

NCDOT | Division 10 | District 2

Permit Number:

Project Name:

Date:

Driveway Application Process and Site Plan Requirements

ALL APPLICATIONS SHALL BE ACCOMPANIED BY COMPLETE AND DETAILED SITE PLANS THAT ADHERE TO THE POLICIES LISTED IN THE *POLICY ON STREET AND DRIVEWAY ACCESS TO NORTH CAROLINA HIGHWAYS* AND THIS DOCUMENT. FAILURE TO ADHERE TO THESE POLICIES WILL RESULT IN THE RETURN OF THE APPLICATION TO THE APPLICANT FOR REVISION.

*****THE NCDOT WILL NOT BEGIN THE REVIEW PROCESS ON INCOMPLETE APPLICATIONS*****

Electronic Pre-Submittals

In an effort to save time and resources, we are happy to provide an initial assessment of a driveway permit submittal's plans via email to identify any major issues up front. This initial assessment can be followed up with a submittal of one digital copy of the plans along with all other required documents. Rezoning comments are considered tentative and are subject to change once full package is reviewed.

All Permit applications shall be submitted through the online portal

<https://connect.ncdot.gov/site/Permits/Pages/default.aspx>

See the last pages for further instruction.

Online resources:

- NCDOT Policy on Street and Driveway Access to North Carolina Highways:
<https://connect.ncdot.gov/projects/Roadway/RoadwayDesignAdministrativeDocuments/Policy%20on%20Street%20and%20Driveway%20Access.pdf>
- NCDOT Subdivision Roads Minimum Construction Standards:
<https://connect.ncdot.gov/resources/Asset-Management/StateMaintOpsDocs/Subdivision%20Manual%20January%202010%20Revised%20December%202020.pdf>
- NCDOT Policies and Procedures for Accommodating Utilities on Highway Rights of Way:
<https://connect.ncdot.gov/municipalities/Utilities/Pages/UtilitiesManuals.aspx>
- Electronic Forms Database:
<https://connect.ncdot.gov/Pages/default.aspx>

Engineering Studies:

The applicant may be required by the District Engineer to submit studies based on, but not limited to, the parameters outlined herein. If study requirements of the local government agency are more restrictive than the NCDOT requirements, then local government requirements will govern. However, this does not imply that the NCDOT is obligated to approve driveway designs that are too constrictive to allow smooth and safe traffic flow. All studies including, but not limited to, Traffic Impact Analyses (TIA), traffic signal studies, soft digs, and drainage studies, must be prepared under the direct charge of and sealed by a North Carolina licensed Professional Engineer.

NCDOT | Division 10 | District 2

Permit Number: Click or tap here to enter text. Project Name: Click or tap here to enter text. Date: Click or tap to enter a date.

Section 1: Required Documents

Please note that these are the minimum requirements of all driveway permit applications for driveway connections to NCDOT maintained roadways. All required documentation shall be submitted through the online portal as PDF files, with the exception of the Performance and Indemnity Bond and the \$50 Inspection Fee(s), these should be mailed or delivered to: 7605 District Drive Charlotte, NC 28213. If a Traffic Impact Analysis and/or roadway improvements are deemed necessary as a condition of the permit, there may be additional submittal materials required.

App.			NCDOT		
Y	N	NA	Y	N	NA

1.1 Required documents to accompany all Initial Driveway Application Submittals

- | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | 1.1.1- Cover Letter - Include contact information for applicants and engineers, including email addresses, mailing address, and phone number. Include the parcel number(s), description of all phases of the development and future land uses to be served by the permit, and a description of the adjoining land owned or controlled by the applicant. |
| <input type="checkbox"/> | 1.1.2- NCDOT Street and Driveway Access Permit Application (form downloadable) *ATTACHMENT 7* |
| <input type="checkbox"/> | 1.1.3- NPDES Stormwater Permit Compliance Certification (form downloadable) *ATTACHMENT 8* |
| <input type="checkbox"/> | 1.1.4- Verification of Compliance with Environmental Regulations (form downloadable) *ATTACHMENT 9* |
| <input type="checkbox"/> | 1.1.5- Site Plans - include 'Master Plan' of the tract even if only a small portion is being developed |
| <input type="checkbox"/> | 1.1.6- Design Plan Requirements if roadway improvements are required (see Section 6) |
| <input type="checkbox"/> | 1.1.7- Soft dig report |

1.2 Required documents to accompany all Driveway Applications PRIOR TO FINAL Approval

- | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | 1.2.1- Performance and Indemnity Bond Information/Forms - Amount of the cost of the work within NCDOT R/W shall be as follows; 100% of engineers estimate + 5% Mobilization + 10% engineer fee + 20% NCDOT contingency |
| <input type="checkbox"/> | 1.2.2- Hold Harmless Letter (if inside the limits of a Let STIP) |
| <input type="checkbox"/> | 1.2.3- \$50.00 Inspection Fee Per Access Point - Submit to District Office or pay via the Permit Portal once plans are tentatively approved |
| <input type="checkbox"/> | 1.2.4- Traffic Signal Agreement must be completed |
| <input type="checkbox"/> | 1.2.5- Plantings in NCDOT ROW require SEPARATE approved planting permit |

1.3 Required documents for all Temporary Driveway Applications

- | | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | 1.3.1- NCDOT Street and Driveway Access Permit Application (form downloadable) *ATTACHMENT 7* |
| <input type="checkbox"/> | 1.3.2- Verification of Compliance with Environmental Regulations (form downloadable) *ATTACHMENT 9* |
| <input type="checkbox"/> | 1.3.3- Plan sheet showing ISD and ISD profiles for all access points |
| <input type="checkbox"/> | 1.3.4- Plan sheet showing onsite grading that will be done under Temporary Driveway permit |
| <input type="checkbox"/> | 1.3.5- Plan sheet showing onsite phase 1 erosion |
| <input type="checkbox"/> | 1.3.6- Driveway Profile Sheet - maintain a minimum 2% fall from edge of travel way for required shoulder width |
| <input type="checkbox"/> | 1.3.7- \$5,000 Performance and Indemnity Bond for each temporary entrance |
| <input type="checkbox"/> | 1.3.8- \$50.00 Inspection Fee Per Access Point - Submit to District Office or pay via the Permit Portal once plans are tentatively approved |

NCDOT | Division 10 | District 2

Permit Number: Click or tap here to enter text. Project Name: Click or tap here to enter text. Date: Click or tap to enter a date.

Section 2: General Site Plan Requirements

NCDOT Permit Number shall be on cover sheet

All site plan packages shall include and show, at a minimum, the items listed below Page numbers reference the NCDOT Policy on Street and Driveway Access to North Carolina Highways

App.			NCDOT			
Y	N	NA	Y	N	NA	
<input type="checkbox"/>	2.1- Drawn to a scale and the scale shall be shown					
<input type="checkbox"/>	2.2- North arrow, vicinity map, date of plan, and date of most-recent revision					
<input type="checkbox"/>	2.3- Contact information of applicant and engineer					
<input type="checkbox"/>	2.4- Show R/W lines, highway control of access, property lines					
<input type="checkbox"/>	2.5- All existing utilities and easements					
<input type="checkbox"/>	2.6- R/W width and distance from the centerline of roadway					
<input type="checkbox"/>	2.7- Existing posted speed limit(s) and design speed limit(s)					
<input type="checkbox"/>	2.8- Show all property lines, intersections, signals, railroads within 500'					
<input type="checkbox"/>	2.9- Show existing and proposed sidewalks, crosswalks, greenways, curb ramps, bus stops, etc.					
<input type="checkbox"/>	2.10- Include plan sheet showing full site build-out and land use					
<input type="checkbox"/>	2.11- Include Right-of-Way plan sheet					
<input type="checkbox"/>	2.12- Buildings shown with 'gross leasable area' and land use					
<input type="checkbox"/>	2.13- Width of property frontage					
<input type="checkbox"/>	2.14- Distance from R/W to buildings and gasoline service islands					
<input type="checkbox"/>	2.15- Distance from R/W to existing/proposed Edge of Pavement					
<input type="checkbox"/>	2.16- All streams, bridges, retaining walls, signs, fixed objects					

