Chapter 7 – Buffers and Easements

7.1 Neuse River Basin Riparian Buffers

Important Note:

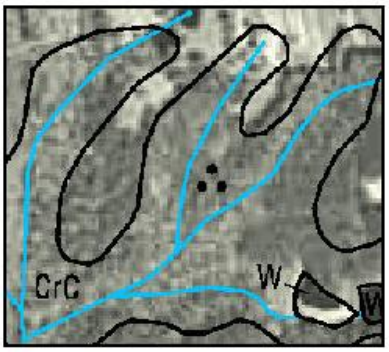
Wake County applies the Neuse Riparian buffer rules County-wide, except in those areas subject to the Jordan Lake Buffer Rules. These required buffers are separate from and in addition to any required Wake County Water Supply Watershed Buffers. UDO 10-22-1.

The NC Division of Water Resources has in place riparian buffer rules to protect vegetated areas adjacent to intermittent and perennial streams, lakes, reservoirs, ponds, estuaries and modified natural streams. With the Neuse River Basin, specific rules were enacted to protect the water quality of estuaries and downstream lakes through their buffer nutrient removal function. Wake County implements these Neuse Riparian buffer rules countywide in both the Neuse and Cape Fear River Basins, except in areas subject to the Jordan Lake Riparian buffer rules. Note that the Neuse and Jordan Riparian buffer rules are entirely separate requirements from the County Water Supply Watershed buffers.

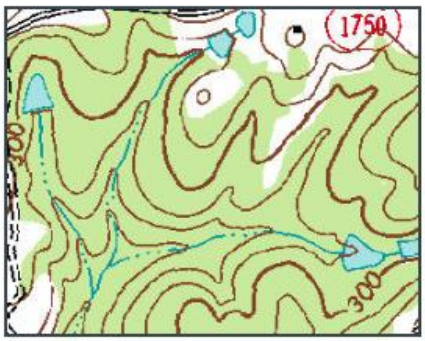
The Neuse buffers are enforced by the State of NC, Raleigh Regional Office. Enforcement of the Jordan Lake Buffers has been delegated to the local governments including Wake County. The Wake County Planning Department is responsible for the Watershed Water Supply Buffers (see UDO Article 11).

7.1.1 Determination of Buffers

To determine whether a potentially Neuse Riparian buffered feature is onsite, the project location must be identified on both the USGS Quad Map (1:24,000 scale) and the most recent printed version of the NRCS Soil Survey Map (1970 Wake County). The Web Soil Survey map may not be used for the purposes of determining potentially buffered features. Refer to the NCDEQ Buffer Interpretation/Clarification Memo #2007-008.

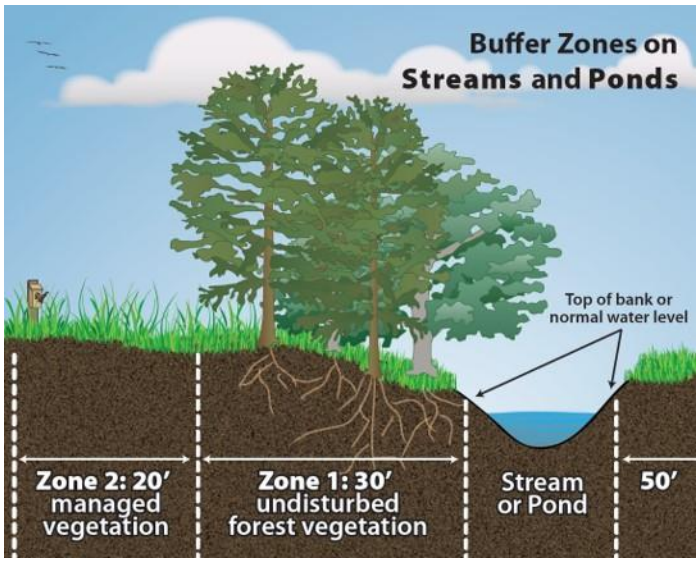


Sample NRCS Soil Survey Map



Sample USGS Topographic Map

The Neuse Riparian Buffer Rules require a 50-foot buffer (with Zones 1 and 2) on each side of the feature, generally measured from top of bank or normal water level of an impoundment. These zones are described in more detail in the Rule.



