

CHAPTER 9: INFRASTRUCTURE

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Section 9.1 Street Standards

9.1.1 Street Classification

9.1.1.1 Criteria

In all new developments, streets that are dedicated to public use shall be classified based upon:

- A. The function of the street and projected volume of traffic to be carried by the street, stated in terms of the number of trips per day;
- B. Whenever a street within a new development continues an existing street that formerly terminated outside the development or it is expected that a new street will be continued beyond the development at some future time, the classification of the street will be based upon the street in its entirety, both within and outside of the development; and,
- C. The number of dwelling units to be served by the street may be used as an indicator of the number of trips but is not conclusive.

9.1.1.2 Types

The classification of streets shall be as follows:

- A. Arterial: a street whose principal function is to carry large volumes of traffic at higher speeds through the county or from one part of the county to another. Specifically, the following streets shall be considered arterials: US 158, NC 168, NC 34, NC 136, NC 615 and NC 12 (Ocean Trail).
- B. Arterial access street: a street that is parallel to and adjacent to an arterial street and that is designed to provide access to abutting properties so that these properties are somewhat sheltered from the effects of the through traffic on the arterial street and so that the flow of traffic on the arterial street is not impeded by direct driveway access from a large number of abutting properties.
- C. Collector: a street whose principle function is to carry traffic between local streets and arterial streets but that may also provide direct access to abutting properties. It generally serves or is designed to serve, directly or indirectly, more than one hundred (100) dwelling units and is designed to be used or is used to carry more than eight hundred (800) trips per day.
- D. Cul-de-sac: a street that terminates in a vehicular turnaround.
- E. Local: a street whose primary function is to provide access to abutting properties. It generally serves or is designed to serve less than 100 dwelling units and handles less than 800 trips per day.

F. Loop street: a street that has its beginning and points on the same road.

9.1.2 Coordination with Surrounding Streets

- A. The street system of a development shall be coordinated with existing, proposed and anticipated streets outside the development or out-side the portion of a single tract that is being divided into lots (hereinafter, "surrounding streets") as provided in this section.
- B. Arterial and collector streets shall intersect with surrounding collector or arterial streets at safe and convenient locations.
- C. Local streets shall connect with surrounding streets where necessary to permit the convenient movement of traffic between residential neighborhoods or to facilitate access to neighborhoods by emergency service vehicles or for other sufficient reasons, but connections shall not be permitted where the effect would be to encourage the use of such streets by substantial through-traffic.
- D. Whenever connections to anticipated or proposed surrounding streets are required by this section, the street right-of-way shall be extended and the street developed (paved) to the property line of the property being developed (or to the edge of the remaining undeveloped portion of a single tract) at the point where the connection to the anticipated or proposed street is expected. In addition, the permit issuing authority may require temporary turnarounds to be constructed at the end of such streets pending their extension when such turnarounds appear necessary to facilitate the flow of traffic or accommodate emergency vehicles.
- E. In any case where a proposed subdivision fronts on a street that does not meet the minimum requirements of this ordinance, the subdivider shall be responsible for upgrading the existing street to the standards within this section to allow for the development of the proposed subdivision, except in the RO2 District.

9.1.3 Relationship of Streets to Topography

- A. Streets shall be related appropriately to the topography. In particular, streets shall be designed to facilitate the drainage and storm water runoff objectives set forth in Section 6.9.
- B. Street grades shall conform as closely as practicable to the original topography but shall be governed by DOT requirements.

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9.1.4 General Layout of Streets

- A. Cul-de-sacs and loop streets are encouraged so that through traffic on residential streets is minimized. Similarly, to the extent practicable, driveway access to collector streets shall be minimized to facilitate the free flow of traffic and avoid traffic hazards.
- B. All permanent dead-end streets shall be developed as cul-de-sacs in accordance with the standards set forth in this chapter.
- C. Half streets (i.e., streets of less than the full required right-of-way and pavement width) shall not be permitted except where such streets, when combined with a similar street (developed previously or simultaneously) on property adjacent to the subdivision, creates or comprises a street that meets the right-of-way and pavement requirements of this ordinance.
- D. Except where no other alternative is reasonably practicable or when necessary to avoid direct access of lots onto arterial streets, streets shall be arranged to avoid double frontage.

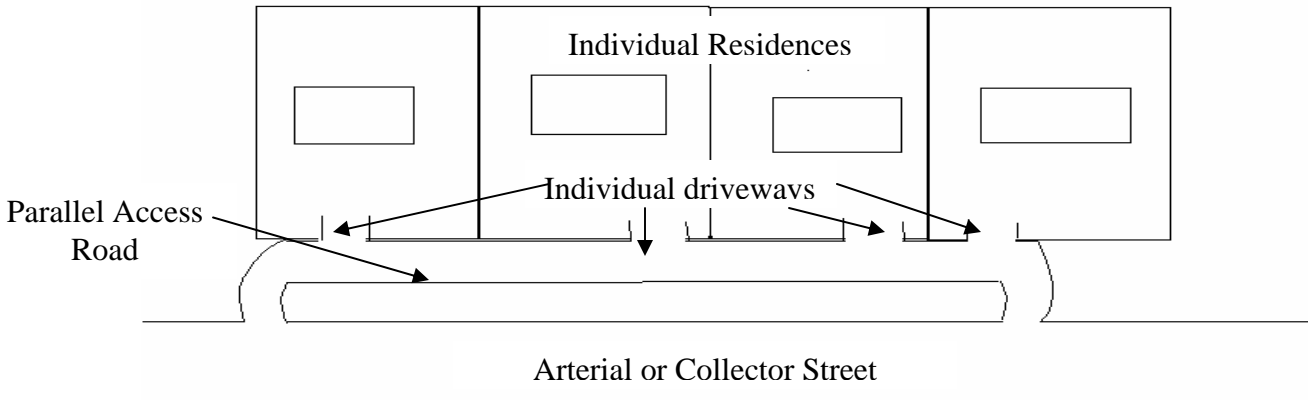
9.1.5 Access to Major Arterial and Minor Collector Streets

9.1.5.1 Applicability

These provisions shall apply to the following roads: Minor Arterial Streets - US 158 and NC 168; Minor Collector Streets - SR 1222-Tulls Creek Road and Poplar Branch Road (SR 1131).

9.1.5.2 Sufficient Frontage on Another Street

Whenever a tract proposed for a non-residential subdivision, major residential subdivision borders on or contains an existing or proposed major arterial or minor collector street as listed above, then all lots created out of such tract must have sufficient frontage on another street (either pre-existing or created as part of the subdivision) so that direct access to such lot need not be provided by the arterial street or collector street unless compliance with this requirement cannot reasonably be accomplished due to the size or the shape of the tract to be divided. The final plat creating the subdivision shall indicate a limitation on driveway access to the major arterial street for those lots which have alternate access in the form of a five foot non-access easement.



9.1.5.3 Driveway Spacing Requirements

The following provisions are an attempt to protect the public interest and safety of highway users by achieving access control when that objective is not achieved this chapter either because a proposed development is not a subdivision or because compliance with this section above cannot reasonably be accomplished. The provisions of this subsection do not apply to single-family residential dwellings on lots approved prior to June 17, 1996 or minor and private access residential subdivisions. In addition, these provisions do not apply where there is an existing curb cut along the street.

- A. The spacing between driveways or between driveways and intersections will be required to achieve the following limitations:

Number of Driveways	Frontages
1	For frontages less than 500 feet
2	For frontages between 500 feet and 1,000 feet
3	For frontages greater than 1,000 feet

- B. Where highway speed is 55 mph, driveway spacing should be at 300 foot intervals or greater. Where highway speed is 45 mph or less, spacing should be at 230 foot intervals or greater. All other driveway installation details (i.e. width, curve radius, etc.) shall be in accordance with NCDOT standards.
- C. Adjacent or adjoining lots with small highway frontages are encouraged to combine access to one driveway.
- D. Whenever separate or single parcels are assembled under one purpose, plan, entity or usage, consolidation of existing direct access shall be required to the extent feasible. Approval depends on the developer's plans to use the existing driveway(s), close other existing driveway(s) and/or redesign and rebuild some existing driveway(s). However, the number of access points should not exceed the limits set based on highway frontage.