Section 3: Driveway Plan Requirements

All driveway plans shall include and show, at a minimum, the items listed below

<input type="checkbox"/>	3.1- Provide survey of intersecting roads, streets, driveways, signals, railways or crossovers within five hundred (500) feet of the property line of the proposed development.					
<input type="checkbox"/>	3.2- Provide hydraulic survey data to the nearest storm water inlet/outlet including ditch lines and storm water pipes					
<input type="checkbox"/>	3.3- Lane configurations and widths of all existing and proposed driveways, roadways, and adjacent roadways					
<input type="checkbox"/>	3.4- Driveway widths: Residential/subdivision (2-way: 20'-36', 1-way: 12'-24', with island: 14' ingress, 18' egress)					
<input type="checkbox"/>	3.5- Driveway Profile - maintain a minimum 2% fall from edge of travel way for required shoulder width					
<input type="checkbox"/>	3.6- All existing and/or proposed driveway radii: Street Type Driveway connection - 20' Min., 50' Max.					
<input type="checkbox"/>	3.7- No curbing in NCDOT R/W along shoulder sections except as part of a driveway island					
<input type="checkbox"/>	3.8- Driveway angles of approach (90° preferred, 75°-90° required for 2-way, 45°-90° allowed for right-in/right-out)					
<input type="checkbox"/>	3.9- Driveway Pavement Cross Section (Asphalt: <i>*SEE DETAIL A1- PAGE 9*</i> // Concrete: 6" concrete 3600 psi min)					
<input type="checkbox"/>	3.10- Driveway Offset: Minimum 20'					
<input type="checkbox"/>	3.11- Corner Clearance: Minimum 50', Desirable 100'					
<input type="checkbox"/>	3.12- Minimum 10'x70' sight triangles at driveways					
<input type="checkbox"/>	3.13- Sight Distance: 10X Design Speed both directions					
<input type="checkbox"/>	3.14- Align driveways with opposing driveways					
<input type="checkbox"/>	3.15- Distance between driveways requested (if applicable)					
<input type="checkbox"/>	3.16- Minimum internal storage areas with specified queues					
<input type="checkbox"/>	3.17- Minimum protected driveway stem(s) provided					
<input type="checkbox"/>	3.18- Indicate any gated entrances (100' minimum setback from R/W)					

NCDOT | Division 10 | District 2

Permit Number: Click or tap here to enter text. Project Name: Click or tap here to enter text. Date: Click or tap to enter a date.

App.	NCDOT
Y N NA	Y N NA

- 3.19- Fire entrance needs gate and knox box outside NCDOT R/W

Section 4: Drainage Requirements

All drainage features on NCDOT Right-of-Way shall adhere to, at a minimum, the items listed below

- 4.1- Pipe Cover Minimums: Driveway Pipe Min. Size = 15", Cross Pipe Min. Size = 18"
- 4.2- Pipe End Treatment per Chapter 6 of the [Drainage User Manual](#) & Roadway Design Manual
- 4.3- All proposed drainage must be within existing R/W or additional R/W/easement required
- 4.4- Show all pipe sizes, types, and invert elevations of existing/proposed pipes and drainage structures
- 4.5- Provide spot elevations along the frontage of driveway connection
- 4.6- Provide grades and spot elevations for existing and proposed ditches
- 4.7- Show drainage accommodation along property frontage
- 4.8- Provide Hydro Plans & Calculations

Section 5: Internal Circulation Requirements

All internal circulation details shall adhere to, at a minimum, the items listed below

- 5.1- Interior driveway channelization stems: Minimum 100' Internal Protected Stem from ROW or at the discretion of the District Engineer or TIA recommendation
- 5.2- Traffic flow pattern
- 5.3- Traffic control devices
- 5.4- Pavement Markings

Section 6: Roadway Plan Requirements

If off-site improvements are required, roadway plans shall show, at a minimum, the items below

- 6.1- Stationing must be shown on all plan sheets
- 6.2- Cross-sections required every 50' (max 6 per page), special cases every 25'
- 6.3- Cross-sections must include pavement structure, cross slopes, shoulders, lane widths, utilities, ditches, elevations per cross-section detail
- 6.4- Full width typical sections must match adjacent roadway **SEE DETAIL A1- PAGE 9**
- 6.5- Minimum Asphalt Typical Section defined for primary & secondary routes without C&G
- 6.6- Pavement overlay required if modification of markings/lanes necessary
- 6.7- Shoulder Widths: 6' min
- 6.8- Ditch Slopes: min 3:1 or flatter **SEE DETAIL A1- PAGE 9**
- 6.9- Indicate existing roadway grade
- 6.10- Design appropriate taper lengths and deceleration lengths
- 6.11- All turn lanes to be designed per Driveway Manual & Standard Drawings
- 6.12- Pavement marking and signing plans required
- 6.13- Traffic control plans required; detailed phasing plans may be needed
- 6.14- New/revised signal plans must be reviewed and approved
- 6.15- Sight profiles for all access points
- 6.16- Utility plan showing relocations; no manholes in wheel path
- 6.17- Striping plan with labeled tapers
- 6.18- Include note on patching/leveling before resurfacing, 25' mill transitions
- 6.19- 10'X70' sight triangles at all access points with landscape plan

NCDOT | Division 10 | District 2

Permit Number: Click or tap here to enter text. Project Name: Click or tap here to enter text. Date: Click or tap to enter a date.

App.			NCDOT		
Y	N	NA	Y	N	NA

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 6.20- Turning movements plan sheet, appropriate vehicle templates |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 6.21- Include all required NCDOT details for ramps, C&G, construction entrances, drainage structures |

Section 7: Internal Subdivision Roads

If internal Streets are to be NCDOT Maintained, roadway plans shall show, at a minimum, the items below

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.1- Cluster mailbox units require encroachment agreement; must be breakaway and labeled |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.2- Centerline radius labeled NCDOT per subdivision standards |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.3- Pavement Section for Subdivision Roads: 3" S9.5C, 4" I19.0C, 6" ABC |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.4- All C&G/Valley gutter placed on 6" ABC, extend 12" beyond curb with 1:1 slope |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.5- Right of way widths labeled |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.6- 10'X70' sight triangles labeled at all intersections on landscape plan |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.7- Minimum 30' turning radii for internal intersections |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.8- All roads must be 2% crown (provide cross section) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.9- Maximum grade for internal roads is 12% |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.10- Cul-de-sac per NCDOT subdivision standards manual |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.11- Rate of Vertical Curvature NCDOT per subdivision standards manual |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> 7.12- Provide landscape plan for review when plantings are inside public ROW *Requires approved planting permit* |

NCDOT | Division 10 | District 2

Permit Number: [Click or tap here to enter text.](#) Project Name: [Click or tap here to enter text.](#) Date: [Click or tap to enter a date.](#)

North Carolina Department of Transportation (NCDOT) Plat Criteria

The NCDOT reviews, approves and sign plats as part of private development for right-of-way dedication and future street additions that may be added to the state maintenance system. In order to provide consistent reviews and approvals, NCDOT has set forth minimum plat criteria that must be included with each plat submittal, in addition to normal surveying profession required items, for the review and approval by NCDOT.

App.			NCDOT		
Y	N	NA	Y	N	NA

Each plat should include the items listed below.

- | | | |
|--|--|--|
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>A. Land to be designated as right-of-way is to be shaded, cross-hatched, diagonally striped or otherwise distinguished on the plat. All encroachments connected with the project will be shown and designated as to their purpose, i.e., utility, storm water, sidewalk, tree save, etc.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>B. Such land is to be clearly marked: "Dedicated as Public Right-of-Way". We insist on the term 'public' rather than NCDOT because a road may be turned over to a city or town in the future and this terminology would enable a seamless transaction.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>C. Show the area of this land being dedicated in SF and Acres.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>D. If road's original R/W is already owned by the state, indicate the deed book and page whereby this is recorded. Include a state construction project number if applicable.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>E. If this is a maintenance R/W, the surrounding property deeds will probably indicate the parcel boundary extends into the roadway. In this case the dedication will be from that line to the proposed new R/W line.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>F. Show the SR, NC, US or Interstate Highway number for roads in addition to their names.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>G. Dimension the R/W or otherwise provide a means of determining its width and boundary. For roads that may later be petitioned for NCDOT take-over, we need 10'x70' sight triangles and no alignment curve can be less than 100' in radius.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>H. Dimension the proposed right-of-way from the centerline of the road to the parcel line.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>I. Indicate the existing edge of pavement.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>J. Indicate on the end of the main roads drawn where they will lead such as another state road, US route, geographic reference, etc.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>K. Show any tie-ins to NCGS, USGS or other monuments or benchmarks.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>L. We need a sketch depicting where this is located in the county. Show North Arrow, too.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>M. If additional R/W is being obtained from other property owners, either deed references or each of their signatures acknowledging this agreement must be present.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>N. All NCDOT improvements need to be constructed prior to plat being signed.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>O. NCDOT will allow sidewalks by encroachment and will not accept responsibility for maintenance. Maintenance responsibility of sidewalks shall be noted on the Plat. All sidewalks shall meet requirements of the "Americans with Disabilities Act".</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>P. If the internal streets are not being annexed to the municipality and are located within ETJ, the following note must be added on the plat: "All sidewalk is to be maintained by the HOA."</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>Q. Please add the Access permit number to the plat title block.</p> |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>R. Add the appropriate NCDOT Signature block *see page 7*</p> |

NCDOT | Division 10 | District 2

North Carolina Department of Transportation (NCDOT) Plat Criteria

We have a specific statement to sign for R/W dedication. It should read as follows:

DIVISION OF HIGHWAYS DISTRICT ENGINEER CERTIFICATE

I HEREBY CERTIFY THAT THE RIGHT OF WAY DEDICATION ALONG THE EXISTING STATE MAINTAINED ROADWAY(S) SHOWN ON THIS PLAT IS APPROVED AND ACCEPTED AS PUBLIC RIGHT OF WAY BY THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS.

