducted in accordance with the requirements of the most recently updated Durham, NC City Flood Damage Protection Ordinance or the Durham, NC County Flood Damage Protection Ordinance, as applicable.

11.2.3 Density Credits

The amount of land in the floodway fringe may be credited for residential density on land adjacent to the floodplain at a rate of 100 percent of that allowed by the zoning. The amount of land in the floodway may be credited for residential density on land adjacent to the floodplain within the same project at a rate of 75 percent of that allowed by the zoning. The approving authority shall determine the amount of land in the floodway and floodway fringe that may be credited for residential density on adjacent land and shall consider adopted land use plans, location in a transit corridor, environmental features, stormwater controls and other relevant features.

11.2.4 Coordination with Flood Damage Protection Ordinances

The Board of Adjustment may grant variances to the requirements of Section 11.2, Floodplain Protection Standards in accordance with the provisions of Section 11.8, Variances and Section 16, Variances and Interpretations by the Board of Adjustment. However, the Board of Adjustment is not authorized to grant variances to the requirements of the Durham, NC City Flood Damage Protection Ordinance or the Durham, NC County Flood Damage Protection Ordinance. Exceptions to the provisions of the Durham, NC City Flood Damage Protection Ordinance shall be considered in accordance with the provisions of its Section 6-315, Procedures For Determining Exceptions to the Requirements. Exceptions to the provisions of the Durham, NC County Flood Damage Protection Ordinance shall be considered in accordance with the provisions of its Section 6-115, Procedures For Determining Exceptions to the Requirements.

11.3 Stream Buffer Protection Standards

The primary objective of stream buffer protection standards is to maintain land adjacent to streams in an undisturbed vegetated state in order to enhance and maintain water quality, protect stream channel wetlands, minimize stormwater runoff, reduce sedimentation and erosion, conserve plant and wildlife habitat and protect wildlife movement corridors. Note that streams may have additional stream buffer requirements in accordance with a) the watershed protection provisions in Section 5.5.8, Stream Buffers and Reservoir Buffers; b) the Neuse River Basin Nutrient Sensitive Waters Management Strategy administered by the North Carolina Division of Water Quality; and/or c) Section 401 Water Quality Certification administered by the North Carolina Division of Water Quality.

11.3.1 Types of Stream Buffers

Stream buffer protection standards shall apply to intermittent streams and perennial streams. Stream buffers shall be clearly indicated on all site plans, development plans, preliminary plats, final plats, major special use permits and minor special use permits.

An intermittent stream is defined as a watercourse that collects surface runoff and a) is shown as a dashed blue line on the most recent United States Geologic Survey (USGS) 7 1/2 minute quadrangle topographic maps or is shown as an intermittent stream on the most recent US Department of Agriculture Soil Survey of Durham County, North Carolina; and b) drains an area 25 acres or greater. A perennial stream is defined as a watercourse that collects surface runoff and a) is shown as a solid blue line on the most recent USGS 7 1/2 minute quadrangle topographic maps or is shown as a perennial stream on maps in the most recent US Department of Agriculture Soil Survey of Durham County, North Carolina and b) drains an area 25 acres or greater.

Where a USGS topographic map and the Soil Survey map show a difference in stream type for a particular reach of stream, the map that shows the greater level of stream protection shall apply. When a property owner or developer believes that the appropriate USGS or Soil Survey map is in error, the Development Review Board shall

have the authority to determine the location or presence of the stream in accordance with stream location criteria adopted by the Development Review Board for purposes of meeting the requirements of Section 11.3, Stream Buffer Protection Standards.

11.3.2 Ponds

If a property owner or developer proposes to remove a pond and the pond drains an area 25 acres or greater, a stream buffer of the size required on the stream immediately downstream of the pond shall be maintained along the portion of the stream located where the pond is to be removed.

11.3.3 Stream Buffer Size

Stream buffers shall apply on each side of the stream and shall be measured from the top of the stream bank perpendicularly to the direction of stream flow.

Stream Buffer Size	
Type of Stream Buffer	**Size of Stream Buffer**
Intermittent Stream	50 Feet
Perennial Stream	50 Feet

11.3.4 Stream Buffer Use Limitations

To avoid a loss of effectiveness in protecting streams, the stream buffer shall remain in natural undisturbed vegetation, except as provided by this Section 11.3.4, Stream Buffer Use Limitations or allowed pursuant to a variance approved by the Board of Adjustment in accordance with Section 16, Variances and Interpretations and Section 11.8, Variances. Any use allowed by Section 11.3.4, Stream Buffer Use Limitations shall be designed and constructed to minimize the amount of intrusion into the stream buffer and to minimize clearing, grading, erosion and water quality degradation.