If a feature is shown on either of the two referenced maps, then it shall be assumed to be subject to the Neuse Riparian Buffer Rules unless a formal written buffer determination is obtained from the NC Division of Water Resources stating otherwise and this determination provided to the County. To obtain

a buffer determination from the NCDEQ Raleigh Regional Office, please complete and submit to them the "Stream Origin/Buffer Applicability Determination" form. This form may also be submitted to the Raleigh Regional Office online. Buffer determinations are valid for 5 years from the date of issuance.

For Cape Fear and Jordan Buffers, requests shall be made to Wake County, Watershed Management staff.

More information and clarification of the Neuse Riparian Buffer Rules may be found on the NCDEQ website here.

7.1.2 Proposed Impacts to the Buffer

Impacts to the Neuse Riparian Buffer must comply with all requirements of the Rule. Refer also to the Table of Uses in the Rule for activities which fall into these general categories:

- **Deemed Allowable** uses are allowed in the riparian buffer without approval from the Division of Water Resources.
- **Allowable upon Authorization** uses may occur in the buffer after written authorization from DWR. Some of these impacts may require mitigation for the impacts and the uses are therefore considered **Allowable with Mitigation upon Authorization**.
- **Prohibited** uses are not allowed in the buffer unless a variance is granted from the NC Environmental Management Commission.
- Activities not listed in the Table of Uses are **Allowable with Exception** (see below)**.**

Per Rule, uses which are **deemed allowable** shall be designed, constructed, and maintained to minimize vegetation and soil disturbance and to provide the maximum water quality protection practicable, including construction, monitoring, and maintenance activities. In addition, deemed allowable uses shall meet any specific requirements listed in Table of Uses for the particular use.

Projects seeking approval for activities within the Neuse Riparian buffer which **require authorization** but do not impact surface waters (streams, wetlands, open waters) shall submit a buffer authorization application and associated documentation to the NC Division of Water Resources for review and approval (including level spreader/filter strips). Projects which do have impacts to surface waters and require a 401 certification shall complete the Pre-Construction Notification (PCN) form. Links to the applications and help documents for buffer authorizations and PCNs may be found on NCDEQ's website here.

Any activities not listed in the Table of Uses may be "**Allowable upon Exception**" if the specific hardship criteria of the Rule can be shown. These activities must be approved by the Division of Water Resources as either a major or minor exception and will require mitigation. Exceptions are meant to be for unique and rare situations where there are no other reasonable options. Note that:

- Minor exceptions are those less than or equal to 1/3 acre of buffer impacts, and
- Major exceptions are those greater than 1/3 acre of buffer impacts.

Projects with uses that are **prohibited** in the Table of Uses require a variance to be approved through the NC Environmental Management Commission. Mitigation may be required as part of any approved variance. Links to the applications and help documents for both buffer authorizations and PCNs may be found on NCDEQ's website here.

Any authorizations, mitigation, exceptions, or variances required for proposed Neuse Riparian Buffer impacts shall be obtained from the State and copies provided to Wake County prior to County approval and permitting of the impacts. For Cape Fear and Jordan Buffers, these requests shall be made to Wake County, Watershed Management staff.

7.1.3 Stormwater Runoff Into the Buffer

Note that the Neuse Riparian Buffer Rule also requires that stormwater runoff into the buffer must meet dispersed flow unless otherwise specified. Specific scenarios related to drainage conveyances (drainage ditches, roadside ditches, stormwater conveyances) are defined as "deemed allowable" or "allowable upon authorization" provided that they do not erode through the riparian buffer and do not cause erosion to the receiving waterbody.