DISTRICT ENGINEER _____

DATE _____

ONLY NORTH CAROLINA DEPARTMENT OF TRANSPORTATION APPROVED STRUCTURES ARE TO BE CONSTRUCTED ON PUBLIC RIGHT OF WAY

We have a specific statement to sign for subdivision plats in the ETJ that will be requested to be added to the state system in the future. It should read as follows:

NCDOT CONSTRUCTION STANDARDS CERTIFICATION

I HEREBY CERTIFY THAT THE STREETS ON THIS PLAT DESIGNED AS PUBLIC ARE OR WILL BE IN ACCORDANCE WITH THE MINIMUM RIGHT OF WAY AND CONSTRUCTION STANDARDS ESTABLISHED BY THE BOARD OF TRANSPORTATION FOR ACCEPTANCE ON THE STATE HIGHWAY SYSTEM.

DISTRICT ENGINEER _____

DATE _____

ONLY NORTH CAROLINA DEPARTMENT OF TRANSPORTATION APPROVED STRUCTURES ARE TO BE CONSTRUCTED ON PUBLIC RIGHT OF WAY

For recombination plats where there is no change in Right of Way, the statement should read as follows:

NCDOT CONSTRUCTION STANDARDS CERTIFICATE

I HEREBY CERTIFY THAT THE RIGHT OF WAY DEPICTED ALONG THE EXISTING STATE MAINTAINED ROADWAY(S) SHOWN ON THIS PLAT IS SHOWN FOR DOCUMENTATION PURPOSES ONLY

DISTRICT ENGINEER _____

DATE _____

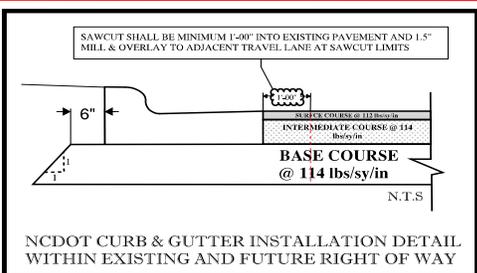
ONLY NORTH CAROLINA DEPARTMENT OF TRANSPORTATION APPROVED STRUCTURES ARE TO BE CONSTRUCTED ON PUBLIC RIGHT OF WAY

NCDOT | Division 10 | District 2

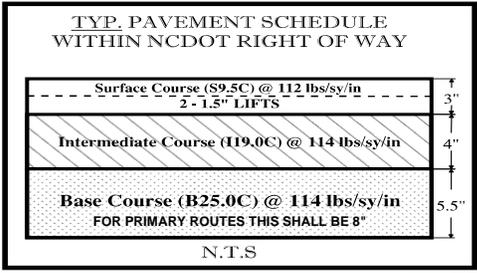
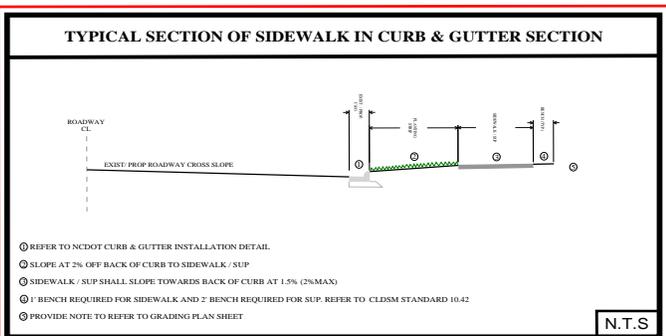
NCDOT Cross-section Guidelines

Cross-sections are required for any proposed thoroughfare and/or existing road improvements/widening at 50-foot maximum station intervals (25-foot intervals will be required where longitudinal street slope is 1% or less and curb/gutter is required, and for curb/gutter sections that are less than 200 feet in length), with a scale of 1" = 5' in both vertical and horizontal dimensions. Cross-sections at this scale need to be included in all submittals for the full length of the proposed thoroughfare and/or existing road improvements/widening, with a 50' station before and after the construction limits. These cross-sections should match the same design elements that can be found in North Carolina Department of Transportation (NCDOT) standards and Mecklenburg County Land Development Standards (MCLDS) or Charlotte Land Development Standards Manual (CLDSM), including, but not limited to:

App.			NCDOT			
Y	N	NA	Y	N	NA	
<input type="checkbox"/>	A. Label the road name on the cross-sections.					
<input type="checkbox"/>	B. Label the proposed and existing cross-slopes. Cross-slopes of the proposed widening need to be in the range of ¼ to 3/8 inch per foot (2% to 3%) for normal crown, (tangent and curves that do not require superelevation) road sections and match existing slopes when in a super elevated curve sections if possible, however there may be cases the super elevation will require some cross slope adjustment, based on A Policy on Geometric Design of Highways and Streets, AASHTO.					
<input type="checkbox"/>	C. Label the ditch slopes on the cross-sections with a 3:1 (max.) front slope and a 2:1 (max.) back slope.					
<input type="checkbox"/>	D. Label the shoulder width and its cross-slope. Normal crown roadway sections need to have a ¼ inch per foot cross slope on the shoulder. A maximum rollover from the pavement to shoulder is 6% for superelevated sections.					
<input type="checkbox"/>	E. Label the sidewalk cross-slope. A minimum of ¼ inch per foot directed toward the road.					
<input type="checkbox"/>	F. Label the planting strip width and its cross-slope.					
<input type="checkbox"/>	G. Label the slope from the back of sidewalk to the right-of-way limits. Note: When handrails are required, a 2-foot minimum bench needs to be provided on the backside of the sidewalk.					
<input type="checkbox"/>	H. If curb and gutter is installed, paving under the gutter pan needs to be shown on the cross-sections. <i>*SEE DETAIL A2 – PAGE 9*</i>					
<input type="checkbox"/>	I. Label all existing and proposed drainage structures/utilities as relocated, protected, replaced, or installed. Dimension all utilities from the top of the utility to the top of subgrade.					
<input type="checkbox"/>	J. An additional cross-section is needed for the centerline of each cross-over pipe and needs to include the appropriate stationing and elevation.					
<input type="checkbox"/>	K. The existing right-of-way must be labeled as maintenance right-of-way or recorded right-of-way. In addition, label new right-of-way as proposed, dedicated, or reserved, along with any necessary temporary construction easements or permanent easements for storm drainage, sidewalk, etc.					
<input type="checkbox"/>	L. Provide spot elevations for the centerline and edge of pavement, both existing and proposed.					
<input type="checkbox"/>	M. Label and dimension the lane widths of the existing pavement and proposed widening.					
<input type="checkbox"/>	N. The overlay for the entire width of the street being widened and/or improved on all NCDOT maintained streets and where applicable on city-maintained streets needs to be shown.					
<input type="checkbox"/>	O. An additional cross-section is needed at each proposed and impacted driveway entrance accessing a public street.					
<input type="checkbox"/>	P. Label elevation centerline of ditch bottom when using shoulder section roadways.					
<input type="checkbox"/>	Q. Label invert elevations of proposed storm drain pipes that show up in x-sections. Label and dimension the vertical clearance of the proposed storm drain pipes, dimensioning from the top of the pipe to the top of subgrade					

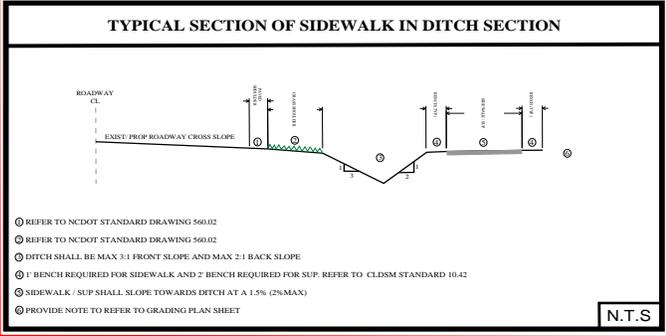


ADDITIONAL GENERAL DETAILS AND NOTES



DETAIL A1

DETAIL A2
Add note to roadway plan sheet



WEDGING MAY BE REQUIRED TO ADJUST CROSS SLOPES IN ORDER TO OBTAIN POSITIVE DRAINAGE

Add note to utility plan sheet

ALL PROPOSED UTILITY WORK WITHIN R/W IS NOT APPROVED THROUGH THE DRIVEWAY PERMIT PROCESS. A UTILITY ENCROACHMENT SHALL BE SUBMITTED AND APPROVED BY THE DEPARTMENT PRIOR TO ANY WORK BEGINNING.