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- E. Deviations from the foregoing standards may be authorized when the permit issuing authority determines, upon advice of the North Carolina Department of Transportation, that a particular development design or technique can still achieve a satisfactory level of access control consistent with the objectives of this Section.

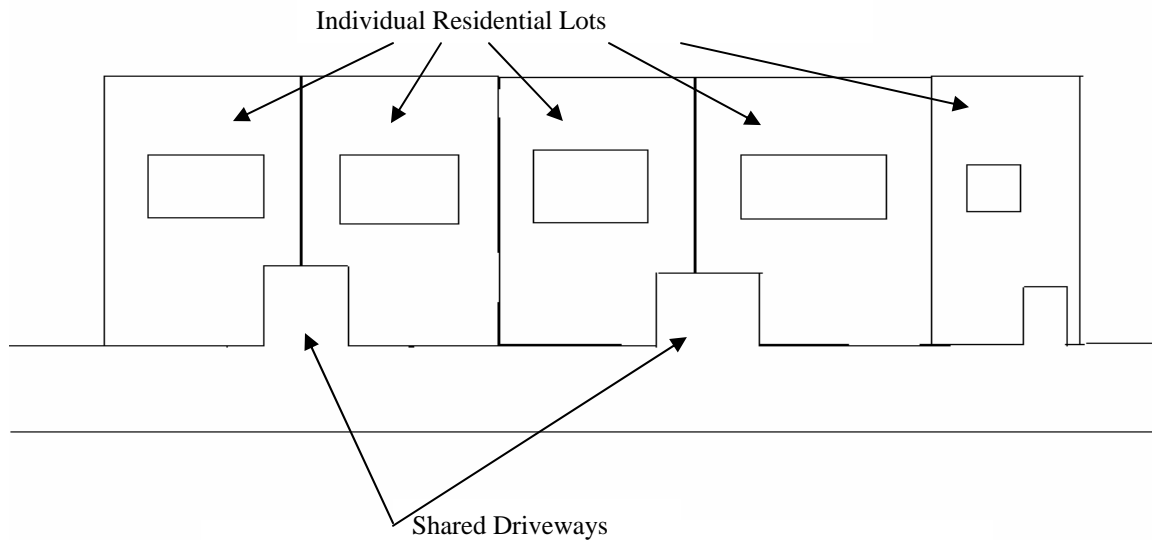
9.1.5.4 Access for Lots Recorded Prior to June 17, 1996

In order to provide incentives for shared access on adjacent lots subdivided before June 17, 1996 that are used for non-residential purposes, any adjoining yard landscaping required in Chapter 5 and adjoining yard setback required in Chapter 2 may be waived when adjoining lots owners choose an option to share driveways subject to the provisions below.

- A. The maximum number of shared driveways permitted to take advantage of this subsection shall be:

Number of Driveways	Frontages
1	For frontages less than 500 feet
2	For frontages between 500 feet and 1,000 feet
3	For frontages greater than 1,000 feet

- B. Deviations from the foregoing standards may be authorized when the permit issuing authority determines, upon advice of the North Carolina Department of Transportation, that a particular development design or technique can still achieve a satisfactory level of access control consistent with the objectives of this Section;
- C. A cross access easement approved by the zoning administrator shall be recorded in the Register of Deeds to ensure the right of access to all lots; and,
- D. All fire code regulations must be met and adequate utility and drainage easements must be provided.



9.1.6 Required Deceleration Lanes

- A. Any use capable of generating more than 60 trips per peak hour, estimated by using NCDOT guidelines (Institute of Traffic Engineers Trip Generation Manual), shall provide at least one deceleration lane per street front in accordance with NCDOT standards when such use is located along US 158 or NC 168. Deviations from the foregoing standards may be authorized when the permit issuing authority determines, upon advice of the North Carolina Department of Transportation, that a particular development design or technique can still achieve a satisfactory level of access control consistent with the objectives of this section.
- B. All subdivisions proposing to have over 40 lots with frontage on Tulls Creek Road (SR 1222) or Poplar Branch Road (SR 1131) shall be required to install left turn and deceleration lanes into the subdivision.
- C. All residential subdivisions proposing to have over 40 lots, and as recommended by NCDOT, all non-residential subdivisions that have access onto major arterials (US 158, NC 168, NC 34, NC 136, NC 615, and NC 12) shall be required to install a deceleration turn lane in accordance with NCDOT standards, except in the RO2 District.

9.1.7 Streets to Meet NCDOT standards

All streets shall be constructed in accordance with the current *Subdivision Roads Minimum Construction Standards*, established for the particular type of street in question by the North Carolina Department of Transportation, Division of Highways (hereinafter, "DOT standards"), unless otherwise exempted in this ordinance or a higher or more restrictive standard is established by this ordinance. If a higher or more restrictive standard is required, the street shall meet that higher or more restrictive standard. The term "constructed" as used in this chapter in reference to DOT standards refers to all standards of design and construction, including right-of-way widths. Curb

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and gutter shall not be required, but if installed shall be in accordance with NCDOT standards.

9.1.7.1 Unsubdivided Developments.

- A. Within unsubdivided developments, all private roads and accessways shall be designed and constructed to facilitate the safe and convenient movement of motor vehicle and pedestrian traffic. Specific standards concerning width, use of curb and gutter, and paving specifications shall be determined by the provisions of the street standards in this chapter.
- B. Whenever a road in an unsubdivided development connects two or more collector or arterial streets in such a manner that any substantial volume of through traffic is likely to make use of this road, such road shall be constructed in accordance with state standards applicable and shall be dedicated.
- C. The term "unsubdivided development" shall mean all construction of structures upon land under common singular ownership where such construction does not involve the sale of individual lots or parcels of land and the streets and ways are intended for use by the public or occupants of the development (examples: shopping center and apartment project).

9.1.7.2 Attention to Handicapped in Street and Sidewalk Construction.

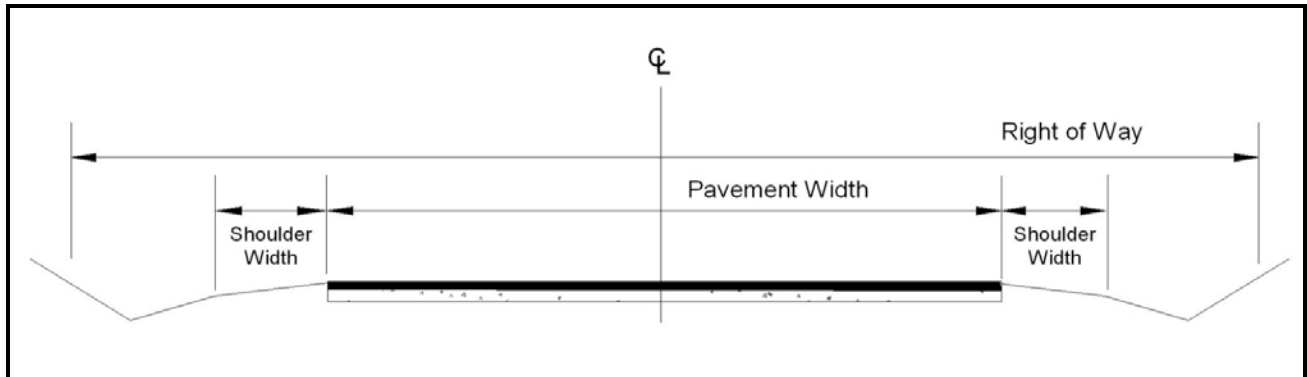
- A. As provided in G.S. 136-44.14, whenever curb and gutter construction is used on public streets, wheelchair ramps for the handicapped shall be provided at intersections and other major points of pedestrian flow. Wheelchair ramps and depressed curbs shall be constructed in accordance with D.O.T. standards.
- B. In unsubdivided developments, sidewalk construction for the handicapped shall conform to the requirements of the North Carolina State Building Code.

