Town of Southern Pines, North Carolina

Unified Development Ordinance

Appendices

Updated

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APPENDIX A: DEVELOPMENT APPLICATIONS

A. PURPOSE OF APPENDIX A

The purpose of this appendix is to prescribe the information necessary for complete development applications.

B. GENERAL REQUIREMENTS

No application for development approval shall be considered complete, and the Planning Director or any other agency or official of Southern Pines shall not process any application for development approval, unless all of the information required by this appendix is included in accordance with Chapter 2 of the UDO. The Planning Director or any other agency or official of the Southern Pines shall not delay the processing of any application for development approval if it contains the information prescribed by this Appendix.

1. Application Forms

The Planning Director may modify the application forms in this section to assist in the administration, interpretation, and enforcement of this UDO. The Planning Director shall maintain such forms at the offices of the planning department. The forms shall require the information set forth in this appendix for any application for development approval. Modification of other portions of these appendices may be authorized by the Town Manager.

2. Certifications

Where this section requires a certification and/or signature by the applicant, a professional, or a public agency or official, the signature lines shall be provided in the lower right-hand corner of the plans, plats, or other required documents.

3. Numbers of Copies

The numbers of prints are the minimum number of copies required. For most applications, involving plans, the Applicant shall submit four (4) full-sized copies of, one 11” by 17” copy and one digital copy. Additional copies may be required for applications requiring reviews by other agencies. The Director may authorize the submittal of a limited number of copies of documents at initial submittal and require the remainder prior to distribution to Reviewing and Hearing Bodies.

4. Digital Submittals Required

Digital submittals are required to minimize the number of paper copies and to facilitate accurate record keeping in the Town.

C. DEVELOPMENT APPLICATIONS AND SUBMITTAL REQUIREMENTS

The application forms and specific submittal requirements in this appendix are intended to implement the procedures established in Chapter 2 of the UDO. The information requirements listed in the applications are the minimum information required for certification of a complete application. The Applicant may wish to provide additional information to better demonstrate how the application satisfies the applicable review and approval criteria. Information that is deemed by the Town Manager to be immaterial to the evaluation of any specific application’s compliance with the applicable approval criteria may be waived.

D. DOCUMENTS AND WRITTEN INFORMATION IN ADDITION TO REQUIRED PLANS AND APPLICATIONS

In addition to the written application and the plans, whenever the nature of the proposed development makes information or documents such as the following relevant, such documents or information shall be provided. The following is a representative list of the types of information or documents that may be requested:

1. Documentation confirming that the applicant has a legally sufficient interest in the property proposed for development to use it in the manner requested or is the duly appointed agent of such a person.

2. Certifications from the appropriate agencies that proposed utility systems are or will be adequate to handle the proposed development and that all necessary easements have been provided.

3. Detailed descriptions of play apparatus or other recreational facilities to be provided in recreational areas.

4. Legal documentation establishing homeowners associations or other legal entities responsible for control over required common areas and facilities.

5. Bonds, letters of credit or other surety devices.

6. Names and addresses of all those to whom notice of a public hearing must be mailed per section 2.10.3.

7. Complete documentation justifying any requested deviation from specific requirements established by the UDO as presumptively satisfying design standards.

8. Written evidence of permission to use satellite-parking spaces under the control of a person other than the developer when such spaces are allowed.

9. The environmental impact of a development, including its effect on historically significant or ecologically fragile or important areas and its impact on pedestrian or traffic safety or congestion.

10. If any street is proposed to intersect with a state maintained road, a copy of the application for driveway approval as required by the Department of Transportation, Division of Highways Manual on Driveway Regulations.

E. DIGITAL SUBMITTAL REQUIREMENTS

1. Generally

Site plans, building permit applications and subdivision drawings shall be submitted in hard copy and digital format to assist in public record keeping, to facilitate ongoing administration of this UDO and to improve delivery of ongoing public facilities and services. The Applicant shall bear no liability for The Town's subsequent use of digital data and the Town reserves the right to modify data to improve the operations of its Geographic Information System (GIS).