Any scenarios not addressed by the Rule may be "allowable with exception" as defined in the Rule. The applicant shall be responsible for showing compliance with dispersed flow or criteria for any specific allowances for drainage conveyance in the Rule.

More information and clarification of the Neuse Riparian Buffer Rules may be found on the NCDEQ website here.

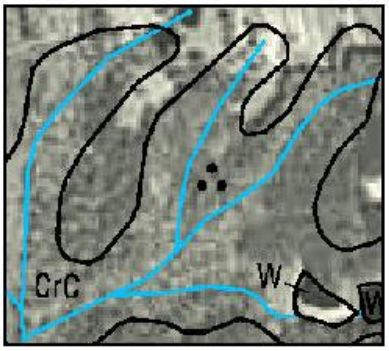
7.2 Jordan Lake Riparian Buffers

The Jordan Lake Buffer Program was delegated to Wake County in 2012 and mirrors the requirements of the Neuse Buffer Rules. The rules are required to protect and preserve existing Riparian buffers throughout the Jordan Watershed as described in Rule 15A NCAC 02B .0267 in order to maintain their nutrient removal and stream protection functions. The buffers help to protect the water supply uses of Jordan Lake Reservoir and of designated water supplies throughout the Jordan Lake watershed. Like the Neuse Riparian Buffer Rules, the Jordan Lake Riparian Buffer Rules designate a 50-foot buffer with two zones and contain a table of uses.

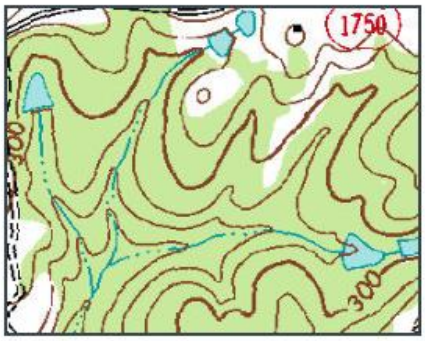
The Jordan Lake Buffer Rules only apply to intermittent and perennial streams and perennial waterbodies (lakes, ponds, or reservoirs) within natural drainage ways or in-line with a stream. During the on-site review staff can only identify and confirm the presence of the mapped stream as approximately shown. Any unmapped streams located on the property are not subject to the Jordan Buffer Rules but may be subject to County water supply watershed buffers through UDO Article 11 Environmental Standards.

7.2.1 Determination of Buffers

Development plans in the Jordan Lake watershed shall show the Jordan Lake riparian buffers based the features shown on the USGS Quad Map (1:24,000 scale) and the most recent printed version of the NRCS Soil Survey Map (1970 Wake County). The Web Soil Survey map may not be used for the purposes of determining potentially buffered features. Refer to the NCDEQ Buffer Interpretation/Clarification Memo #2007-008.