9.1.8 Subdivision Streets (PB 08-49, 10/20/08)

9.1.8.1 All subdivision streets shall meet the following standards:

Street Standards for Subdivisions					
	Right-of-Way¹	Pavement/Shoulder Width – Local Road	Pavement/Shoulder Width – Collector Road	NCDOT Design Standards	NCDOT Construction Standards
Family	20' min.	16' ² / ₂ '	N/A	No	No
Private Access	45' min.	18' ² / ₄ '	N/A	No	Yes
Conventional Subdivision Up to 10 Lots & 5+ Ac Lots	45' min.	18' ³ / ₆ '	20' ⁸ / ₈ '	Yes	Yes
Conventional Non-Residential	45' min.	20' ³ / ₆ '	20' ⁸ / ₈ '	Yes	Yes
Conservation	45' min.	18' ³ / ₆ '	20' ⁸ / ₈ '	Yes	Yes
PUD	30' min.	20'/N/A OR 1 Way - 14'/N/A	N/A	No	Yes
Residential Airpark Dev.	45' min.	18' ² / ₆ '	N/A	Yes	Yes

1. 100' Right-of-way required for NC 12 within the RO1 zoning district
2. Non-Residential pavement width shall be 20'
3. May reduced to 4' with NCDOT approval



Typical Street profile for 19 lots or Less

9.1.8.2 Street Design Requirements

All streets, whether intended for public dedication or private usage, shall be required to meet the following requirements:

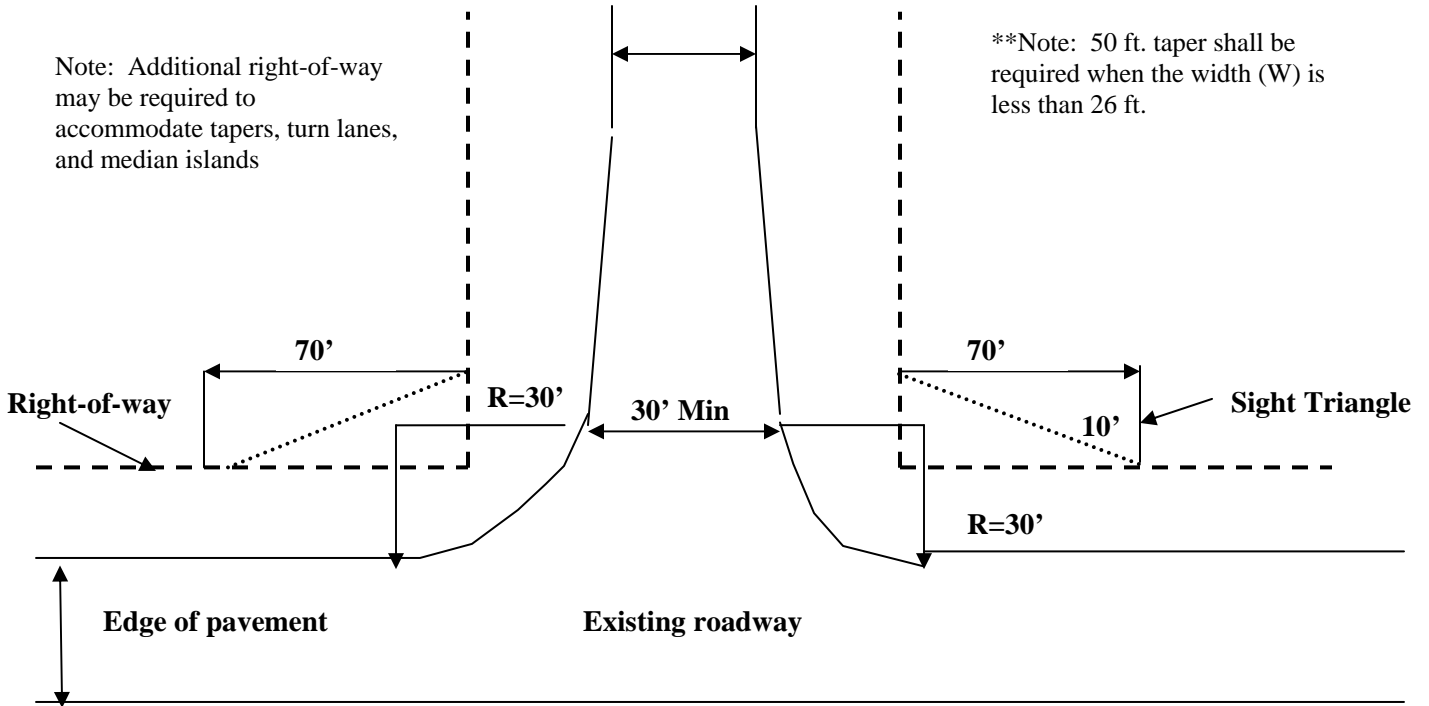
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- A. In any new subdivision, the street layout shall conform to the arrangement, width, and location indicated on any official adopted plans or maps for Currituck County. In areas for which such plans have not been completed, the streets shall be designed and located in proper relation to existing and proposed streets, to the topography, natural features such as streams and tree growth, to public convenience and safety, and to the proposed land use to be served by such streets;
- B. All streets shall provide for the continuation or appropriate extension of principal streets in surrounding areas and provide reasonable means of ingress and egress for surrounding acreage tracts where the county deems appropriate;
- C. Whenever connections to anticipated or proposed surrounding streets are required by this section, the street right-of-way shall be extended and the street developed (paved) to the property line of the property being developed (or to the edge of the remaining undeveloped portion of a single tract) at the point where the connection to the anticipated or proposed street is expected. In addition, the permit issuing authority may require temporary turnarounds to be constructed at the end of such streets pending their extension when such turnarounds appear necessary to facilitate the flow of traffic or accommodate emergency vehicles.
- D. Except in the RO2 District, all proposed subdivision streets shall have direct access to an improved street that meets NCDOT design and construction standards or one that has been accepted for maintenance by NCDOT;
- E. All streets within a proposed development shall be classified and developed according to the function of the proposed street, as defined in Section 9.1.1, Street Classification;
- F. Streets shall be laid out so as to:
 - 1. Intersect as nearly as possible at right angles and shall not intersect any other street at an angle less than 60 degrees. Not more than two streets shall intersect at any one point, unless the North Carolina Division of Highways certifies to the permit issuing authority that such an intersection can be constructed with no extraordinary danger to public safety;
 - 2. Street jogs with centerline offsets of less than 400 feet shall not be permitted;
 - 3. Intersections with an arterial street shall be at least 1,000 feet apart. Intersections with all other streets shall be at least 400 feet apart. All

measurements shall be taken from the centerlines of each intersecting street;

4. Minimum sight triangles for stopping conditions when connecting new local, or collector, residential streets to existing streets is 70 feet along the existing right-of-way and 10 feet along the new street right-of-way;

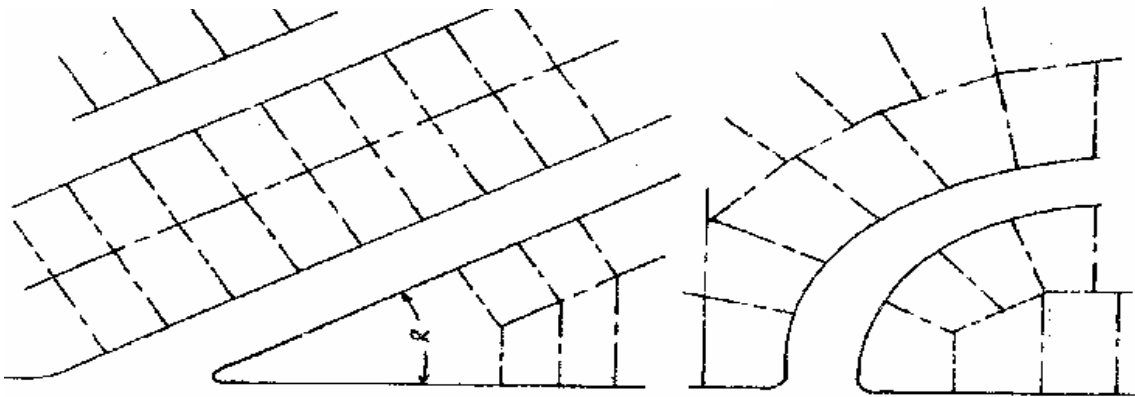
Recommended Road Connection – Typical Intersection:



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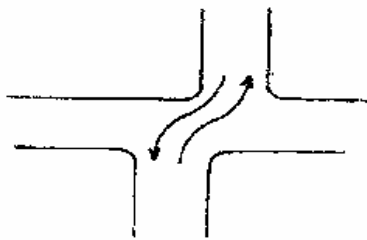
Poor Design – unacceptable if angle is less than 70 degrees

Preferred design



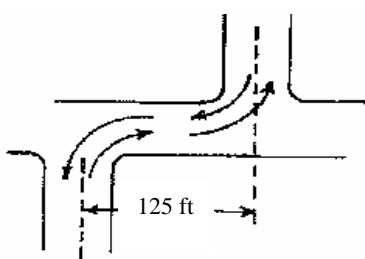
Poor intersection design:

The jog in the roadway forces precarious turning movements



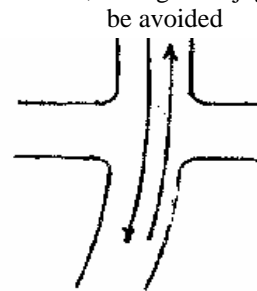
Minimum design requirement:

Intersections shall be separated by a minimum of 400 feet between centerlines



Preferred design:

By slightly curving 1 of the unaligned intersecting streets, a dangerous jog can be avoided



- G. Permanent dead-end streets shall be developed as cul-de-sacs. No cul-de-sac shall exceed 1,000 feet, nor be less than 100 feet, in length as measured from the closest street intersection centerline. The entrance into the cul-de-sac shall be flared by sufficient width to ensure proper turning radius for emergency vehicles upon entering and exiting the cul-de-sac. Cul-de-sacs shall not be used to avoid connections;

9.1.8.3 Dedication (PB 08-49, 10/20/08)

All streets shall be designated as being intended for dedication to NCDOT for maintenance or for maintenance by an established homeowners association in accordance with the provisions of this ordinance. A maintenance guarantee of fifteen percent of the construction cost is required to cover maintenance expenses until the streets are accepted by NCDOT. If the street is to be dedicated to a homeowners association, refer to Section 10.5 for maintenance requirements.

9.1.8.4 Traffic Control Devices

Traffic control signs, and signals if deemed necessary by NCDOT, shall be erected and maintained by the developer at each street intersection within the subdivision. In addition, traffic control signs shall be installed where subdivision streets intersect

with an improved or state maintained street. Signs shall comply with county and the NCDOT regulations with regards to size, shape, color, location, and information contained thereon. At least two or more traffic control signs shall be placed at each four-way street intersection and at least one at each "T" intersection. Signs shall be installed free of visual obstruction.

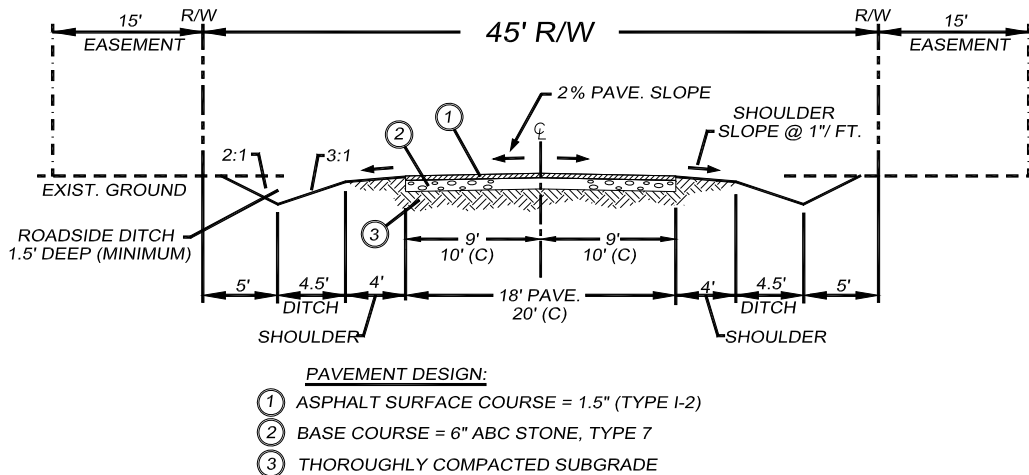
9.1.8.5 Sidewalks (PB 08-49, 10/20/08)

Within all residential subdivisions over 19 lots, the subdivider shall be required to install concrete sidewalks along both sides of all proposed streets in accordance with NCDOT regulations, except in the RO2 District.

9.1.8.6 Exemptions to street standards (PB 08-49, 10/20/08)

- A. Streets within private access subdivisions and planned unit developments (PUD) shall be exempt from NCDOT design standards in regards to allowable road curvature, right-of-way and pavement widths to allow flexibility in the subdivision design.

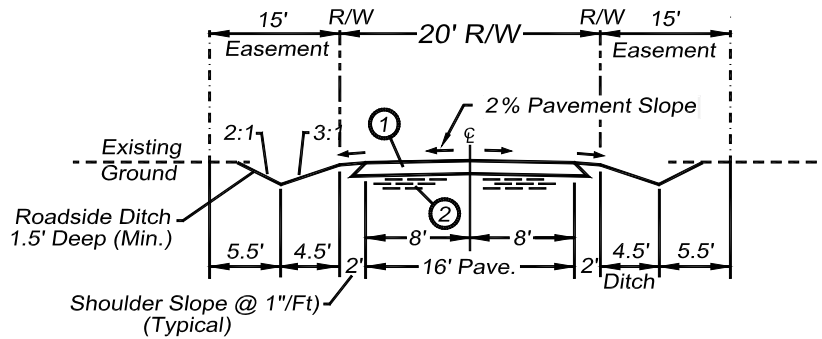
Typical X-section - Private Access Street



- NOTES:**
- (A) PRIVATE ACCESS STREETS ARE NOT REQUIRED TO FOLLOW "NCDOT DESIGN STANDARDS".
 - (B) PRIVATE ACCESS STREETS ARE REQUIRED TO FOLLOW "NCDOT CONSTRUCTIONS STANDARDS".
 - (C) DENOTES DIMENSIONS FOR NON-RESIDENTIAL ACCESS STREET

- B. Family subdivisions are exempt from NCDOT design and construction standards. The minimum access way standard shall be a compacted, graded, and drained roadbed with a three inch minimum gravel surface for access to the lots.

Typical X-section - Family Accessway



Pavement Design:

- ① 3" ABC Stone, Type 7
- ② Thoroughly Compacted Subgrade

Notes:

- (A) Family Accessway's are not required to follow "NC DOT Design Standards"
- (B) Family Accessway's are not required to follow "NC DOT Constructions Standards".

9.1.9 One-way Streets

One-way streets shall only be developed in situations where the applicant can show that public safety would not be jeopardized. In developing a one-way street the travel way shall not be less than 14 feet excluding parallel parking bays.

9.1.10 Street Standards within the RO2 District (PB 08-41, 11/17/08)

- A. It is not the intent of Currituck County to require hard surfaced roads and streets in the RO2 district. Roads in RO2 district are therefore exempt from NCDOT design and construction standards, but shall be graded, drained and stabilized in accordance with the provisions of this ordinance. The design of such roadways shall be approved by the County Engineer or their designee.
- B. The developer shall stabilize and maintain the rights-of-way so established outside of the travel way of such street by establishment of vegetation or other means to the extent reasonably possible under the circumstances.
- C. The developer shall comply with all the rules, regulations and requirements of Chapter 10 of this Ordinance with regard to major subdivisions.
- D. If access to the beach requires crossing a dune line, the developer shall obtain all proper CAMA Permits and if legally possible, establish a graded beach access.
- E. The developer shall stabilize and maintain the rights-of-way adjoining and along the travel ways of the road or street by establishment of vegetation or other means to the extent reasonably possible.