2. Building Permit, Site Plan and PDD Development Plan Submittals

Applications that include building construction plans, plot plans, site plans, building elevations and PDD development plans and sketch plans shall include those drawings in PDF format at sufficient resolution for all text to be legible.

3. Subdivision Submittals

a) Plat information shall be provided to Southern Pines in two forms: hard-copy subdivision plat sheets and digital plat data. The purpose of the digital plat data requirement is to coordinate with Southern Pines' GIS program and is to be used for information only.

b) Digital data for Preliminary and Final Plats will consist of graphical elements representing the hard-copy subdivision plat. The applicant shall provide digital data before the subdivision plat is recorded.

c) The digital data submittal shall include the subdivision boundaries, all parcel boundaries, all rights-of-way, easements, control points and labels.

d) The digital data submittals are subject to review and approval as a condition to the subdivision plat review and approval process. The X-Y coordinates indicated with the initial submittal are subject to approval. If an error is found to exist in the digital data that Southern Pines cannot correct, or if the digital data are otherwise unacceptable, Southern Pines will contact the applicant to have the digital data corrected.

e) For required engineering plans, horizontal data for water lines, sewer lines, drainage features, street cross-sections, easements and right-of-way boundaries shall be submitted in one of the compatible GIS formats and to the accuracy standards for the plat subdivision plat data. Digital data for engineering details and vertical alignments may be submitted in PDF format or any of the formats listed under paragraph 5.

4. **Subdivision Data Requirements**

Data shall be separated into the feature categories as defined in **Table A-1**, each residing on its own unique shapefile, level or layer. Any layer name or level number is acceptable as long as each feature set is on its own individual layer or level. All lines and curves used to represent lot, parcel or subdivision boundaries shall establish closed polygons with no breaks.

Table A- 1: Element Types

Feature	Element Type
Subdivision boundary data	Lines and curves
Control points and ties to boundary text	Points
Text*	Text
Primary lot line data	Lines and curves
Right-of-way centerline data	Lines and curves
Right-of-way data	Lines and curves
Easement data	Lines and curves

***Includes lot and block designations, street names, easement and right-of-way labels. Subdivision plat certification data are not required to be included in the digital plat data.**

5. **Formats for Graphical Data**

Any of the following formats are allowed for digital plat data submitted to the Planning Director:

a) Shapefiles (ESRI): This file format is used by ESRI products. This is the preferred media for Southern Pines. All data files associated with required shapes shall be submitted with the SHP files unless otherwise approved by the Town's GIS Support Specialist.

b) DWG (AutoCAD) (Autodesk): This file format is used by Autodesk with their AutoCAD product. These files may be used provided that the data is in state plane coordinates (NAD 83).

c) DXF (generic): DXF (Drawing Exchange File) is an exchange format developed by Autodesk for use with their AutoCAD product. This format is the preferred exchange format for organizations that use graphics software provided by vendors other than Bentley or Autodesk. Only the ASCII output file option will be accepted for this exchange format provided that the data is in state plane coordinates..

6. **Media Requirements and File Creation**

The Town shall accept files on compact discs (CDs), digital video discs (DVDs), or Universal Serial Bus (USB) flash drives. Files shall be produced using Windows ® output formats. WinZip® may be used to compress the files being submitted. CDs, DVDs, and USB flash drives shall be labeled with the following information: plat or plan identification number assigned by the planning department; subdivision name; number of files (sheets) on the CD, DVD, or USB flash drive; file creation date; company name; and contact name and phone number.

7. **Use of Digital Data**

Southern Pines staff may make minor corrections to the digital data if the file needs correcting due to minor differences between the hard-copy plats and the digital data, or if other minor errors, such as layering errors, are detected. In instances where differences exist, the information provided on the hard-copy plats will take precedence over the digital information. The digital information has no legal significance.