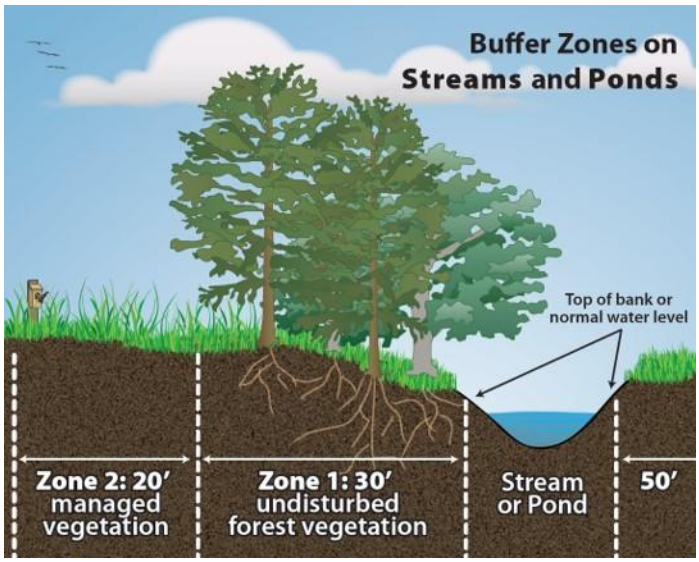


Sample NRCS Soil Survey Map



Sample USGS Topographic Map

The Jordan Lake Riparian Buffer Rules require a 50-foot buffer (with Zones 1 and 2) on each side of the feature, generally measured from top of bank or normal water level of an impoundment. These zones are described in more detail in the Rule. If a feature (intermittent or perennial stream, pond, lake, or reservoir) is shown on either of the two referenced maps, then it shall be assumed to be subject to the Jordan Lake Riparian Buffer Rules unless a formal written buffer determination is obtained from Wake County.



More information and clarification of the Jordan Lake Riparian Buffer Rules may be found on the NCDEQ website here.

Property owners who dispute the presence of the mapped stream may request a buffer determination by Wake County staff within the Watershed Management Section utilizing the Request for Buffer Determination Form.

The dispute process is generally as follows:

1. The property owner shall hire a certified professional to delineate the buffers.

2. The consultant's proposed buffer delineation maps shall be submitted to Wake County along with a request for a stream determination to approve the revised buffer locations. This request shall include the Request for Buffer Determination Form.

3. Wake County staff will schedule a site visit with the consulting scientist.

4. Upon completion of the site visit, Wake County will send a buffer determination letter to the applicant.

5. If the applicant disagrees with the findings, they may appeal the County's buffer determination to the Director of the NC Division of Water Resources.

7.2.2 Proposed Impacts to the Buffer

Impacts to the Jordan Lake Riparian Buffer (or uses just outside of the buffer which may impact it) must comply with all requirements of the Rule. Refer also to the Table of Uses in the Rule for activities which fall into these general categories:

- **Exempt** uses are allowed in the riparian buffer without approval from Wake County. However, exempt uses shall be designed, constructed, and maintained to minimize soil disturbance and to provide the maximum water quality protection practicable, including construction, monitoring, and maintenance activities.

- **Allowable** uses require written authorization from Wake County and may only be allowed if there are no practical alternatives.

- **Allowable with Mitigation** uses require written authorization from Wake County and may only be allowed if there are no practical alternatives AND a mitigation strategy has been approved in accordance with the Rule.

For listed uses to qualify as one of the three designations above, the activities must also adhere to any limitations give for that use and other requirements of the Rule.

Any activities not listed in the Table of Uses are considered **prohibited** and may not be allowed within the buffer, or outside of the buffer if the use would impact dispersed flow through the buffer, unless a variance is granted. Any proposed variance would be required to demonstrate "practical difficulties or unnecessary hardships that prevent compliance" and follow the procedures as described in 15A NCAC 02B .0267(12). Minor variances for activities which will only impact zone 2 of the buffer may be granted by the County. Major variances for activities involving any impact to zone 1 or any portion of both zones 1 and 2 must first receive a preliminary finding by the County regarding whether the criteria for a variance have been met. The County's preliminary findings are then submitted to the NC Environmental Management Commission for approval and final action.

If impacts associated with uses that are allowable or allowable with mitigation are proposed to the buffer, the applicant shall submit to Wake County the NC Division of Water Resources (DWR)'s PCN form and the County's Request for Buffer Authorization/No Practical Alternatives Determination (including required associated documents). The applicant must demonstrate that there are No Practical Alternatives to the proposed impacts and certify that:

1. The basic project purpose cannot be practically accomplished in a manner that would better minimize disturbance, preserve aquatic life and habitat, and protect water quality;
2. The use cannot practically be reduced in size or density, reconfigured, or redesigned to better minimize disturbance, preserve aquatic life and habitat, and protect water quality; and
3. Best management practices shall be used if necessary to minimize disturbance, preserve aquatic life and habitat, and protect water quality.