- F. Whenever a developer wishes to subdivide a tract or parcel of land which is within the future alignment of Ocean Pearl, Ocean Trail, Sandfiddler, and/or Sandpiper, the developer shall comply with the following regulations:
1. Establish a right-of-way of a minimum width of 100 feet that is capable to connect to and follow the lines of the roads mentioned above;
 2. All streets shall be oriented/designed to connect with existing or proposed streets shown on previously recorded plats to provide for a continuous right-of-way to adjoining properties;
 3. No developer shall be required to maintain more than one major access street or road of 100 feet in width through his subdivision to adjoin with adjoining properties. Any streets which are not necessary for continuous access through the developer's property and which may have been shown on previously recorded plats, may be abandoned or deleted by the developer so long as one continuous access of 100 feet in width is maintained through his property to adjoin the neighboring properties to provide for continuous and contiguous access north and south parallel with the Atlantic Ocean.
- G. The amount of the security shall be determined by the Administrator in all subdivisions in the RO2 District including private access subdivisions and major subdivisions.
- H. In the RO2 District, the Administrator shall determine the amount of such bond in view of all of the surrounding conditions and circumstances.
- I. Prior to the Final Plat Approval, the developer shall demonstrate to the reasonable satisfaction of the Administrator that the private roads proposed in such development will be properly maintained. Such demonstration shall include a written plan that explains who will maintain the streets, how they will be stabilized and maintained, and how such maintenance shall be financed.
- J. When a private road is created under this section, the developer shall establish a homeowners association that satisfies the criteria spelled out in Section 10.6, convey to that association title to the right-of-way of such streets and roads, and obligate the homeowners association to maintain such streets.
- K. No final plat that shows lots served by roads or streets authorized under this section may be recorded unless the final plat contains the following notation:
- "Further subdivision of any lot shown on this plat as served by a road or street may be prohibited by the Currituck County Unified Development Ordinance unless the roads or streets shown on this plat are improved to state standards. These roads do not meet state standards for the assumption of maintenance due to inadequate right-of-way and/or construction or lack of public dedication. It is not the function of county government in the State of North Carolina to construct or maintain roads.

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There may be areas of standing water on the lots after ocean overwash or periods of heavy rains that may impede access to the individual homesites. It is the sole responsibility of the owners to provide an improved access to their properties."

- L. Developer shall furnish the initial purchaser of a newly created lot in the RO2 District a disclosure statement outlining the maintenance responsibilities for the road as provided in GS 136-102.6(f) and as set forth in this section. Said disclosure statement shall fully and completely disclose the status (whether public or private) of the street upon which the house or lot fronts. If the street is designated by the developer and seller as a private street, the developer and seller shall include in the disclosure statement an explanation of the consequences and responsibility as to maintenance of a private street, and shall fully and accurately disclose the party or parties upon whom responsibility for construction and maintenance of such street or streets shall rest, and shall further disclose that the street or streets will not be constructed to minimum standards, sufficient to allow their inclusion on the State highway system for maintenance.
- M. In order to minimize the flooding of streets and to assure proper drainage within the RO2 zoning district, all subdivision plats, including private access subdivisions shall submit a drainage plan prior to final plat approval.
- N. The developer shall comply with the following regulations for creation of a private access subdivision in the RO2 District in addition to the other requirements of private access subdivisions in other districts:
 - 1. When possible, a 45 foot right-of-way shall be given, but in no event shall the access be less than 20 feet in width; and,
 - 2. The right-of-way serving the lots must have a graded and drained surface and stabilized shoulder area.
- O. No single right-of-way may serve more than five lots, including any residual parcels, if any, regardless of size and require plat approval by the administrator.
- P. All proposed Vehicle Right-of-Ways east of Sandfiddler Road within the RO-2 district shall meet a minimum 30 foot width.

9.1.11 Bridges

All bridges shall be constructed in accordance with the standards and specifications of the North Carolina Department of Transportation, except that bridges on roads not intended for public dedication may be approved if designed by a N.C. licensed architect or engineer.

9.1.12 Street Names

- A. Street names shall be assigned by the developer subject to the approval of the GIS Coordinator. Proposed streets that are obviously in alignment with existing streets shall be given the same name. Newly created streets shall be given names that neither duplicate nor are phonetically similar to existing streets within the county, regardless of the use of different suffixes.
- B. Street names shall include a suffix such as the following:
 - 1. circle: a short street that returns to itself;
 - 2. court or place: a cul-de-sac or dead-end street;
 - 3. loop: a street that begins at the intersection with one street and circles back to end at another intersection with the same street; and,
 - 4. Street or road: all public streets not designated by another suffix.
- C. Appropriate street name signs that meet county specifications shall be placed at all intersections by and at the expense of the developer.
- D. Building numbers shall be assigned by the county where appropriate.
- E. The developer shall be responsible for purchasing and installing all appropriate street name signs that meet county specifications at all intersections. The county shall assign building numbers where appropriate.

Section 9.2 Utility Standards

9.2.1 Utility Easements

- A. Each subdivision must provide utility and drainage easements along the proposed lot lines. For the rear and side lot lines an easement of ten feet in width shall be required. Along the front lot line a fifteen 15 foot wide easement shall be required. Where a development concept is approved which requires zero lot line development, alternative easement locations may be considered.
- B. In any case in which a developer installs or causes the installation of water, sewer, electrical power, telephone, or cable television facilities and intends that such facilities shall be owned, operated or maintained by a public utility or any entity other than the developer, the developer shall transfer to such utility or entity the necessary ownership or easement rights to enable the utility or entity to operate and maintain such facilities.

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9.2.2 Underground Utilities

- A. Whenever a development is hereafter constructed on a lot, parcel or tract that is undeveloped on the effective date of this ordinance, then all electric power, telephone, gas distribution, and cable television lines installed to serve the development that are located on the development site outside of a previously existing public street right-of-way shall be placed underground in accordance with the specifications and policies of the respective utility companies.
- B. No electric power, telephone, cable television, or other utility lines may be installed over the waters of the Currituck Sound, areas of environmental concern or wetlands and no utility poles may be erected within the waters of Currituck Sound areas of environmental concern or wetlands.
- C. The provisions of this section shall not operate to require the underground installation of any lateral service line in excess of 200 feet to serve a single-family residence.

9.2.3 As-built Drawings Required

Whenever a developer installs or causes to be installed any utility line in any public right-of-way, the developer shall, as soon as practicable after installation is complete, and before acceptance of any water or sewer line, furnish the county with a copy of a drawing that shows the exact location of such utility lines (this should be accomplished during final plat review). Such drawings must be verified as accurate by the utility service provider. Compliance with this requirement shall be a condition of the continued validity of the permit authorizing such development. Further, as-built drawings are required for all water and /or sewer treatment plants and any changes that may be made to such systems in the future.

9.2.4 Utilities to be Consistent with Internal and External Development

- A. Whenever it can reasonably be anticipated that utility facilities constructed in one development will be extended to serve other adjacent or nearby developments, such utility facilities (e.g., water or sewer lines) shall be located and constructed so that extensions can be made conveniently and without undue burden or expense or unnecessary duplication of service.
- B. All utility facilities shall be constructed in such a manner as to minimize interference with pedestrian or vehicular traffic and to facilitate maintenance without undue damage to improvements or facilities located within the development.

9.2.5 Reserved

9.2.6 Water Supply Standards

9.2.6.1 Water Supply System Required (PB 08-12, 4/7/08, PB 08-49, 10/20/08)

- A. Every principal use and every lot within a subdivision, excluding a family subdivision, shall be served by a means of water supply that is adequate to accommodate the reasonable needs of such use or subdivision lot and that complies with all applicable health regulations.
- B. The permit issuing authority may, before issuing any permit under this ordinance, make such investigation and require the developer to submit such information as appears reasonably necessary to ensure that the developer or his successor will be able to comply with this section.
- C. All developable lots within planned unit developments shall be connected and serviced by a central water system.
- D. Whenever it is legally possible and practicable in terms of topography to connect to a county water line (other than a line owned by the Ocean Sands Water and Sewer District) by running a connecting line not more than the distance set forth below, then the subdivider shall install water lines in the subdivision, excluding a family subdivision, so that all lots to be developed will be able to connect to the county water system. The developer shall provide all the necessary pipes and accessories for installation of the water lines as set forth herein and all materials and pipes so provided must meet or exceed the requirements established for the county water system. Individual lots within a subdivision given initial sketch plan approval after March 4, 1996 shall be required to connect to the county water system. (PB 08-12, 4/7/08)

9.2.6.2 Water System Requirements (PB 08-12, 4/7/08)

- A. All lots within a subdivision submitted after April 16, 1990, excluding a family subdivision and the areas of Fruitville Township and Moyock – Gibbs Woods Township, shall connect to a centralized water system by running a water main in accordance with the standards set forth below. The subdivider shall install water mains in the subdivision such that all lots to be developed will be able to connect to the centralized water system. Water mains shall be installed in road right-of-ways or dedicated water easements.
- B. If the proposed development is for residential purposes, excluding family subdivisions, then the distance which the connection must be made shall be as follows: 100 feet per unit for the first ten residential units plus an additional 20 feet for each additional unit. For example, a proposed subdivision with 30 residential lots would have to be located over 1,400 feet from an existing water main to qualify for this exemption (10 units x 100) + (20 units x 20). In multi-family developments, each individual dwelling unit shall be counted as one residential unit.