8. **Control Points and Monumentation Guidelines**

a) Primary horizontal control points will be used when surveying each tract being subdivided. These primary horizontal control points must be established by using centimeter-grade accuracy Global Positioning System devices, procedures, and methods that meet the state standards. New primary horizontal control points must be established and monumented for each subdivision.

b) Primary horizontal control points shall be tied to at least one National Geodetic Survey mark and the point will be identified as the datum point on both the hard-copy and digital plat submittals.

c) The minimum number of required primary horizontal control points (reference corners) is based upon the overall plat size in acres as described in Table A-2.

d) The plat must include the X-Y coordinates for each of the primary horizontal control points, and consistent and appropriate bearings between each of the primary horizontal control points. These primary horizontal control points will be provided in NAD 1983 State Plane North Carolina FIPS 3200 feet.

e) All primary horizontal control points shall be permanently identified with monumentation set to minimum state standards.

Table A- 2: Horizontal Control Points

Plat Size	Number of Points
20 acres or less	2 points
20+ to 50 acres	3 points
More than 50 acres	4 points

9. **Digital Requirements for Street and Drainage Engineering Plan Submittals**

a) Street and drainage engineering plan drawings shall be provided to the Town as traditional hard-copy Mylar drawings and as drawing digital data. The purpose of the drawing digital data requirement is to allow for improved document storage, retrieval, and review within various Southern Pines departments, and is to be used for information purposes only. Unlike the hard-copy documents that are signed and sealed legal documents, the drawing digital data will have no legal significance. However, the drawing digital data may be used to assist Town employees in analyzing, understanding, interpreting, and presenting the data.

b) Drawing digital data will consist of the graphical elements represented on the final hard-copy street and drainage Engineering Plans submitted to the Town. Signatures, seals, stamps, and other non-graphical drawing elements are not required as part of the drawing digital data submittal.

c) Drawing digital data submittals, delivered to the Town on electronic media, are required as a condition to the final approval of the street and drainage drawing set. If the Town determines that an error is found to exist in the digital data, including the inability to read the media on which the drawing data are delivered, discrepancies between the hard-copy drawings and the digital data, or if the digital data are otherwise unacceptable, the Town will contact the applicant to have the digital data corrected and/ or redelivered to the Town prior to public works approval of the final plat.

d) The Town Engineer will provide standard details in a digital format to anyone requesting the files. The request must be in writing and indicate the preferred file format (ESRI, AutoCad (DWG), or generic (DXF) format). These files may be e-mailed to the requestor, or provided on electronic media.

COMPREHENSIVE PLAN AMENDMENT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Planning Director		**X**	
Planning Board		**X**	
Town Council			**X**
X = *indicates required action*			
● = *indicates documentation that may be applicable based on impact.*			

Submittal Requirements*

Please include the following information on all applications for a Comprehensive Plan Amendment. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** *(if applicable)* – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DESCRIPTION OF PROPOSED COMPREHENSIVE PLAN AMENDMENT** – Proposed changes to the text and/or maps in the Plan.
- ☐ **REASONS FOR PROPOSED COMPREHENSIVE PLAN AMENDMENT** – Describe the need for the proposed changes to the text and/or maps in the Plan.
- ☐ **APPLICATION FEE** – As specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the property owner or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in Section 2.15 of the UDO.

**Additional information may be required. Fees are subject to change.*

UNIFIED DEVELOPMENT ORDINANCE TEXT AMENDMENT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Planning Director		**X**	
Planning Board		**X**	
Town Council			**X**
X = ***indicates required action***			
● = ***indicates documentation that may be applicable based on impact.***			

Submittal Requirements*

Please include the following information on all applications for a UDO Text Amendment. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **DESCRIPTION OF PROPOSED UNIFIED DEVELOPMENT ORDINANCE TEXT AMENDMENT** – Proposed changes to the UDO text.
- ☐ **REASONS FOR PROPOSED UDO TEXT AMENDMENT** – Describe the need for the proposed changes to the UDO text.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.16.