PATCHING AND LEVELING MAY BE REQUIRED PRIOR TO RESURFACING THE ROADWAY

Add note(s) to all cross section plan sheets

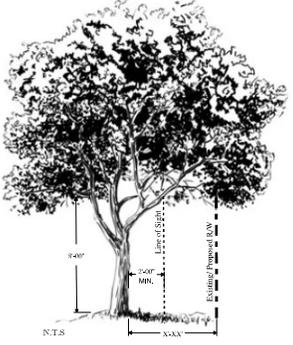
THE SIDEWALKS AND/OR MULTI-USE PATHS SHOWN IN THESE APPROVED PLANS ARE NOT TO BE CONSTRUCTED ALONG THE STATE-MAINTAINED ROAD(S) IN THE EXISTING OR FUTURE PUBLIC R/W UNLESS THIS SITE IS ANNEXED INTO THE MUNICIPAL LIMITS. THESE AREAS SHALL BE GRADED AND ALL NECESSARY PERMANENT SIDEWALK AND UTILITY EASEMENTS SHALL BE RECORDED WITH MECKLENBURG COUNTY TO ALLOW FOR A FUTURE SIDEWALK AND/OR MULT-USE PATH TO BE CONSTRUCTED WHEN THIS AREA IS ANNEXED INTO THE MUNICIPAL LIMITS.

DEVELOPER/ CONTRACTOR HOLDS ALL RESPONSIBILITY TO ENSURE VERTICAL CLEARANCE(S) IS MET AND ALL EXISTING UTILITIES ARE NOT DAMAGED DURING THE CONSTRUCTION PHASE(S).

Add to general notes or appropriate plan sheet

Add note to cover sheet and roadway plan sheet

PLANTING WITHIN NCDOT EXISTING/PROPOSED RIGHT OF WAY



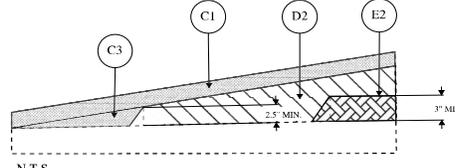
- 1.) In order to plant any vegetation, including any trees, shrubs, or underbrush, within existing or proposed NCDOT right of way, an approved NCDOT Planting Permit is required. This permit is issued by the NCDOT Roadside Environmental Unit.
- 2.) The approved NCDOT driveway permit does not cover any planting within state right of way. A NCDOT Planting Permit is a separate permitting process and will need to be applied for and obtained prior to any planting with the NCDOT right of way.
- 3.) A copy of the approved NCDOT Planting Permit must be provided prior to issuance of any CO's, bond release, and/or street acceptance.
- 4.) No tree shall be planted on a slope greater than 3:1.
- 5.) Area of intersection sight distance to be kept clear. Trees to be planted minimum of 2'-00" behind the the line of sight line and/or R/W line, being measured from face of trunk.

WEDGING DETAIL FOR RESURFACING

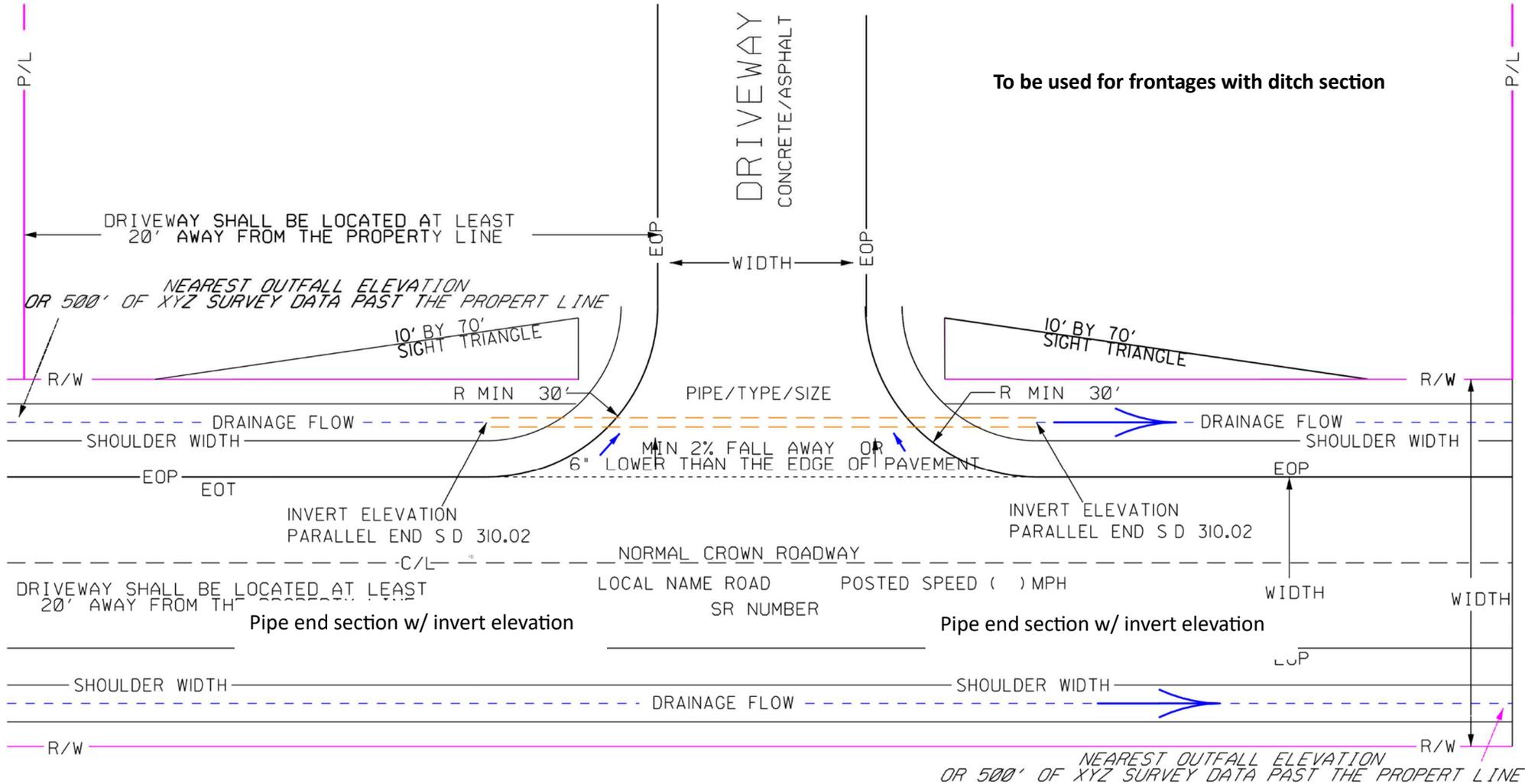
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS/SY
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS/SY IN EACH OF TWO LAYERS
C3	PROP. VARIOUS DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS/SY PER 1" DEPTH, TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS/SY
D2	PROP. VARIOUS DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS/SY PER 1" DEPTH, TO BE PLACE IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH
E1	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS/SY IN EACH OF TWO LAYERS
E2	PROP. VARIOUS DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS/SY PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH
R1	2'-6" CONCRETE CURB AND GUTTER
R2	1'-6" CONCRETE CURB AND GUTTER

NOTES

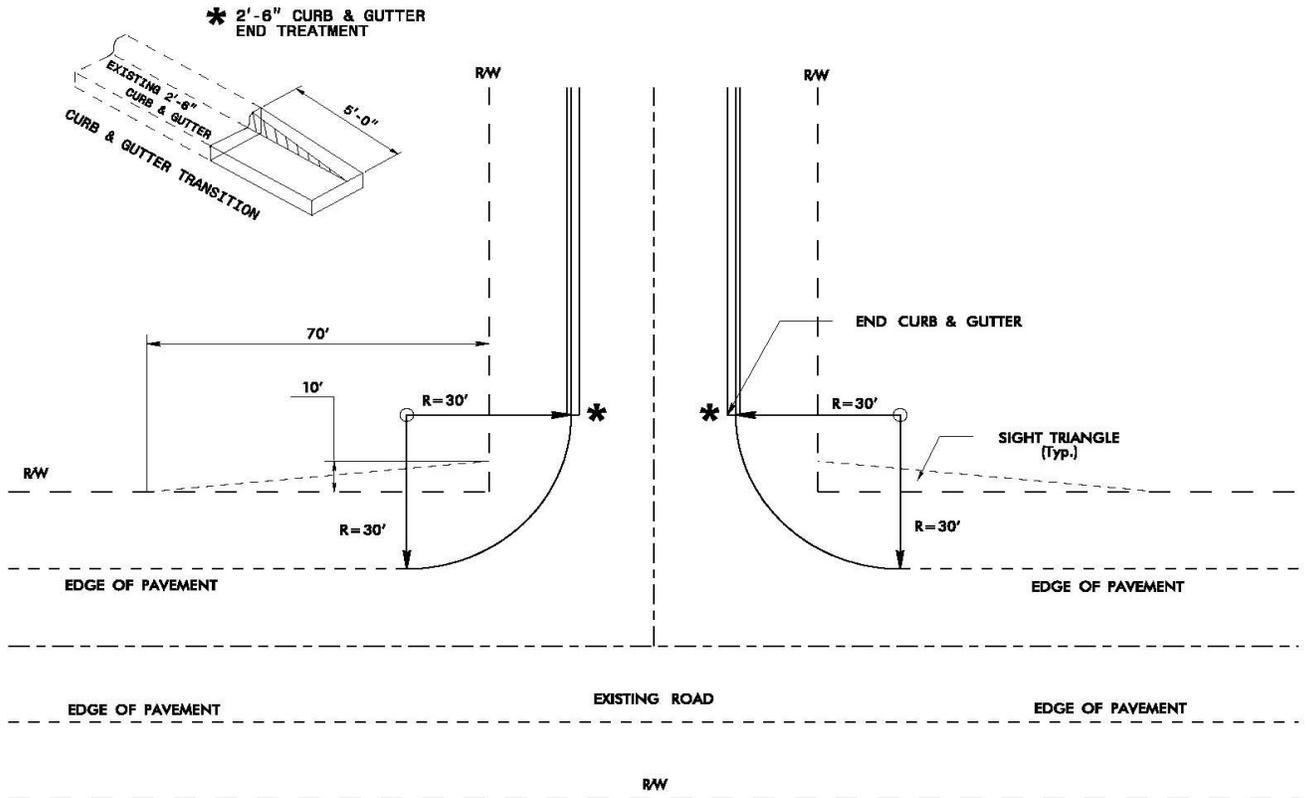
- 1.) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
- 2.) WEDGING MAY BE REQUIRED TO ADJUST CROSS SLOPES IN ORDER TO OBTAIN POSITIVE DRAINAGE.
- 3.) PATCHING AND LEVELING MAY BE REQUIRED PRIOR TO RESURFACING THE ROADWAY.