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- C. If the tract in question is proposed to be developed for non-residential purposes, then the distance within which connection must be made shall be determined by projected water demand and then equated to an equivalent number of average residential units using the formula outlined above.
- D. In determining units in a proposed development, the potential of the total number of units is determined by calculating the maximum number of units allowable for each proposed lot.
- E. In determining the number of dwelling units proposed in a phased development, the number of residential units for water services relates to the total number of proposed residential units for the entire tract rather than a single phase of the proposed project.
- F. The subdivider shall be required to submit detail drawings with the preliminary plat showing the installation of the required water main. Such drawings shall be prepared and stamped by a certified and licensed engineer.

9.2.6.3 County Long Range Water Extension Plan (PB 08-12, 4/7/08)

If a public water supply system is to be provided to the area within a five-year period as indicated in the county's long range water extension plan, official map, or other official document, the county may require installation of a capped system, or dry lines (mains only), within the road right-of-way; or the county may require a payment in lieu of the improvement. This provision shall apply to all subdivisions, excluding family subdivisions, submitted after March 4, 1996 when the subdivision is within a distance of proposed water lines as follow: 100 feet per unit for the first ten units plus 20 feet for each unit in excess of 10 units.

9.2.6.4 Fees (PB 08-49, 10/20/08), (PB 11-04, 4/18/11)

All connection fees shall be paid for each residential lot that is required to be connected to the county water system prior to final plat approval. All connection fees shall be paid for each commercial lot required to be connected to the county water system at the time of issuance of the building permit authorizing construction to begin. Any payment(s)/deposit(s) made to Currituck County or otherwise provided to Currituck County for the installation of water lines and/or related apparatus for or related to subdivision or plat approval shall be returned to the developer or its designee if the water lines have not been installed within three years of such payment(s)/deposit(s) upon the developer's substitution of the payment(s)/deposit(s) with surety bond or letter of credit in like amount.

9.2.6.5 Exceptions (PB 08-12, 4/7/08), (PB 11-04, 4/18/11)

- A. Individual lots within a subdivision having been given a minimum of sketch plan approval prior to March 4, 1996 which remains valid, shall not be required to connect to the county water system.

- B. Excluding family subdivisions, in cases where there is no centralized water system within a given area, or the distance from a proposed subdivision to an existing water main exceeds the formula above, the subdivider shall be exempted from connecting to the centralized water system but shall submit payment for the water improvements as determined by the Water Department (including fire hydrants, laterals, service lines, meter boxes, and yokes) at a rate of cost + 20% to be installed at a later date. The county shall place the payment amount within an escrow account and use it for installing water mains in the subdivision when connection to the centralized water system becomes available. Connection of individual lots to the future water main within an existing subdivision shall be the responsibility of the lot owner.
- C. Connection to a centralized water system is not required in the areas of Fruitville Township and Moyock – Gibbs Woods Township.

9.2.7 Sewage Disposal Standards

9.2.7.1 Sewage System Required (PB 08-49, 10/20/08)

- A. Every principal use and every lot within a subdivision intended to be developed shall be served by a sewage disposal system that is adequate to accommodate the reasonable needs of such use or subdivision lot and that complies with all applicable health regulations established by Albemarle Regional Health Services and the state.
- B. No lots requiring over 24 inches of fill to attain required separation for on-site septic system shall be developed or used for building purposes.
- C. All developable lots within planned unit developments shall be connected and serviced by a package tertiary treatment plant.
- D. The applicant shall provide assurances/commitments from service providers that water and sewer will be available to serve the proposed development. These commitments are required at the time of Amended Sketch Plan, Preliminary Plat and Final Plat application.

9.2.7.2 Sewage System Requirements

- A. Every principal use and every lot within a subdivision intended to be developed shall be served by a sewage disposal system that is adequate to accommodate the reasonable needs of such use or subdivision lot and that complies with all applicable health regulations.
- B. No sewage treatment system that discharges into surface waters shall be allowed.

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- C. Whenever any major subdivision in any residential zoning district proposes to provide sewer disposal facilities by using septic tanks or other ground absorption systems subject to the regulatory jurisdiction of the Albemarle Regional Health Services (A.R.H.S), no special use permit may be issued (i.e. Preliminary Plat approval may not be granted) until A.R.H.S. has certified that each lot shown on the preliminary plat has been inspected and found suitable for a septic tanks or other ground absorption system capable of serving at least a three bedroom house.
- D. Final plat approval for any major subdivision that proposes to provide sewer disposal facilities by using septic tanks or other ground absorption systems under the A.R.H.S. regulatory jurisdiction may not be granted until the A.R.H.S has certified that each lot shown on such final plat has been inspected and found suitable for a waste treatment system capable of serving the intended or likely use of such lot. A.R.H.S. certification under Subsection C shall suffice to comply with this subsection so long as there has been no substantial change between the preliminary and final plats of the subdivision in question.
- E. Whenever a development proposes to provide sewer disposal facilities with a sewage treatment system not subject to the regulatory jurisdiction of the Albemarle Regional Health Services, any development permit issued under this ordinance shall be regarded as issued contingent upon the developer (i) obtaining necessary approvals for such sewage treatment system from the appropriate regulatory agencies, and (ii) properly installing such system to serve the development. All permits shall be obtained prior to preliminary plat approval. No final plat approval shall be issued until all utilities including water and sewer treatment systems are operational to the satisfaction of the county.
- F. Where sand lined trench waste water treatment systems are used to provide sewer disposal facilities installation of the system shall not be required until such time as a building permit is requested and a building is constructed.
- G. Every residential development containing more than 20 lots or dwelling units served by septic tanks shall reserve an area, in addition to the open space area required herein, suitable in terms of size, location, soil type, topography, and other relevant factors to accommodate a community sewage treatment facility if one becomes necessary in the future due to septic tank failure or other reasons. This area is referred to as reserve utility open space. It shall be the burden of the developer to provide plans and specifications to provide adequate reserve utility open space to the satisfaction of the county engineer and Board of Commissioners.
- H. All required septic system improvements and requirements including, but not limited to the septic tank, drain lines, repair area and pumps shall be located on the individual lot they are designed to serve.

9.2.7.3 Sewage Treatment System

- A. For each subdivision proposed to be serviced by an existing treatment plant, a permit letter shall be provided from the Division of Water Quality stating that the plant has the capacity to serve the number of units to be located in the development.

- B. Whenever a development proposes to comply with this section using a new package treatment plant or centralized sewer system, any development permit issued under this ordinance shall be required to provide the following for the preliminary plat:
 - 1. A detailed explanation of who shall be responsible for the perpetual maintenance and upkeep of the facility;
 - 2. State approval of the proposed system;
 - 3. The expected life of the facility and the establishment of a reserve fund to support the continued maintenance, upkeep and replacement of the facility.

- C. The system shall be regarded as issued contingent upon the developer (i) obtaining necessary approvals for such sewage treatment system from the appropriate regulatory agencies, and (ii) properly installing such system to serve the development. All permits shall be obtained prior to preliminary plat approval. No final plat approval shall be issued until all utilities including water and sewer treatment systems are operational to the satisfaction of the county. Where sand lined trench waste water treatment systems are used to satisfy this section in minor private access and family subdivisions, installation of the system shall not be required until such time as a building permit is requested and a building is constructed.

9.2.8 Water/Sewer Districts Required

Whenever a private water and/or sewer treatment system is utilized to service a development, a water and/or sewer district shall be established in accordance with state law encompassing the boundaries of the development. The district shall be established prior to the first final plat approval and shall be structured in a manner that will ensure the long term viability of the water and /or sewer treatment system.