**Additional information may be required. Fees are subject to change.*

ZONING MAP AMENDMENT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director		X	
Planning Board		X	
Town Council			X
X = *indicates required action*			
● = *indicates action that may be applicable based on potential impacts.*			

Submittal Requirements*

Please include the following information on all applications for a Zoning Map Amendment. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **REASONS FOR PROPOSED ZONING MAP AMENDMENT** – Describe the need for the proposed changes to the zoning map.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **NOTIFICATION MATERIALS** – List of the owners of all property located within 200 feet of the perimeter of the property being rezoned and including not fewer that the 10 closest property owners.
- ☐ **SITE PLAN FOR CONDITIONAL ZONING TO MULTI-FAMILY, MIXED USE AND NON-RESIDENTIAL DISTRICTS** – see site plan checklist. Applicant shall submit 4 copies of the site plan at a scale of 1" to 100' or other scale approved by the Director, one copy of the site plan on an 11" by 17" sheet and a digital copy of the site plan meeting the digital submittal requirements.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.16 of the UDO.

**Additional information may be required. Fees are subject to change.*

PLANNED DEVELOPMENT DISTRICT CONCEPTUAL DEVELOPMENT PLAN APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Director	**X**		
Planning Board		**X**	
Town Council			**X**
X = ***indicates required action***			
● = ***indicates action that may be applicable based on potential impacts.***			

Submittal Requirements*

Please include the following information on all applications for a PDD Conceptual Development Plan. If any of the information or required materials is missing or incomplete, the application will not be processed.

☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.

☐ **DEVELOPOMENT NAME** (if applicable) – The proposed name must be unique and not similar to an existing subdivision in the Town.

☐ **NOTIFICATION MATERIALS –** List of the owners of all property located within 200 feet of the perimeter of the property being rezoned and including not fewer that the 10 closest property owners.

☐ **NEIGHBORHOOD MEETING RECORDS** – Records shall include the following:

a. Copies of graphics presented at the meeting;
b. A copy of the sign-in sheet showing attendees;
c. Representations made by the Applicant regarding the proposed development; and
d. A summary of public comments and responses provided by the Applicant.

☐ **PDD CONCEPTUAL DEVELOPMENT PLAN** – Copies (4 full sized, 1 11" by 17" copy and digital copy) of scaled drawing (1" to 100' or other scale approved by the Director) of the entire tract to be subdivided showing:

a. property boundaries;
b. a project location map at a scale of one (1) inch equals two thousand (2,000) feet or other scale approved by the Director;
c. the location and right-of-way width of public streets and roads adjoining, providing access to, or crossing the property;
d. the location and proposed functional classification of proposed public and private streets;
e. the location and size of proposed development areas, their proposed uses, amount of development (maximum dwelling units for residential, maximum square footage of

building area for non-residential) and proposed Built-Upon Area for each development area if within Watershed Protection Overlay District;

f. the location and area of common areas, open spaces and water bodies;
g. the location of easements for pipelines, utilities, drainage or other purposes; and
h. proposed phasing schedule for development and infrastructure and delivery of building lots, if applicable.

☐ **NATURE OF SERVICES** – Planned utility services and providers.

☐ **DRAINAGE CONCEPT PLAN** *(if applicable)* - see separate checklist.

☐ **CONCEPTUAL TRANSPORTATION PLAN** *(if applicable)* - see separate checklist.

☐ **WRITTEN NARRATIVE** - describing the application's consistency with the Conceptual Development Plan, the UDO, and any other applicable regulations.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.17 of the UDO.

**Additional information may be required. Fees are subject to change.*

PLANNED DEVELOPMENT OVERLAY DISTRICT PRELIMINARY DEVELOPMENT PLAN APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Director	**X**		
Planning Board		**X**	
Town Council			**X**
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all applications for a Planned Development – Preliminary Development Plan. If any of the information or required materials is missing or incomplete, the application will not be processed.