Within 60 days of receipt of the request for buffer authorization/no practical alternatives determination, Wake County must review and make a finding of fact as to whether the criteria for finding "no practical alternatives" has been met. The County may

- Issue an Authorization Certificate if a finding of "no practical alternatives" is made, OR
- Notify the applicant that the application is incomplete and request more information.

If the County fails to take action within 60 days, the impacts automatically be considered as a finding of "no practical alternatives" and an Authorization Certificate issued, unless:

- The applicant agrees, in writing, to a longer period,
- The County determines that the applicant has failed to furnish requested information necessary to make a decision,
- The final decision is to be made pursuant to a public hearing, or
- The applicant refuses access to its records or premises for the purpose of gathering information necessary to the County's decision.

Appeals of County determinations regarding Authorization Certificates must be made in writing to the Director of the NC Division of Water Resources.

If the County finds that the criteria of "no practical alternatives" has been met and issues an Authorization Certificate, it may attach conditions to the approval that support the purpose and intent of the buffer protection program. These conditions may include but are not limited to:

- The design and installation of stormwater control measures
- Mitigation Requirements/schedule/monitoring etc.
- Restoration of temporarily disturbed areas

7.2.3 Stormwater Runoff Into the Buffer

Note that the Jordan Lake Riparian Buffer Rule also requires that stormwater runoff into the buffer must meet dispersed flow requirements unless otherwise specified. Refer to 15A NCAC 02B .0267(8) for specific requirements, including:

- Concentrated runoff must be converted to dispersed flow at non-erosive velocities before the runoff enters zone two of the riparian buffer.
- No new stormwater conveyances are allowed through the buffers except for those specifically allowed in the Table of Uses which address stormwater management ponds, drainage ditches, roadside ditches, and stormwater conveyances. The applicant shall be responsible for showing compliance with dispersed flow or criteria for any specific allowances for drainage conveyance in the Rule.

More information and clarification of the Jordan Lake Riparian Buffer Rules may be found on the NCDEQ website here.

7.3 Water Supply Watershed Buffers

Water Supply Watersheds (WSWs) are comprised of a reservoir or proposed reservoir used for drinking water and surrounding land areas that often act as a habitat for rare, endangered, or threatened species, a place for parks and recreation, and larger lots for homesites. To protect these valuable natural and life-sustaining assets, State and local governments apply additional development controls such as restricting certain polluting units and limiting density.

There are seven water supply watersheds that are located either fully or partially within the jurisdiction of Wake County:

- Cape Fear (Lillington and Sanford),
- Falls Lake,
- Jordan Lake,
- Little River,
- Richland Creek,
- Smith Creek, and
- Swift Creek.

Water supply watershed buffers (WSWBs) provide strips of natural vegetation that remove pollutants from stormwater runoff before they reach a water supply source or a watercourse that drains to a water supply source. They do so by allowing infiltration of runoff and filtration of pollutants through the ground and soil, slowing runoff flow to allow settling and deposition of pollutants, and providing vegetation that absorbs pollutants through root systems. The provision of vegetated, undisturbed buffers within water supply watersheds, therefore, is an important and effective means of maintaining the quality of public water supply sources and protecting those sources from potential polluting activities associated with development.

Wake County implements requirements for Water Supply Watershed Buffers (WSWBs) through Article 11 of its UDO. While these buffers are required and enforced by Planning staff for the County, they are included in this manual to assist in understanding the requirement and its implementation for development plans.