9.2.9 Backwash or Discharge into Water Bodies

- A. No discharge of any nature (except discharges approved under a state stormwater permit or as provided in Subsection B below) what so ever of water, chemicals, treated water, backwash from reverse osmosis systems, or other discharge shall be deposited directly or indirectly into the waters of Currituck Sound, Albemarle Sound, or their adjoining tributaries, rivers, streams, creeks, canals or other connecting water ways. This prohibition shall not apply to reverse osmosis system discharges into the North River performed by any unit of government (federal,

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state, county) which has all the necessary federal, state, and local permits for such discharges and having undertaken the necessary studies including but not limited to an “Environmental Assessment (EA); a “Draft Environmental Impact Statement” (DEIS) and/or “A Finding of No Significant Impact: (FONSI)”. A developer intending to use reverse osmosis or other water purification system shall comply in all respects to state requirements for the operation and maintenance of such systems but in no event shall such water system discharge any substance or water what so ever in to the waters of Currituck or Albemarle Sounds or adjacent waters.

- B. Pumping of stormwater into water bodies may be allowed in emergency situations (i.e. flooding of roads, septic systems, wells, dwellings) where public safety is threatened, or significant property damage is imminent. This provision does not allow for repeated pumping from an area or areas that flood on a frequent basis. Areas such as these will be required to install a state and/or county approved stormwater drainage system. All requests for emergency pumping shall be directed to Currituck Soil and Water Conservation. Members of the Currituck County Technical Staff (N. C. Div. of Coastal Management, N. C. Div. of Water Quality, NCDOT, Albemarle Regional Health Services and Currituck Soil & Water Conservation) shall review such request, and when deemed appropriate, give approval for the location, method and duration of pumping. This approval process is intended for emergency situations only and does not necessarily remove responsibility to comply with existing laws and regulations of the federal, state or local government. It shall be the sole responsibility of the applicant to pay for all costs associated with the pumping of the stormwater.

Section 9.3 Fire Protection Standards

9.3.1 General Provisions

- A. Every subdivision, excluding a family subdivision, that is served by a county owned water system or central water system shall include a system of fire hydrants sufficient to provide adequate fire protection for the buildings located or intended to be located within such development. Fire hydrants must be located such that every proposed lot is within 500 feet of a hydrant. However, the permit issuing authority may authorize or require a deviation from this standard if another arrangement more satisfactorily complies with the standard set forth in this ordinance. (PB 08-12, 4/7/08)
- B. For each structure, fire hydrants must be located according to the N.C. State Building Code.
- C. The permit issuing authority, after consultation with local fire officials, shall determine the precise location of all fire hydrants. Preferably, fire hydrants shall be placed six feet behind the curb line of publicly dedicated streets that have curb and gutter and must be placed within ten feet of a public or private road or street.

- D. The permit issuing authority shall, after consultation with local fire officials, determine the design standards of all hydrants based on fire flow needs. Unless otherwise specified, all hydrants shall have two 2 1/2 inch hose connections and one 4 1/2 inch hose connection. The 2 1/2 inch hose connections shall be located at least 21 1/2 inches from the ground level. All hydrant threads shall be national standard threads.
- E. Water lines that serve hydrants shall be at least six inch lines, and, unless no other practicable alternative is available, no such lines shall be dead-end lines.

9.3.2 Water Supply for Fire Protection when not Served by Public Water Supply System

Every residential development containing 20 or more lots and every non-residential subdivision containing 10 or more lots shall provide a supply of water that is sufficient to provide adequate fire fighting capability with respect to every building that is reasonably expected to be constructed within such development.

- A. The administrator shall determine the types, sizes, dimensions, and spatial relationships of buildings anticipated within the development by using the best information available, including, without limitation, market experience, the developer's plans, and the list of permissible uses and other requirements set forth in this ordinance;
- B. The developer may provide the required water supply by resort to ponds, wells, cisterns, above ground storage tanks, water lines (where a community water supply system is installed), any combination of the foregoing, or any other means so long as such facilities satisfy the requirements of this section;
- C. The water supply facilities may be located on or off the site of the development. However, off-site facilities shall be acceptable only if the developer has a sufficient legal interest in such facilities to ensure that such facilities will be available to serve the development until a centralized water system is available;
- D. The water supply facilities must be of such size and so located that within 2,500 feet of every anticipated building in such development, a sufficient volume of water must be available at all times of the year to supply the water flow needed to suppress a fire on each building for a period of two hours at a rate of 500 gallons per minute;
- E. In determining needed water flow for anticipated buildings, the Administrator shall be guided by the standards promulgated by the Insurance Service Office, which standards shall be available in the office of the administrator. However, the administrator may modify these standards warranted upon the advice of the chief of the applicable volunteer fire department to the end that the basic objective of this section set forth above might most reasonably be satisfied;

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- F. Water supply sources shall be so located so that fire fighting vehicles will have ready access to such sources at all times. A hard surfaced roadway shall be provided to the water source as well as a hard surfaced, turnaround area of sufficient dimensions to facilitate access by fire fighting vehicles to and from the water source;
- G. Water supply sources shall be provided with the necessary equipment and connections (e.g., dry hydrants in ponds) to ensure that fire fighting equipment can draw water from such sources in the most efficient manner reasonably possible as determined by the fire marshal; and,
- H. The developer or his successor shall be responsible for ensuring that all water supply sources, access roadways, and other facilities or equipment required under this subsection are maintained.

Section 9.4 Lighting Standards

9.4.1 General Provisions

- A. Private roads, public roads dedicated to the North Carolina Department of Transportation, sidewalks, and other common areas or facilities in developments may be illuminated to ensure the security of property and the safety of persons using such roads, sidewalks, and other common areas or facilities. Illumination shall be in accordance with a plan designed by the utility company.
- B. In all residential subdivisions over 40 lots the subdivider shall install street lighting at every major entrance.
- C. All street lights shall be full cut-off fixtures of 3,300 lumen sodium vapor mounted on non-corrosive poles with underground wiring.
- D. The design of the street light units shall be selected with the requirement that the design shall be standard throughout the subdivision and be of compatible design with surrounding street lights.
- E. All entrances and exit areas in buildings used for non residential purposes and in two-family or multi-family residential developments containing more than four dwelling units shall be adequately lighted to ensure the safety of persons and the security of the buildings.
- F. Illumination requirements must be met prior to final plat approval or prior to the issuance of an occupancy permit where final plat approval is not required by this ordinance.

9.4.2 Prohibited Lighting

The following lighting is prohibited:

- A. Lighting within any lot that unnecessarily illuminates any other lot and substantially interferes with the use or enjoyment of such other lot.
- B. Light fixtures that imitate an official highway or traffic control light or sign.
- C. Light fixtures in the direct line of vision with any traffic control light or sign.
- D. Light fixtures that have a flashing or intermittent pattern of illumination, except for time and temperature displays.
- E. Privately owned light fixtures located in the public right-of-way.
- F. Light fixtures that are a source of glare by their design, orientation or intensity.
- G. Searchlights are prohibited except when used by federal, state or local authority.

9.4.3 Lighting Requirements for Non-residential Structures Greater than 20,000 Square Feet, Excluding Outer Banks Overlay in Poplar Branch Township

9.4.3.1 Purpose

- A. The intent of these regulations is to allow installation of exterior lighting that provides adequate illumination for the performance of necessary tasks in the illuminated areas while reducing a dangerous or disabling glare, avoiding the illumination of adjacent or nearby properties, streets and roadways, and avoiding the illumination of the night sky. It is also the intent of these regulations to require the conservation of energy and to preclude a utility emergency.
- B. The lighting regulations will only apply to buildings that are greater than 20,000 square feet of heated space.

9.4.3.2 Compliance

- A. All new lighting fixtures installed after the effective date of this ordinance for nonresidential structures greater than 20,000 square feet shall be in compliance with the requirements of this ordinance. Any lighting in existence before the effective date of this ordinance that does not comply with the requirements of this ordinance shall be considered legally nonconforming and may remain. All nonconforming lighting shall be governed by the requirements of this chapter and not Chapter 16 Nonconformities.
- B. All Nonresidential structures in the Outer Banks Overlay District in Poplar Branch Township shall be regulated under Section 4.7.5.