GENERAL*

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DEVELOPMENT NAME** (if applicable) – The proposed name must be unique and not similar to an existing subdivision in the Town.
- ☐ **NOTIFICATION MATERIALS –** List of the owners of all property located within 200 feet of the perimeter of the property being rezoned and including not fewer that the 10 closest property owners.
- ☐ **NEIGHBORHOOD MEETING RECORDS** – If not provided in conjunction with an application for conceptual development plan approval or if additional meetings have been held, records shall include the following:
  a. Copies of graphics presented at the meeting;
  b. A copy of the sign-in sheet showing attendees;
  c. Representations made by the Applicant regarding the proposed development; and
  d. A summary of public comments and responses provided by the Applicant.
- ☐ **PDD PRELIMINARY DEVELOPMENT PLAN** – Copies (4 full sized, 1 11" by 17" copy and digital copy) of a preliminary plat (see preliminary plat checklist) or scaled drawings (1" to 100' or other scale approved by the Director) of the entire tract to be subdivided showing:
  a. property boundaries;
  b. a project location map at a scale of one (1) inch equals two thousand (2,000) feet or other scale approved by the Director;
  c. locations, functional classes and right-of-way widths of public and private streets adjoining, providing access to, or crossing the property;
  d. locations, functional classes and right-of-way widths of proposed public and private streets;
  e. locations of proposed blocks, their proposed uses, amount of development (maximum dwelling units for residential, maximum square footage of building area for non-residential) and proposed Built-Upon Area for each proposed block if within Watershed Protection Overlay District;

f. locations and area of wooded areas. floodplains, floodways, common areas, open spaces and water bodies;
g. locations of easements for pipelines, utilities, drainage or other purposes;
h. general layout of non-residential development;
i. topographic contour lines at two-foot intervals unless otherwise approved by the Planning Director;
j. changes to the proposed phasing plan or approved Conceptual Development Plan (if applicable); and
k. proposed development standards applicable to each lot or type of lot.

☐ **DRAINAGE CONCEPT PLAN** *(if applicable)* – see separate checklist.

☐ **TRAFFIC IMPACT/DESIGN ANALYSIS AND TOWN ENGINEER'S REPORT** *(if applicable)* – see section 4.12 of the UDO.

☐ **WRITTEN NARRATIVE** - describing the application's consistency with the Conceptual Development Plan, the UDO, and any other applicable regulations.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.17 of the UDO.

**Additional information may be required. Fees are subject to change.*

PLANNED DEVELOPMENT DISTRICT FINAL DEVELOPMENT PLAN APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Director		**X**	
Planning Board		**X**	
Town Council			**X**
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all applications for a Planned Development – Final Development Plan. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DEVELOPMENT NAME** (if applicable) – The proposed name must be unique and not similar to an existing subdivision in the Town, including within incorporated communities.
- ☐ **PDD FINAL DEVELOPMENT PLAN** – Copies (4 full sized, 1 11" by 17" copy and digital copy) of scaled drawings (1" to 100' or other scale approved by the Director) of the entire tract to be subdivided showing:
  a. property boundaries;
  b. a project location map at a scale of one (1) inch equals two thousand (2,000) feet or other scale approved by the Director;
  c. locations, dimensions and right-of-way widths of existing and proposed public and private streets adjoining, providing access to, or crossing the property;
  l. locations and sizes of proposed lots, their proposed uses, amount of development (maximum dwelling units for residential, maximum square footage of building area for non-residential) and proposed Built-Upon Area for each proposed lot if within Watershed Protection Overlay District;
  d. locations, boundaries and proposed uses of common areas, open spaces and water bodies;
  e. locations of all existing and proposed easements;
  f. locations, building and site layout of all multi-family and non-residential lots showing building footprints, vehicle use areas, lot access, landscaping and buffer areas ;
  g. proposed building and site design standards and sample elevations; and applicable development covenants and restrictions.
- ☐ **APPROVED PRELIMINARY DEVELOPMENT PLAN –** showing modifications required as a condition of approval
- ☐ **APPROVED PRELIMINARY PLAT FOR THE ENTIRE SITE** – see separate checklist.
- ☐ **APPROVED ENGINEERING PLANS** *(if final plat approval is being sought)* – see separate checklist.
- ☐ **FINAL PLAT** *(if applicable)* – see separate checklist.
- ☐ **ARCHITECTURAL COMPLIANCE PERMIT APPLICATION** *(if applicable)* – see separate checklist.
- ☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **ADDITIONAL DOCUMENTATION** – Additional agreements, text and/or maps provided to demonstrate consistency with the approval criteria in section 2.17 of this UDO.