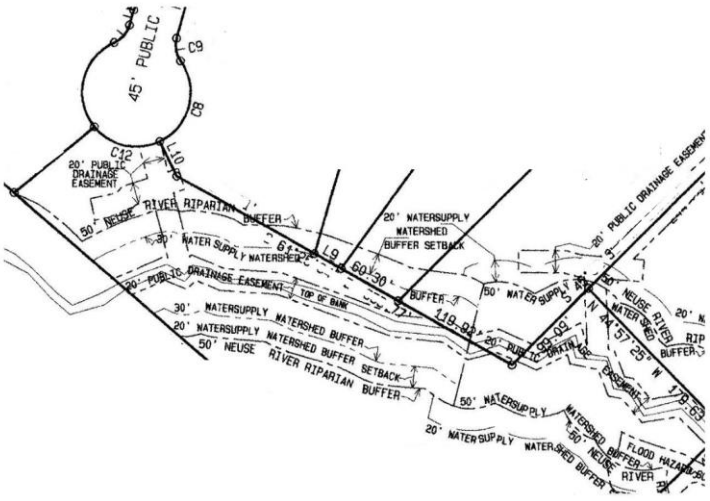
7.3.1 Determination of Water Supply Watershed Buffers

To determine whether a Wake County Water Supply Watershed buffer is applicable to a site identify the project location on both the USGS Quad Map (1:24,000 scale) and the most recent printed version of the NRCS Soil Survey Map (1970 Wake County). These may be found from the DEQ website at USGS Topo/NRCS Published Soil Survey Mapping Tool (arcgis.com). If a feature is present on either of these maps, it will require a water supply watershed buffer.

Note also that these County water supply watershed buffers may apply to any "watercourse, channel, ditch, non-water supply impoundment or similar physiographic feature." This buffer requirement is not limited to lakes and perennial or intermittent streams. Features may be subject to both Neuse or Jordan Lake Riparian buffers in addition to Wake County water supply watershed buffers. A buffer determination from NCDEQ regarding State buffer requirements does not impact the requirement for or presence of County water supply watershed buffers.

The required width of the County water supply watershed buffer ranges from 30 ft to 100 ft on either side of the feature and is determined by the type of feature and the drainage area to it. Drainageway buffers must be measured perpendicular to the flow means the drainageway and from the edge of the drainageway banks, except when no drainageway banks exist, in which case the centerline of the drainageway swale must be used. For non-jurisdictional features, the water supply watershed buffer generally begins at the point that is draining 5 acres. In the schematic below, the 5-acre point is identified, and the water supply watershed buffer should be placed at the appropriate width beginning at that point.

- Note: that there is also a required building setback from water supply watershed buffers that must be identified on plans.
- Note: Drainage easements are also required on features, including those subject to water supply watershed buffers. See below and refer to Section 7.4.1 of this chapter for more information on drainage easements.