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- C. When poles and support structures are removed and replaced they must be replaced with poles, support structures and luminaries that comply with the requirements of this chapter.
- D. When luminaries are replaced, they must be replaced with luminaries that comply with all provisions of this chapter.
- E. All additions to parking areas shall comply with the requirements of this article.
- F. When a building addition, after the effective date of this ordinance, to a nonresidential structure creates a structure that exceeds 20,000 square feet in heated floor area, it shall comply with this lighting ordinance.
- G. Whenever the permit issuing authority allows or requires a deviation from the presumptive lighting requirements set forth in this ordinance, such deviation shall be allowed solely for health, safety and crime prevention. The deviation shall be in accordance with the light levels, fixture style and placement governed by the Illumination Engineering Society of North America (IESNA) Lighting Handbook 2000 Edition. Certification from a North Carolina Licensed Engineer shall be required for any deviation from this ordinance.

9.4.3.3 Design Standards

- A. Exterior lighting for nonresidential structures greater than 20,000 square feet of heated floor area, excluding security lighting, shall be reduced by a minimum of 50 percent after operating hours to decrease unneeded lighting.
- B. When practicable, all lighting installations will include timers, dimmers and sensors to reduce overall energy consumption.
- C. Parking area lighting shall be designed to provide minimum lighting necessary to ensure adequate vision and safety. Such lighting shall not cause disabling glare or direct illumination onto adjacent properties.
- D. The maximum height for exterior light fixtures shall be 25 feet above natural grade; but, shall not exceed the building height if the nonresidential structure is less than 25 feet.

9.4.3.4 Measurements

- A. Lighting levels shall be measured in foot-candles.
- B. All lighting fixtures, excluding street lighting, shall be designed, installed and maintained to prevent light trespass. The maximum illumination at the property line shall not exceed three foot-candles measured at ground level by a measuring device.

- C. The maximum permitted foot-candle shall not exceed 25 at any location.
- D. Measurements of newly installed light fixtures shall account for a light loss factor of 0.75 figured into the calculation. For example, a newly installed fixture that has a meter reading of one initial foot-candle and a light loss factor of 0.75 would calculate to 0.75 maintained foot-candle.

9.4.3.5 Interior Lighting

Where interior lighting shining through glass areas is excessive and it illuminates the exterior areas adjacent to the structure, then exterior lighting regulations shall apply when such interior lighting is considered to create an annoying, dangerous or disabling glare.

9.4.3.6 Exemptions (PB 09-07, 3/2/09)

- A. Holiday lighting during the months of November, December and January shall be exempt from the lighting requirements of this article provided the lighting does not create disabling glare onto adjacent rights-of-way.
- B. Property in the Outer Banks Overlay District in the Poplar Branch Township are exempt.
- C. Exterior lighting for public outdoor recreational facilities are exempt from the requirements of this section provided the lighting does not create disabling glare onto adjacent rights-of-way or directly illuminate adjacent properties.

9.4.3.7 Lighting Plan

- A. Applicants regulated by this ordinance shall submit a lighting plan produced by the lighting manufacturer, registered architect or engineer as part of the site plan review process. The lighting plan shall include:
 - 1. a site plan drawn to a scale of not more than one inch equaling 50 feet indicating areas to be illuminated, including but not limited to, building(s), sign(s), vehicular accommodation areas and the locations of all proposed exterior light fixtures;
 - 2. drawings of proposed building elevations showing the building height and location and type of light fixtures;
 - 3. proposed mounting height of all exterior light fixtures;
 - 4. specifications and descriptions for all proposed exterior light fixtures;
 - 5. locations and descriptions of all proposed exterior light fixtures and hours of operation; and,

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6. Analysis and luminance level plans in the form of an iso foot candle or point-by-point grid diagram drawn to scale. The submitted grid plan shall plot lighting levels at ten-foot intervals or less. The iso foot candle diagram shall plot foot candles in increments of one-half (0.5) foot-candle or less.
- B. The installation of the lighting and footcandle readings at the property line shall be certified by a registered architect or engineer before a certificate of occupancy is issued for the structure.

Section 9.5 Garbage and Refuse Collection

- A. All nonresidential development shall be required to provide one or more dumpsters for solid waste collection that are:
1. Located so as to facilitate collection and minimize any negative impact on persons occupying the development site, neighboring properties, or public rights-of-way;
 2. Constructed according to specifications established by the public works director to allow for collection without damage to the development site or the collection vehicle; and,
 3. The size and location of the site shall be approved by the public works director prior to preliminary plat approval and/ or site plan approval.
- B. All such dumpsters shall be screened if and to the extent that, in the absence of screening, they would be clearly visible to:
1. Persons located within any dwelling unit on residential property other than that where the dumpster is located;
 2. Occupants, customers, or other invitees located within any building on non-residential property other than that where the dumpster is located, unless such other property is used primarily for purposes permitted exclusively in an LM or HM Zoning District; and,
 3. Persons traveling on any public street, sidewalk, or other public way.
- C. When dumpster screening is required under this section, such screening shall be constructed, installed, and located to prevent or remedy the conditions requiring the screening.
- D. Each applicant for a permit shall provide a plan for the disposal of solid waste and such plan must be approved by the public works director or his assign.

Section 9.6 Drainage Plan Requirements

Drainage plans and associated narratives shall be submitted for all major subdivisions and commercial site plans. The plans shall be reviewed and inspected by county technical staff members. The drainage plans shall show, at a minimum, the following information:

- A. Elevation survey of entire tract with topographic lines shown at one foot intervals.
- B. The following culvert information shall be provided: (1) a design elevation for all culverts to be installed by the developer; (2) a design profile for all ditches showing bottom elevations. These profiles are to be used for controlling any future culvert installations, i.e. driveway culverts, by the landowner.
- C. Direction of stormwater runoff.
- D. Two storm flow analysis are required: (1) an upstream flow analysis to prevent upstream flow restrictions by the development; (2) a downstream flow analysis to determine drainage capacity to the outlet (creek, stream, river, canal). No direct discharge shall be permitted into sound waters.
- E. A flood prevention and stormwater analysis showing: (1) the predicted water surface elevation for a ten year storm event throughout the subdivision using the maximum downstream drainage capacity as a reference; (2) building pad elevations required to prevent flooding from the ten year event; (3) water storage areas (swales, ditches, canals, wetlands) throughout the subdivision where water may pond at a predicted water surface elevation for the ten year storm event.
- F. For all major subdivisions, minimum finished floor elevations for all houses shall be shown on the preliminary and final plat and shall be a minimum 18 inches above the predicted 10 year storm water elevations or above the 100 year base flood elevation, whichever is greater. For properties located within floodplains, the lowest floor shall be elevated above the base flood elevation. Refer to Article 16 for further restrictions.
- G. Property line swales shall be required along all side property lines. Roadside and side lot line swales that do not convey major stormwater through the subdivision shall have a minimum 3:1 slope. Swales that convey major stormwater drainage shall be a minimum of 6:1 side slopes. Adequate drainage easements shall be shown and centered over the swales.
- H. Maintenance access drainage easements shall be required for all waterway conveyance systems (i.e., ditches, canals, streams, creeks, and major waterways). Said easements shall include the width of the waterway and extend from top of embankment to top of embankment. In addition, for all ditches, a minimum 25 foot wide maintenance area is required, extending from top of embankment. Canals,

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streams, creeks, and similar major waterways will require a minimum 50 foot wide easement from top of embankment. When a property is traversed by a major waterway, a 50 foot easement shall be required on both sides of the waterway, extending from top of embankment.

- I. No fences or structures shall be placed within drainage easements.
- J. Prior to the issuance of a certificate of compliance, all newly installed driveway culverts and the ditch section fronting the property shall be certified by a licensed surveyor or civil engineer as being installed in accordance with approved drainage plan. If there is no approved drainage plan, the culvert shall be certified as being on grade with the existing roadside ditch as verified by upstream and downstream culvert inverts.
- K. Stormwater ponds, either wet or dry, shall not be located within ten foot of any property line, except as approved by the county engineer.