NCDOT | Division 10 | District 2



NCDOT | Division 10 | District 2

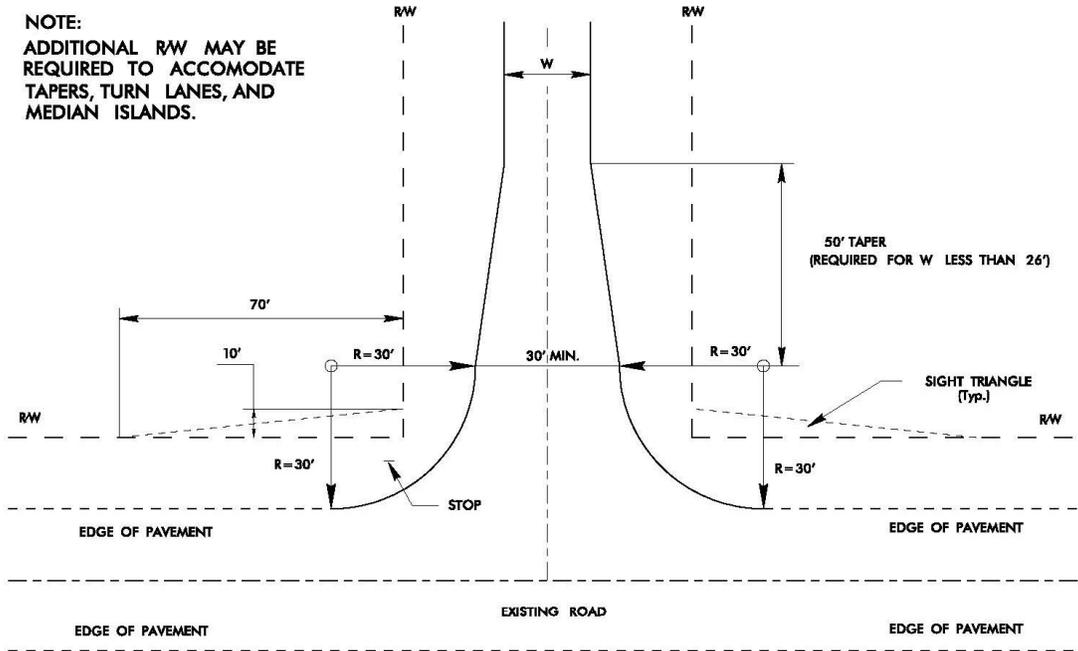


NOTE: Drainage easements may be required to accommodate drainage beyond the right-of-way.

FIGURE 3

RECOMMENDED ROAD CONNECTION TO STATE MAINTAINED SYSTEM
NEW RESIDENTIAL LOCAL ROAD OR RESIDENTIAL COLLECTOR ROAD WITH CURB & GUTTER AND EXISTING STATE MAINTAINED ROAD WITH SHOULDER SECTION

Attachment 2



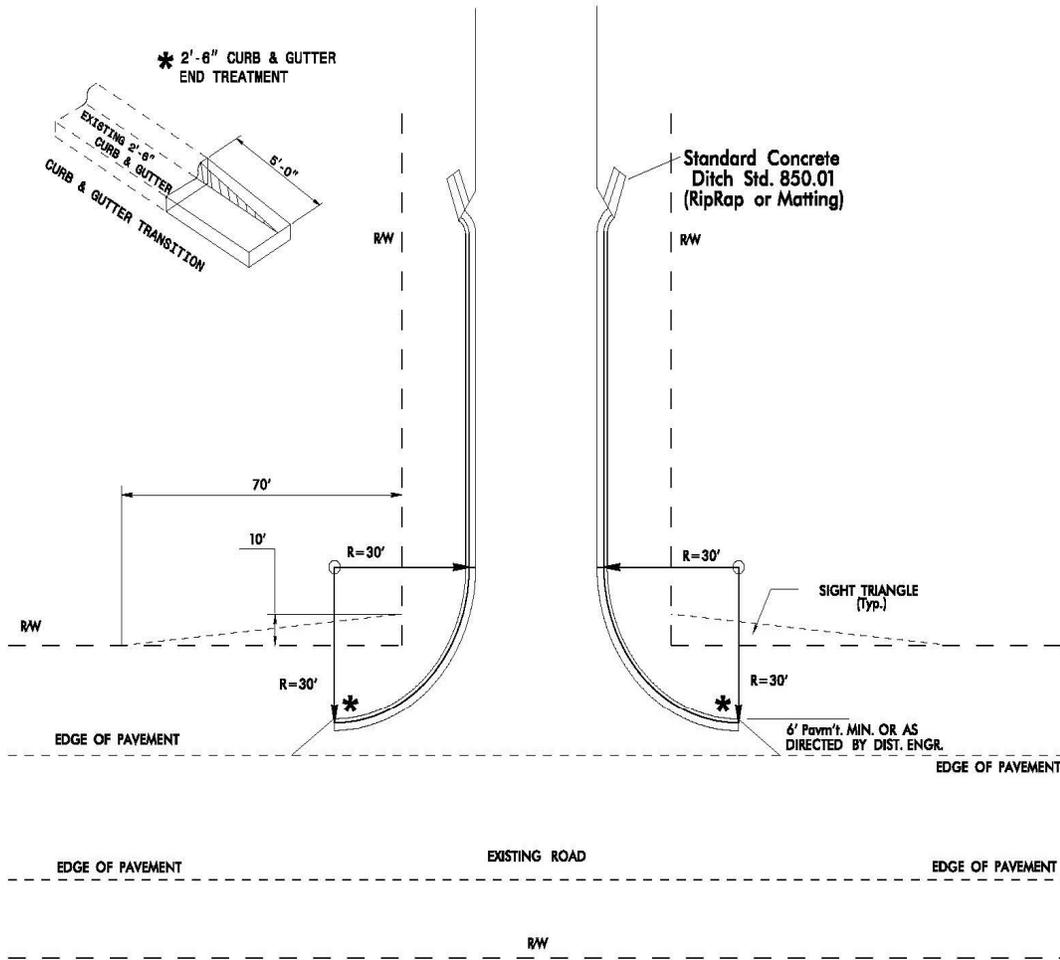
NOTE: Drainage easements may be required to accommodate drainage beyond the right-of-way.

FIGURE 4

**RECOMMENDED ROAD CONNECTION
WITHOUT CURB & GUTTER
NEW RESIDENTIAL LOCAL ROAD OR RESIDENTIAL
COLLECTOR ROAD AND EXISTING STATE MAINTAINED
ROAD**

STOP CONDITION

Attachment 3



NOTE: Drainage easements may be required to accommodate drainage beyond the right-of-way.