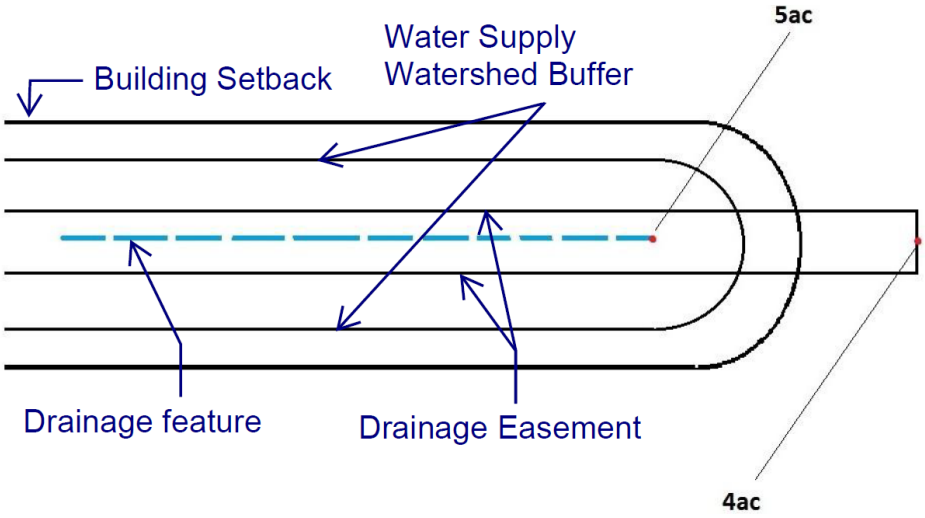


Figure 7.3.1 Wake County Water Supply Watershed Buffers

Furthermore, when analyzing drainage areas to a feature/location, the applicable drainage maps based on the site PRIOR to any grading or development of the site must be used to make the determination of whether the feature had a drainage area of 5 or more acres. Any modifications to the site after the lot was recorded that affected the area draining to the lot/feature or relocated the drainage feature cannot be taken into consideration.

Buffers described in UDO Sections 11-21-6 and 11-21-3 were previously identified and platted as "drainageway buffers." Because they serve the same function and are subject to the same limitations as water supply watershed buffers, they have been re-designated as "water supply watershed buffers."

More information on Wake County Water Supply Watershed Buffers may be found in Article 11 of the UDO or by contacting the Wake County Planning Department (919-856-6335), which is responsible for implementation and enforcement of these buffers.

7.3.1 Removal of Water Supply Watershed Buffers

To remove a Wake County Water Supply Watershed Buffer, an applicant must go through an exempt plat review and recordation process. With the exempt plat submittal, applicable drainage maps based on the site conditions PRIOR TO any grading or development of the site must be provided for staff to make the determination of whether the feature in question originally drained 5 or more acres. Any modifications to the site/parcel from development or associated grading – including changes that affected the acreage draining to the feature or any relocation of the drainage feature – cannot be taken into consideration.

Note that a buffer determination from NCDEQ in lieu of the above requirement is not acceptable documentation to justify removal of a Wake County Water Supply Watershed Buffer. A feature may not be determined to be jurisdictional for NCDEQ Neuse or Jordan Lake buffers but will still require a Wake County Water Supply Watershed buffer unless it can be demonstrated that pre-development the feature did not meet the 5-acre drainage threshold.

7.4 Easements

There are several different types of easements that may be required for a property or project. It is the responsibility of any individual property owner(s) or the home/property owners' association to maintain the easements and any features or structures therein, to maintain the integrity of the drainage system and to ensure positive drainage. Easements may not be piped without receiving prior approval from Wake County and/or NCDOT.

Recordation of these easements must also grant right of access to Wake County for any necessary inspections and enforcement related to the easement to ensure compliance with the County's Unified Development Ordinance. Wake County is not responsible for maintenance of any drainage easements or stormwater structures located within an easement.

Removal or relocation of a recorded drainage easement requires submittal of an exempt plat for Wake County Planning Department approval. Approved changes shall be recorded with the Register of Deeds.

7.4.1 Drainage Easements

Drainage easements must be provided to allow for passage of stormwater and stormwater conveyances on residential and non-residential developments in the County (UDO 9-20-4(B) and UDO 8-37-2).

Drainage easements are required for natural or manmade features beginning at the point draining 4 or more lots or 4 or more acres, whichever is less. Drainage easements are also required for any permanent conveyance of water to stormwater control measures, regardless of the size of its drainage area. The minimum width of any provided drainage easement is 20 feet, centered over the drainage feature. Drainage easements are required to be shown and labeled (type and width) on a recorded plat for the site. Easement locations should be field verified by the applicant prior to platting. Easements may not be piped without receiving approval from Wake County.

Drainage easement types shall be labeled as follows:

Private drainage easement: Easements for drainage that will be maintained by the private property owners (or owners association). Private drainage easements are not made to Wake County but are irrevocably made to the subsequent owners of any and all of the associated properties for their use. Most drainage easements fall into this category.

Public drainage easement: Easements identified by NCDOT as easements to be held by NCDOT and easements held by public entities other than NCDOT, when identified by those entities.