1. Buildings and other features that require grading and construction shall be set back at least 10 feet from the edge of the stream buffer.
2. Crossings by streets, driveways, culverts, railroads, recreational features, intakes, docks, utilities, bridges or other facilities shall be allowed provided that they are designed to minimize the amount of intrusion into the stream buffer. Land within the stream buffer can serve to meet minimum lot size requirements if there is sufficient buildable area remaining on the lot. Streets and driveways may run generally within and parallel to the stream buffer only where no other access to the property is feasible and when their design minimizes the amount of intrusion of the stream buffer.
3. Stream buffers can be used for passive recreational activities, such as unpaved or paved trails, provided that service facilities for such activities, including but not limited to parking, picnicking and sanitary facilities, are located outside of the stream buffer. Water oriented recreational facilities, such as boat or fishing piers, shall require an approved use permit from the Board of Adjustment.
4. Clearing and re-vegetating the stream buffer for the purposes of improving its pollutant removal efficiency may be permitted based upon a conclusive finding by the Development Review Board that such efficiency will be improved.
5. Stormwater control structures and temporary erosion control structures shall be considered utilities for the purposes of this section and may be allowed in stream buffers, provided that:
    a. The property owner or applicant demonstrates to the satisfaction of the City Director of Public Works for stormwater control structures or County Engineer for erosion control structures that such facilities cannot be practicably located outside of the stream buffer, and that any proposed stormwater control structure is sited and designed to minimize disturbance of the stream and stream buffer. Siting stormwater control structures away from the stream channel is preferable to siting such structures in the stream channel.
    b. Alternate methods of stormwater and erosion control shall be considered prior to approval of such structures in the stream buffers;
    c. A vegetated buffer of a width determined by the City Director of Public Works may be required around the stormwater control structures; and
    d. Any land disturbed for these structures shall be re-vegetated in accordance with a re-vegetation plan approved by the Development Review Board.

6. For development on lots of record created prior to January 1, 1997, septic system drain field repair areas may be allowed in stream buffers, provided that:

a. The intrusion into the stream buffer is the minimum necessary;

b. The intrusion shall not result in an undisturbed stream buffer less than 20 feet; and

c. The property owner or applicant demonstrates to the satisfaction of the Durham County Health Department that the repair area cannot be located outside of the stream buffer.

7. Sanitary sewer lines, on an alignment generally parallel to the stream, may be allowed in stream buffers, provided that:

a. The property owner or applicant demonstrates to the satisfaction of the City Director of Public Works that the sanitary sewer lines cannot be practicably located outside of the stream buffer;

b. Design and construction specifications minimize damage to the stream and the possibility of line leakage;

c. The sewer line is generally located at least fifteen (15) feet from the top of the stream bank; and

d. The stream buffer intrusion and a plan for re-vegetating the stream buffer disturbance be approved by the Development Review Board.

8. Inside the UGA, perennial streams may be piped, thereby exempting the piped section of the stream from stream buffer requirements, only when allowed by Section 11.3.4 (2) or when the Board of Adjustment issues a variance in accordance with the provisions of Section 16, Variances and Interpretations. Inside the UGA, intermittent streams may be piped, thereby exempting the piped section of the stream from stream buffer requirements, only when allowed by Section 11.3.4 (2) or when the Development Review Board determines that:

a. The site plan proposing intermittent stream piping includes features on the site, such as best management practices, that provide water quality benefits at least equal to those of the stream buffer; and

b. The proposed intermittent stream piping is not substantially in conflict with the other objectives of Section 11.3, Stream Buffer Protection Standards.

Where stream piping is approved by the Development Review Board or the Board of Adjustment, a vegetated buffer area or other device approved by the City Director of Public Works shall be provided at any intake structure. All buffers and physical improvements related to the stream piping are located entirely on the site or on easements adjacent to the site.

Site Plan approval by the Development Review Board shall be required for any of the stream buffer intrusions described in Subsections 1 - 8 above. When any of the activities described above involves land clearing, the cleared area shall be re-vegetated in a manner described on the site plan. However, where a site plan is not required by any other provision of the Zoning Ordinance, the City Director of Public Works is authorized to approve plans for stream piping and the County Engineer is authorized to approve plans for erosion control structures in stream buffers.