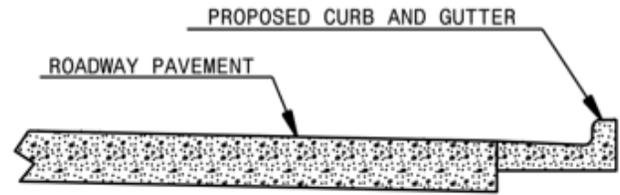
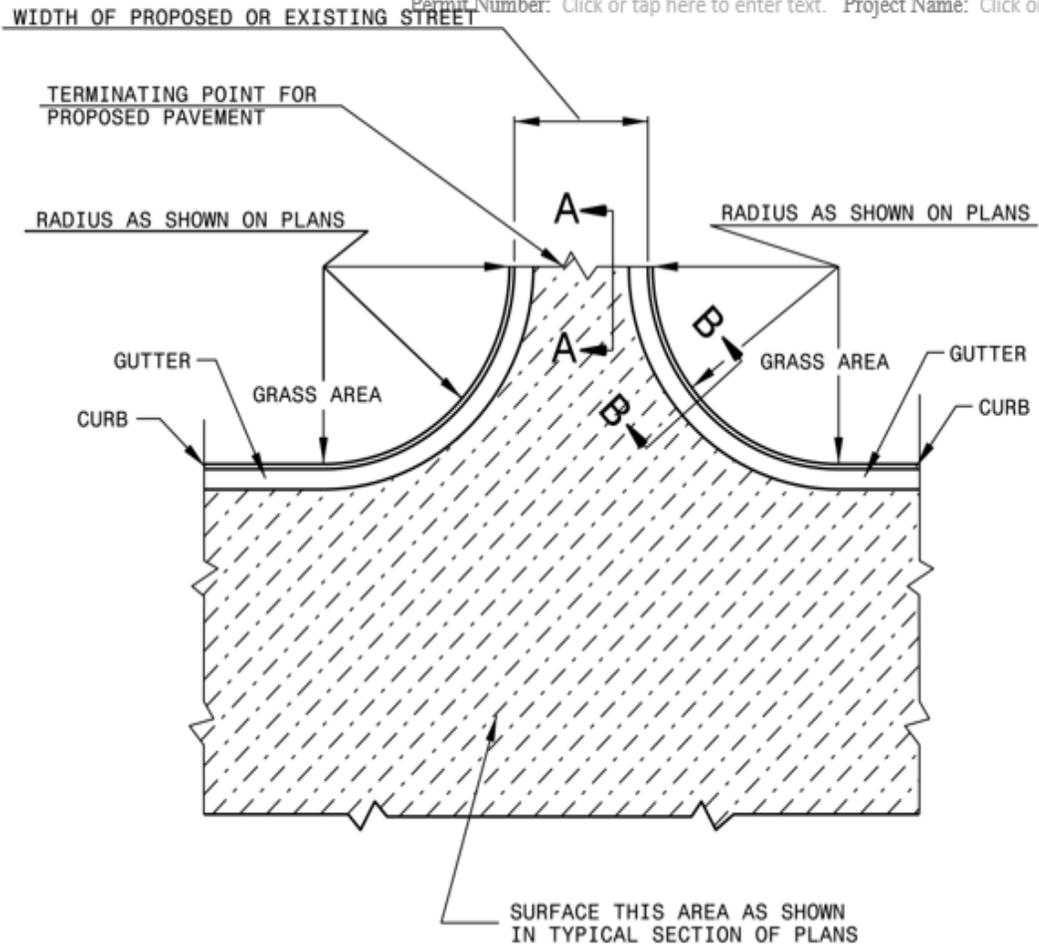
**RECOMMENDED ROAD CONNECTION
WITH CURB AND GUTTER**

*** SEE ISLAND DETAIL IF AN INTERIOR
ISLAND IS TO BE INSTALLED**

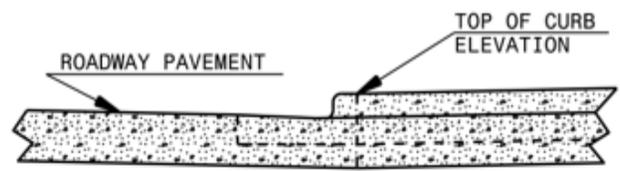
FIGURE 5

NCDOT | Division 10 | District 2

Permit Number: Click or tap here to enter text. Project Name: Click or tap here to enter text. Date: Click or tap to enter a date.



SECTION B-B



SECTION A-A

PARTIAL PLAN OF PAVED STREET TURNOUT

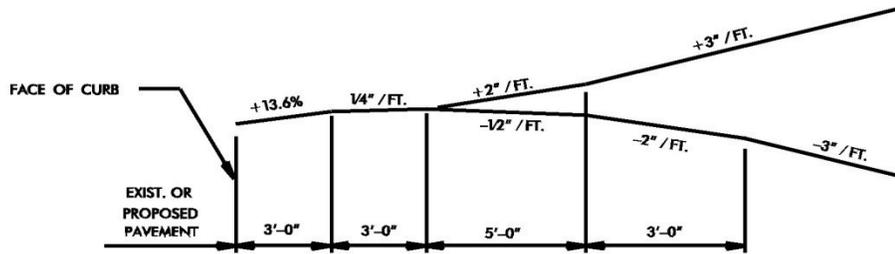
USE ON PROPOSED AND EXISTING STREET INTERSECTIONS OR MAJOR TYPE COMMERCIAL ENTRANCES

1-24
 STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

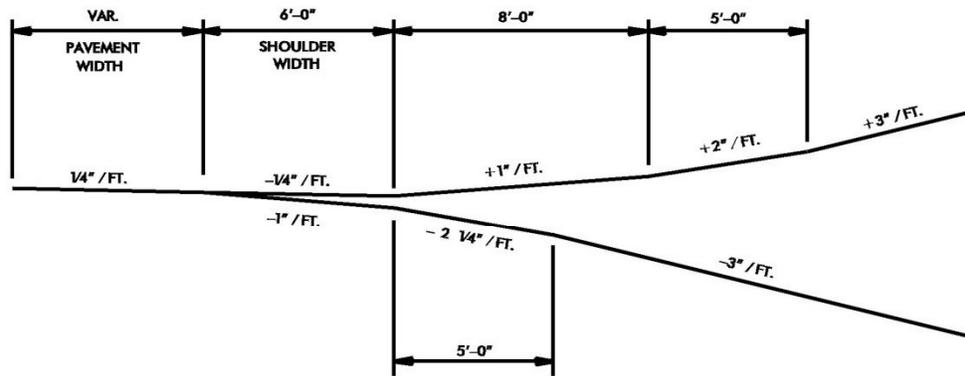
ROADWAY STANDARD DRAWING FOR
STREET TURNOUT

SHEET 1 OF 1
848.04

NCDOT | Division 10 | District 2



A. CURB & GUTTER SECTION



B. SHOULDER SECTION

FIGURE 6

DRIVEWAY TURNOUT GRADES

Attachment 6

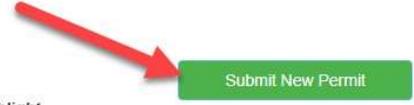
NCDOT | Division 10 | District 2

Submitting Your Driveway Permit Through The Portal

Go to: <https://connect.ncdot.gov/site/Permits/Pages/default.aspx>

Permits Dashboard

Select a tab below to filter by current status for an Encroachment or Driveway Permit. To view/edit an Encroachment or Driveway Permit, highlight to select.



NCDOT Review Applicant Approved Denied Withdrawn All

Show 10 entries Search:

Permit	Applicant	Date Submitted	Route	County
No data available in table				

Showing 0 to 0 of 0 entries Previous Next

Employee Directory
Staff contacts for Utilities Unit.

Contact Form
For questions & feedback about this area of Connect NCDOT, contact Utilities Unit.

Select the type of permit for which you are applying:

(Note: A red arrow points to the "Driveway Permit" button.)

For more help see link below:

[NCDOT Driveway Permit User Guide](#)

NCDOT | Division 10 | District 2

Bond Submittal Information And Forms

(Option 1) Official check or Bank check

- Checks must be either an official check or bank check, made payable to “**North Carolina Department of Transportation**”.
- Note: Bonds in the form of personal check, company check or cash will not be accepted.
- Please include the address and phone number of the remitter.