7.4.2 Stormwater Control Measure Easements

Easements are also required for stormwater control measures in accordance with UDO 9-20-4(B) and the NCDEQ Stormwater Manual and its associated minimum design criteria. In the case of any conflicts, the more stringent requirements shall apply. These stormwater access and maintenance easements are permanent easements that must be recorded on the record plat for the project or development.

These easements will be labeled as "*Stormwater Access and Maintenance Easement*" and shall:

- Include the width(s) of the easement
- Extend to the nearest public right of way
- Include a minimum width of 20 feet for any access from the public right of way (note that DEQ recommends 25 feet for maintenance access for measures that require larger equipment, such as wet ponds)
- Show and identify the stormwater control measure (show the entire footprint of the SCM and label it to match plans, i.e., "Dry Pond #1")
- Include the entire footprint of the stormwater control measure system including side slopes, forebay, riser structure, stormwater control measure, outlet, dam embankment, emergency spillway, etc.
- Provide a minimum of 10 feet around the footprint of the stormwater control measure system to provide enough room to complete maintenance tasks
- Not include lateral or incline slopes that exceed 3:1 (horizontal to vertical)
- Include direct maintenance access to any forebay for any measures utilizing a forebay
- Include access for cleaning underdrain piping for any measures which utilize underdrains

Note that stormwater control measures located on individual residential lots (for isolated lots not within a common plan of development) have additional requirements. Plats for residential lots that contain a stormwater control measure shall also include:

- The specific location of the stormwater control measure on the lot
- A typical detail for the stormwater control measure to be used
- A note that the stormwater control measure on the property has been required to meet stormwater regulations and that the property owner may be subject to enforcement actions if the stormwater control measure is removed, relocated, or altered without prior approval.

7.4.3 Backwater Easements

Backwater calculations (for the 100-year, 24-hour design storm) are required to be performed for all pipes, culverts, and Stormwater Control Measures (SCMs) draining 4 or more acres. They are also required for crossings within flood prone areas (FEMA floodplain or flood hazard soils). The 100-year backwater easement and elevation shall be shown and labeled on a record plat for the site.

For crossings in flood prone areas that require flood studies, the backwater easement shall be shown and labeled with the backwater easement elevation. A minimum of one vertical foot must be added to the calculated elevation providing a factor of safety due to the potential backwater effects. For all other pipes, culverts, and SCMs, the backwater easement elevation is the calculated elevation with no additional required freeboard. Note that if the 100-year backwater is fully contained within the stormwater control measure, no backwater easement is required to be recorded.

These easements shall be labeled as “100-year Backwater Easement” and shall have the backwater elevation identified.

Lots with backwater easements shall be provided with an asterisk (*) and minimum finished floor elevations at or above the backwater easement elevation/regulatory flood protection elevation on the recorded plat.

The backwater easement must:

1. Include language that clearly states that the upstream property owner(s) are consenting to the proposed development increasing flows onto their property throughout the easement.

2. Identify the location/boundaries of the easement to include the areas of 100 year backwater defined by a flood study or backwater calculation.

3. Identify the 100 year backwater elevation.

7.4.4 Flow Easements

Many projects are required to perform the downstream impact analysis as described in Section 3.4 of this manual. If the project analysis indicates that the 10-year, 24-hour post-development peak discharge rate is greater than the pre-development peak discharge rate at any comparison point, then the plans must be revised to either reduce those peak flows OR obtain a flow easement from downstream property owners from each outfall showing the increase through the 10% point.
This type of easement will be labeled on a plat as a *"flow easement."*

The draft deed of easement must be drawn up by an attorney for the applicant. The attorney can ensure that it is put into the proper form and format, and meets certain other requirements (for example, indicating that the easement will run with the land).

The flow easement must:

1. Include language that clearly states that the downstream property owner(s) are consenting to the proposed development increasing flows onto their property throughout the easement.

2. Identify the location/boundaries of the easement to include the areas between the outlet(s) of the development and the 10% point(s) for each point of discharge from the site where the calculations are showing an increase in peak flow.