11.4 Steep Slope Protection Standards

The primary objectives for slope protection standards are to minimize grading, land instability and the removal of vegetation in order to a) protect the quality of wetlands and water courses below the slope from increased sedimentation; b) protect steep slope plant and animal habitat from disturbance and development and c) preserve the aesthetic quality of the natural terrain.

11.4.1 Steep Slope Areas

Slope is the relationship of vertical rise to horizontal run, expressed as a percentage. Steep slope areas shall be defined as land areas that a) have a grade of 25 percent or more, b) have an area of 10,000 square feet or greater and c) are located within 200 feet of any floodway fringe or perennial stream or within 100 feet of an intermittent stream. Steep slope areas refer to natural grades and shall not include man-made grades. Slope calculations shall use the smallest contour interval for which maps are available. Steep slope areas shall be determined irrespective of tract boundaries.

Steep slope areas shall be clearly indicated on all site plans, development plans, preliminary plats, final plats, major special use permits and minor special use permits. When a property owner or developer believes that the presence or location of a steep slope area is different than what is shown on the appropriate topographic map, the Development Review Board shall have the authority to determine the location or presence of the moderate or steep slope area for purposes of meeting the requirements of Section 11.4, Steep Slope Protection Standards.

11.4.2 Steep Slope Development Limitations

Development and land disturbing activity on steep slope areas shall be conducted only in accordance with the following requirements. Compliance with these requirements shall be determined by the approving authority.

1. Development shall be designed and constructed in order to minimize disturbance to the natural landform as

much as possible. Development shall demonstrate appropriate terrain-adaptive design and construction techniques. Extensive grading shall be avoided. An inability to design a particular development allowed by the underlying zone without significant disturbance to the natural landform indicates that the site should not accommodate the full amount of proposed development.. Alternate site design and construction measures are encouraged to mitigate the effects of development on steep slopes. Reconstructed slopes shall not exceed fifty (50) percent ("2H:1V"). Non-load bearing retaining walls shall be encouraged in order to reduce the amount of disturbance to the natural slope.

2. In order to accommodate building placement on steep slope areas, front and side yard setbacks on lots on the interior of the development may be reduced by up to 50 percent at the discretion of the Development Review Board.
3. Sedimentation and erosion control shall be provided during and after construction consistent with the requirements of the Durham County and City of Durham Sedimentation and Erosion Control Ordinance, Section 14-57 Design and Performance Standards, Subsection (b).
4. On any tract proposed for construction, no more than 15 percent of the steep slope area on the tract shall be graded. For purposes of this calculation, the land areas of individual steep slope areas on the tract shall be added together to establish the total steep slope area for the tract.
5. Development shall be designed and arranged in order to minimize the impact of street construction on steep slope areas. Proposed rights-of-way for major thoroughfares, minor thoroughfares and collector streets shall be exempt from the steep slope area grading limits of Section 11.4.2 (2), provided that the Development Review Board determines that proposed rights-of-way are designed and arranged in order to minimize the impact on steep slope areas.

11.5 Wetlands Protection Standards

The primary objective of wetlands protection standards is to conserve and maintain natural wetlands in an undisturbed vegetated state in order to provide storage of stormwater runoff, minimize degradation of preserved wetlands from the impacts of adjacent development, improve water quality and preserve plant and wildlife habitat.

11.5.1 Wetland Buffers Application

A wetland buffer shall apply to any wetland area that is within the jurisdiction of the US Army Corps of Engineers and identified on site plans, development plans, preliminary plats, final plats, major special use permits and minor special use permits. The wetland buffer shall not apply to any wetland approved for dredging or filling under a Section 404 Permit issued by the US Army Corps of Engineers or a Section 401 Water Quality Certification issued by the North Carolina Division of Water Quality. The wetland buffer shall not apply to wetland areas associated with man-made ponds or man-made drainage ditches. The wetland buffer shall not apply to any retained wetland area less than 1 acre in size. The wetland buffer shall not apply to any wetland area associated with a Minor Subdivision as defined in Section 2C, Durham Merged Subdivision Ordinance.

The wetland buffer shall be provided along the perimeter boundary of the wetland area and shall be at least 25 feet in width. The wetland buffer shall remain in natural undisturbed vegetation. However, the approving authority may reduce the wetland buffer to 10 feet in width provided it determines that the proposed development includes site features and/or will employ construction management techniques to provide at least a comparable level of protection for the wetland area. Such site features and construction management techniques shall include but not be limited to additional grass or re-vegetated buffers, double silt fencing, diversion ditches with temporary slope drains and application of sod on any slope adjacent to wetlands.