(Option 2) Corporate Surety Bond or Continuing Indemnity Bond

- Please make sure all signatures are on form, including an “Attested by” signature.
- Please make sure raised seals are on all forms.
- The bond number must be on the top corner, or under “Amount of Bond”, or below “Date of Bond”. Please do not put the number on the “Principal” or “Surety” Lines.
- Please include the address and phone number of the remitter

When filling out the Performance and Indemnity Bond Form, please make sure to select the correct form:

- **Property Owner:** [Form 16](#)
- **Contractor performing work for the Property Owner:** [Form 16A](#)

[Driveway Bond Requirements – See page 10](#)

[Encroachment Bond Requirements – Bond forms are listed at the bottom of the webpage.](#)

APPLICATION IDENTIFICATION		N.C. DEPARTMENT OF TRANSPORTATION	
Driveway Permit No. _____	Date of Application _____	STREET AND DRIVEWAY ACCESS PERMIT APPLICATION	
County: _____			
Development Name: _____			
LOCATION OF PROPERTY:			
Route/Road: _____			
Exact Distance _____	<input type="checkbox"/> Miles	N S E W	
	<input type="checkbox"/> Feet	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
From the Intersection of Route No. _____ and Route No. _____ Toward _____			
Property Will Be Used For: <input type="checkbox"/> Residential /Subdivision <input type="checkbox"/> Commercial <input type="checkbox"/> Educational Facilities <input type="checkbox"/> TND <input type="checkbox"/> Emergency Services <input type="checkbox"/> Other			
Property: <input type="checkbox"/> is <input type="checkbox"/> is not within _____ City Zoning Area.			
AGREEMENT			
<ul style="list-style-type: none"> • I, the undersigned property owner, request access and permission to construct driveway(s) or street(s) on public right-of-way at the above location. • I agree to construct and maintain driveway(s) or street entrance(s) in absolute conformance with the current "Policy on Street and Driveway Access to North Carolina Highways" as adopted by the North Carolina Department of Transportation. • I agree that no signs or objects will be placed on or over the public right-of-way other than those approved by NCDOT. • I agree that the driveway(s) or street(s) will be constructed as shown on the attached plans. • I agree that that driveway(s) or street(s) as used in this agreement include any approach tapers, storage lanes or speed change lanes as deemed necessary. • I agree that if any future improvements to the roadway become necessary, the portion of driveway(s) or street(s) located on public right-of-way will be considered the property of the North Carolina Department of Transportation, and I will not be entitled to reimbursement or have any claim for present expenditures for driveway or street construction. • I agree that this permit becomes void if construction of driveway(s) or street(s) is not completed within the time specified by the "Policy on Street and Driveway Access to North Carolina Highways". • I agree to pay a \$50 construction inspection fee. Make checks payable to NCDOT. This fee will be reimbursed if application is denied. • I agree to construct and maintain the driveway(s) or street(s) in a safe manner so as not to interfere with or endanger the public travel. • I agree to provide during and following construction proper signs, signal lights, flaggers and other warning devices for the protection of traffic in conformance with the current "Manual on Uniform Traffic Control Devices for Streets and Highways" and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the District Engineer. • I agree to indemnify and save harmless the North Carolina Department of Transportation from all damages and claims for damage that may arise by reason of this construction. • I agree that the North Carolina Department of Transportation will assume no responsibility for any damages that may be caused to such facilities, within the highway right-of-way limits, in carrying out its construction. • I agree to provide a Performance and Indemnity Bond in the amount specified by the Division of Highways for any construction proposed on the State Highway system. • The granting of this permit is subject to the regulatory powers of the NC Department of Transportation as provided by law and as set forth in the N.C. Policy on Driveways and shall not be construed as a contract access point. • I agree that the entire cost of constructing and maintaining an approved private street or driveway access connection and conditions of this permit will be borne by the property owner, the applicant, and their grantees, successors, and assignees. • I AGREE TO NOTIFY THE DISTRICT ENGINEER WHEN THE PROPOSED WORK BEGINS AND WHEN IT IS COMPLETED. 			
2004-07	NOTE: Submit Four Copies of Application to Local District Engineer, N.C. Department of Transportation		TEB 65-04rev.
61-03419			

SIGNATURES OF APPLICANT

PROPERTY OWNER (APPLICANT)		WITNESS	
COMPANY	_____	NAME	_____
SIGNATURE	_____	SIGNATURE	_____
ADDRESS	_____	ADDRESS	_____
_____ Phone No. _____			

AUTHORIZED AGENT		WITNESS	
COMPANY	_____	NAME	_____
SIGNATURE	_____	SIGNATURE	_____
ADDRESS	_____	ADDRESS	_____
_____ Phone No. _____			

APPROVALS

APPLICATION RECEIVED BY DISTRICT ENGINEER

_____	_____
SIGNATURE	DATE

APPLICATION APPROVED BY LOCAL GOVERNMENTAL AUTHORITY (when required)

_____	_____	_____
SIGNATURE	TITLE	DATE

APPLICATION APPROVED BY NCDOT

_____	_____	_____
SIGNATURE	TITLE	DATE

INSPECTION BY NCDOT

_____	_____	_____
SIGNATURE	TITLE	DATE

COMMENTS:

NCDOT | Division 10 | District 2

National Pollutant Discharge Elimination System (NPDES) **Stormwater Permit Compliance Certification**

I, _____, a duly authorized representative of _____, an industrial/commercial/residential facility requesting attachment to a North Carolina Department of Transportation (NCDOT) highway drainage system at _____ address, in _____ County, do hereby certify the following:

Check appropriate box and circle type of facility

- The Industrial / Commercial / Residential facility does not require an NPDES stormwater permit.
- The Industrial / Commercial / Residential facility does require an NPDES stormwater permit. The permit has been obtained and a Stormwater Pollution Prevention Plan (SPPP) is in place. Appropriate structural stormwater best management practices (BMPs) are designed and will be in place as required by the North Carolina Department of Environment and Natural Resources (NCDENR) and/or the local governing agency. All structural stormwater BMPs are located outside of NCDOT right-of-way.

I understand if the NCDOT determines the facility is not in compliance with NPDES stormwater requirements, the Department will report the noncompliance to the NCDENR Division of Energy, Mineral and Land Resources. I also understand that falsification of this certification may result in penalty of law against the facility and me as prescribed in the North Carolina General Statutes.

Signature: _____

Date: _____

Note: If the applicant has a question as to whether an NPDES stormwater permit is required, he or she may contact the NCDENR Division of Energy, Mineral and Land Resources in Raleigh at (919) 707-9200 (ask for Stormwater and General Permits Unit).

NCDOT | Division 10 | District 2

VERIFICATION OF COMPLIANCE WITH ENVIRONMENTAL REGULATIONS

(Check Appropriate Box)

Permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers are not required for this project. However, all applicable federal and state regulations have been followed.

The required permits from the N.C. Department of Environment and Natural Resources and the U.S. Army Corp of Engineers have been obtained for this project. Copies of permits and Completion Certificates are attached.

All applicable NPDES Stormwater Permit requirements have been met for this project. (The applicant should contact the N.C. Division of Water Quality in Raleigh to determine if a stormwater permit is required.)

The project is in compliance with all applicable sedimentation and erosion control laws and regulations.