11.5.2 Wetland Buffers Use Limitations

Wetland buffers shall remain in natural undisturbed vegetation, except as provided below.

1. Any use allowed by Section 11.5.2, Wetland Buffer Use Limitations shall be designed and constructed to minimize the amount of intrusion into the wetland buffer and to minimize clearing, grading, erosion and water quality degradation.
2. Crossings by streets, driveways, culverts, railroads, recreational features, intakes, docks, utilities, bridges or other facilities shall be allowed. Stormwater control facilities and wetlands constructed for mitigation purposes shall be allowed in wetland buffers.
3. Wetland buffers can be used for passive recreational activities, such as walking and bicycling trails, provided that service facilities for such activities, including but not limited to parking, picnicking and sanitary facilities, are located outside of the wetland buffer. Water oriented recreational facilities, such as boat or fishing piers, shall require an approved use permit from the Board of Adjustment.
4. Land within the wetland buffer can serve to meet minimum lot size requirements if there is sufficient buildable area remaining on the lot.

11.6 Durham Inventory Site Protection Standards(Reserved)

11.7Application in Compact Neighborhoods and Urban Corridors

Some or all of the requirements of Section 11, Natural Resource Protection Standards may be waived on a case-by-case basis by the governing board for development and land disturbing activity in:

1. Transit-Oriented Developments-Compact Neighborhoods (TOD-CN) Overlay Districts;
2. Transit-Oriented Developments-Urban Corridors (TOD-UC) Overlay Districts; and
3. Interim Transit-Oriented Development-Compact Neighborhood (ITOD-CN) Overlay Districts

This waiver shall be approved only upon a finding that the proposed development cannot be reasonably designed and constructed in accordance with Section 11, Natural Resource Protection Standards and still meet the goals and objectives of Compact Neighborhoods and Urban Corridors identified in the *Durham 2020 Comprehensive Plan*.

11.8 Variances

At the request of a property owner, the Board of Adjustment may vary the requirements of Section 11, Natural Resource Protection Standards in accordance with the procedures of Section 16, Variances and Interpretations by the Board of Adjustment. In addition to the findings required in Section 16.4.1, General Findings of Fact, the Board of Adjustment in granting any variance shall also make the following findings.

4. That failure to grant the variance would result in exceptional hardship to the property owner;
5. That the applicant has presented proof that alternatives to the variance have been thoroughly examined and are not practicable;
6. That the variance represents the minimum amount necessary to provide relief from the hardship in making reasonable use of the property;
7. That the variance would not result in significant degradation of water quality, loss of significant wetlands, increase in sedimentation and erosion, increase in stormwater runoff, loss of significant plant and wildlife habitat or threats to public safety.

Reasonable conditions may be attached to any variation from the requirements of Section 11, Natural Resource Protection Standards in order to accomplish the purposes and objectives of the Section.

11.9 Application of Natural Resource Protection Standards

After June 21, 1999 (City Jurisdiction) and June 28, 1999 (County Jurisdiction), all development and land disturbing activity shall be conducted in accordance with Section 11, Natural Resource Protection Standards, except as provided below.

11.9.1 Lots of Record

New construction on single-family residential lots of record recorded prior to June 21, 1999 (City Jurisdiction) and June 28, 1999 (County Jurisdiction) shall be exempt from the provisions of Section 11, Natural Resource Protection Standards. Additions to existing residential buildings on single-family residential lots of record recorded prior to June 21, 1999 (City Jurisdiction) and June 28, 1999 (County Jurisdiction) shall be exempt from the provisions of Section 11, Natural Resource Protection Standards.

11.9.2 Approved Plans

Development and land disturbing activity shown on approved and continuously valid site plans, preliminary plats, final plats, development plans, minor special use permits and major special use permits may be constructed in accordance with those approved plans. However, any significant additions, expansions or phases that deviate from the approved plans indicated above shall be constructed in accordance with Section 11, Natural Resource Protection Standards. The Planning Director shall make the determination as to whether any deviation from one of these previously approved plans shall be considered to be significant.

11.9.3 Valid Building Permit

Development for which a building permit has been issued and remains continuously valid may be constructed in accordance with the standards in effect a the time of issuance.

11.9.4 Vested Right

Development having an established vested right in accordance with the Durham Zoning Ordinance, Section 18, Vested Rights may be constructed in accordance with the approved vested right site plan.

11.9.5 Public Water Supply Facilities

Public water supply reservoirs and facilities, public wastewater treatment facilities and associated structures necessary for the operation of such facilities shall be exempt from the requirements of Section 11, Natural Resource Protection Standards.