Project Name: _____

Township: _____ County: _____ Project

Engineer: _____ Phone No.: _____

Project Contact: _____

Applicant's Name: _____

P.E. SEAL

Date Submitted: _____

NCDOT | Division 10 | District 2

AT-10

NCDOT PIPE MATERIAL SELECTION GUIDE

	RCP ¹ (REINFORCED CONCRETE) AASHTO M170								CSP ² (CORRUGATED STEEL) AASHTO M36 2 2/3 X 2/3 CORRUGATION ³						CAAP ³ (CORRUGATED ALUMINUM) AASHTO M196 2 2/3 X 2/3 CORRUGATION ³						HDPE ⁴ AASHTO M294			PP ⁷ ASTM F2881, ASTM F2764, OR AASHTO M330			PVC-ASTM F949 AASHTO M304			NOTES		
	CLASS II		CLASS III		CLASS IV		CLASS V		SIZE	MIN.	MAXIMUM						SIZE	MIN.	MAXIMUM			SIZE	MIN.	MAX.			SIZE	MIN.	MAX.			
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.			(Ca)	16	14	12	10	8			(Ca)	16	14			12	10	8			12"		2.0'	20'
FILL TABLES	2.0'	10.0'	2.0'	20.0'	1.0'	30.0'	1.0'	40.0'	12"	1.0'	204'	256'				12"	1.0'	98'	123'	174'	224'	275'	15"	2.0'	20'	15"	1.0'	20'	15"	2.0'	30'	
	<p>(FOR FILLS >40' & <80' USE LRFD DIRECT DESIGN METHOD. NOTE: DIRECT DESIGN METHOD RCP PIPES MUST HAVE A MINIMUM DIAMETER OF 36")</p> <p>WHEN FILL HEIGHTS (NOT INCLUDING THE PAVEMENT STRUCTURE AND CURB) FOR RCP RUNNING PARALLEL TO AND UNDER CURB AND GUTTER, EXPRESSWAY GUTTER SHOULDER BERM GUTTER AND ADJACENT TO MEDIAN BARRIER ARE 1' OR LESS, SPECIFY CLASS IV RCP.</p> <p>WHEN THE FILL HEIGHTS (FROM TOP OF PIPE TO SUBGRADE) FOR RCP RUNNING UNDERACROSS THE PAVEMENT ARE 1' OR LESS, SPECIFY CLASS V RCP.</p> <p>SPECIFY A SINGLE CLASS OF RCP IN A SINGLE RUN OF PIPE.</p>								15"	1.0'	162'	204'				15"	1.0'	98'	123'	174'	224'	275'	15"	2.0'	20'	15"	1.0'	20'	15"	2.0'	30'	
									18"	1.0'	135'	169'	239'			18"	1.0'	81'	102'	144'	187'	228'	18"	2.0'	20'	18"	1.0'	20'	18"	2.0'	30'	
									24"	1.0'	100'	126'	178'			24"	1.0'	60'	76'	108'	139'	171'	24"	2.0'	20'	24"	1.0'	20'	24"	2.0'	30'	
									30"	1.0'	79'	100'	142'			30"	1.0'	60'	85'	111'	136'	166'	30"	2.0'	17'	30"	1.0'	20'	30"	2.0'	30'	
									36"	1.0'	65'	83'	117'	152'		36"	1.0'	50'	71'	92'	113'	136'	36"	2.0'	17'	36"	1.0'	20'	36"	2.0'	30'	
									42"	1.0'	55'	70'	100'	130'	160'	42"	1.0'		60'	78'	96'	113'	42"	2.0'	17'	42"	1.0'	20'				
									48"	1.0'	48'	61'	87'	113'	139'	48"	1.0'		52'	68'	84'	101'	48"	2.0'	17'	48"	1.0'	20'				
									54"	1.0'	54'	77'	100'	123'	154'	54"	1.0'		46'	50'	74'	94'	54"	2.0'	17'	54"	NA	NA				
									60"	1.0'			69'	90'	111'	60"	1.0'		50'	62'	80'	101'	60"	2.0'	17'	60"	1.0'	20'				
									66"	1.0'				81'	100'	66"	1.0'															
									72"	1.0'					74'	91'	72"	1.0'														
									78"	1.0'						81'																
									84"	1.0'						69'																
OPEN END CROSS PIPES									INTERSTATE ⁵	CAN BE USED		USE ONLY IF PIPE SLOPE IS GREATER THAN 10%						USE ONLY IF PIPE SLOPE IS GREATER THAN 10%						DO NOT USE								
	PRIMARY ⁵	CAN BE USED		CAN BE USED						CAN BE USED						USE ONLY IF TRAFFIC <15000 ADT & <200 DUALS & <100 TTST																
	SECONDARY	CAN BE USED		CAN BE USED						CAN BE USED						CAN BE USED																
STORM DRAIN SYSTEMS	INTERSTATE	CAN BE USED		USE ONLY AT SYSTEM INLETS & SYSTEM OUTLET IF PIPE SLOPE IS GREATER THAN 10%						USE ONLY AT SYSTEM INLETS & SYSTEM OUTLET IF PIPE SLOPE IS GREATER THAN 10%						DO NOT USE																
	PRIMARY	CAN BE USED		USE ONLY AT SYSTEM INLETS & SYSTEM OUTLET IF PIPE SLOPE IS GREATER THAN 10%						USE ONLY AT SYSTEM INLETS & SYSTEM OUTLET IF PIPE SLOPE IS GREATER THAN 10%						USE ONLY IF TRAFFIC <15000 ADT & <200 DUALS & <100 TTST																
	SECONDARY	CAN BE USED		USE ONLY AT SYSTEM INLETS & SYSTEM OUTLET IF PIPE SLOPE IS GREATER THAN 10%						USE ONLY AT SYSTEM INLETS & SYSTEM OUTLET IF PIPE SLOPE IS GREATER THAN 10%						CAN BE USED																
TRANSVERSE MEDIAN PIPES	INTERSTATE	CAN BE USED		USE ONLY IF PIPE SLOPE IS GREATER THAN 10%						USE ONLY IF PIPE SLOPE IS GREATER THAN 10%						DO NOT USE																
	PRIMARY	CAN BE USED		CAN BE USED						CAN BE USED						USE ONLY IF TRAFFIC <15000 ADT & <200 DUALS & <100 TTST																
	SECONDARY	CAN BE USED		CAN BE USED						CAN BE USED						CAN BE USED																
SLOPE DRAINS ⁶	INTERSTATE	DO NOT USE		CAN BE USED						CAN BE USED						CAN BE USED																
	PRIMARY	DO NOT USE		CAN BE USED						CAN BE USED						CAN BE USED																
	SECONDARY	DO NOT USE		CAN BE USED						CAN BE USED						CAN BE USED																
SIDE DRAINS	INTERSTATE	CAN BE USED		CAN BE USED						CAN BE USED						CAN BE USED																
	PRIMARY	CAN BE USED		CAN BE USED						CAN BE USED						CAN BE USED																
	SECONDARY	CAN BE USED		CAN BE USED						CAN BE USED						CAN BE USED																

1- RCP IS NOT ALLOWED FOR GRADES >10%
 2- FOR COUNTIES LISTED IN ARTICLE 310.10 OF THE STANDARD SPECIFICATIONS CSP IS NOT ALLOWED IN OTHER COUNTIES CSP REQUIRES AN ACCEPTABLE COATING IN ACCORDANCE WITH 1032-4.
 3- FOR DIFFERENT CORRUGATIONS AND ARCH PIPES REFER TO ROADWAY DESIGN MANUAL AND MANUFACTURERS SPECIFICATION.
 4- MINIMUM FILL HEIGHT IS MEASURED FROM TOP OF PIPE TO SUBGRADE.
 5- WHERE SITE CONDITIONS ALLOW:
 INCREASE PIPE DIAMETER OF OPEN END CROSS PIPES AND SECTIONS OF STORM SEWER SYSTEMS ACTING AS OPEN END CROSS PIPES, A MINIMUM OF ONE SIZE FOR FUTURE REHABILITATION. THIS IS IN ADDITION TO UPSIZING TO COMPENSATE FOR BURYING INVERTS FOR WILDLIFE PASSAGE.
 6- FOR PIPE RUNS WITH GREATER THAN 12" VERTICAL DROP TO DOWNSTREAM STRUCTURE PROVIDE A MEANS TO REDUCE RISK OF UNINTENDED ENTRY INTO UPSTREAM END OF PIPE.
 7- FILL HEIGHTS SHOWN WERE CALCULATED USING AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. JUSTIFY FILL HEIGHT OR DESIGN DEVIATIONS WITH STRUCTURAL DESIGN BASED ON AASHTO LRFD BRIDGE DESIGN OR ASTM STANDARDS. SUBMIT DESIGN SEALED BY AN NC PE FOR REVIEW & APPROVAL BY NCDOT.

INSTALLATION OF ALL PIPE TYPES IS SUBJECT TO THE INSTALLATION METHODS FOUND IN THE STANDARD DRAWINGS, STANDARD SPECIFICATIONS, HYDRAULICS GUIDELINES, AND CONTRACT DOCUMENTS; ACCOUNTING FOR SITE CONDITIONS SUCH AS SOIL PROPERTIES.

ALL PIPES TYPES ARE SUBJECT TO THE MAXIMUM AND MINIMUM FILL HEIGHT REQUIREMENTS AS FOUND IN CHAPTER 5 OF THE ROADWAY DESIGN MANUAL. THE APPROPRIATE CLASS OF PIPE FOR RCP AND GAUGE THICKNESS FOR CSP/CAAP SHOULD BE SELECTED BASED ON FILL HEIGHT.

SITE SPECIFIC CONDITIONS MAY LIMIT A PARTICULAR MATERIAL BEYOND WHAT IS IDENTIFIED IN THE TABLE. THESE CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO, ABRASION, ENVIRONMENTAL SOIL RESISTIVITY AND PH, HIGH GROUND WATER AND SPECIAL LOADING CONDITIONS. THE HYDRAULIC DESIGN ENGINEER WILL DETERMINE IF ADDITIONAL RESTRICTIONS ARE NECESSARY.

DEFINITIONS

SIDE DRAINS- STORM DRAIN PIPES RUNNING PARALLEL TO THE ROADWAY TO INCLUDE PIPES IN THE MEDIANS, OUTSIDE DITCHES, DRIVEWAYS AND UNDER SHOULDER BERM GUTTER ALONG OUTSIDE SHOULDERS GREATER THAN 4' WIDE. MAY OR MAY NOT BE OPEN ENDED. 1' MINIMUM COVER FOR ALL SIDE DRAIN PIPE IN ACCORDANCE WITH STANDARD SPECIFICATIONS.

STORM DRAIN SYSTEMS- LATERAL DRAIN PIPE UNDER CURB AND GUTTER, EXPRESSWAY GUTTER AND SHOULDER BERM GUTTER (WITH SHOULDERS 4' WIDE OR LESS) THAT CONNECT DRAINAGE STRUCTURES AND IS NOT OPEN ENDED. ALSO INCLUDES CROSS DRAIN CONNECTING TWO OR MORE SYSTEMS OR SYSTEM OUTLETS. ONLY PIPE WITH SMOOTH WALL INSIDE WALLS WILL BE ALLOWED FOR STORM DRAIN SYSTEMS.

TRANSVERSE MEDIAN PIPES- SHALLOW CROSS DRAIN PIPE THAT COLLECTS DRAINAGE IN A MEDIAN DITCH OR CURB SECTION AND DEPOSITS IT OUTSIDE DITCHES OR NATURAL DRAINAGE CHANNELS. MAY OR MAY NOT BE OPEN ENDED.

ALTERNATE PIPE- PIPE IN WHICH MATERIAL IS UNSPECIFIED ON THE DRAINAGE SUMMARY SHEET AND DRAINAGE PLANS.

HDPE- HIGH DENSITY POLYETHYLENE

PP- POLYPROPYLENE