**Additional information may be required. Fees are subject to change.*

MAJOR SUBDIVISION – SKETCH PLAN APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Director		**X**	
Planning Board			**X**
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all applications for a Major Subdivision – Conceptual Plan. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **SKETCH PLAN** – Copies (4 full sized, 1 11" by 17" copy and digital copy) of drawings at a scale of 1"= 100' or other scale approved by the Director and shall include:
  a. The proposed subdivision name, which may not duplicate, or be similar to, any existing subdivision in the Town, as determined by the Director;
  b. The legal description of the property to be subdivided;
  c. A sketch of the entire tract to be subdivided showing boundaries at an appropriate scale that includes:
     i. a location map at a scale of 1" = 2000' or other scale approved by the Director;
     ii. locations of the public streets and roads adjoining, providing access to or crossing the property;
     iii. arrangement of proposed streets;
     iv. easements for pipelines, utilities, drainage or other purposes, and other existing features affecting the proposed subdivision property;
     v. proposed use or uses, amount and intensity of uses for each development area;
     vi. locations of existing and proposed water bodies and drainage conveyances;
  d. The phasing schedule for development of subareas, describing the location, sequencing and timing of infrastructure improvements and lot development for subareas of an overall proposed subdivision.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.19 of this UDO.

**Additional information may be required. Fees are subject to change.*

MAJOR SUBDIVISION PRELIMINARY PLAT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director		X	
Planning Board		X	
Town Council			X

X = ***indicates required actions***

● = ***indicates actions that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Major Subdivision – Preliminary Plat. If any of the information or required materials is missing or incomplete, the application will not be processed.

☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.

☐ **PRELIMINARY PLAT** – Copies (4 full sized, 1 11" by 17" copy and digital copy) of drawings at a scale of 1" = 100' unless otherwise approved by the Director and shall include:

a. Name of the proposed subdivision owner, applicant and developer;
b. Name of the plat preparer;
c. Legal description of the property, including the location of the property by reference to governmental section, township and range;
d. A north arrow and scale;
e. A location map showing the property at a scale of 1" = 2,000';
f. Proposed street names, which may not duplicate or be substantially similar to any existing streets in the Town as determined by the Director;
g. Lot and block numbers;
h. Alignment and dimensions of proposed lots, blocks, existing and proposed streets, and easements that adjoin, traverse, or are included in the proposed subdivision;
i. Property lines of adjacent properties within 100 feet of the perimeter of the subdivision;
j. Number of lots and intended use of lots that corresponds with zoning;
k. Boundaries of open space, common areas; greenways and other subdivision amenities;
l. Location and extent of existing and proposed boundaries of floodways and floodplains;
m. All portions of subdivision located within a wetland;
n. All portions of subdivision located within a wetland or area with a slope greater than 30 percent;
o. Locations and approximate alignments of water, wastewater and stormwater utilities;
p. Topographic contour lines at two-foot intervals or as otherwise approved by the Planning Director; and

q. A phasing schedule describing the location, sequencing and timing of infrastructure improvements and lot development for subareas of the proposed subdivision *(if applicable)*.

☐ **UTILITY LETTERS** – letters confirming the availability of service and improvements necessary to provide water, wastewater, natural gas or telecommunications services (not needed for Town services).

☐ **COVENANTS & RESTRICTIONS** *(if applicable)* – a copy of proposed private property restrictions.

☐ **DRAINAGE CONCEPT PLAN** *(if applicable)* – see drainage impact analysis checklist.

☐ **TRAFFIC IMPACT /DESIGN ANALYSIS AND TOWN ENGINEER'S REPORT** *(if applicable)* – see section 4.12 of the UDO.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.19 of this UDO.

**Additional information may be required. Fees are subject to change.*

MAJOR SUBDIVISION ENGINEERING PLANS APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee		**X**	
Town Engineer			**X**
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all applications for a Major Subdivision – Engineering Plans. If any of the information or required materials is missing or incomplete, the application will not be processed.

☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.

☐ **EASEMENTS/RIGHTS-OF-WAY** – shall include separate legal instrument when off-site improvements require easements or rights-of-way.

☐ **ENGINEERING PLANS** – Copies (4 full sized copies and 1 digital copy) of Engineering Plans shall be signed and sealed by a professional engineer in the State of North Carolina (and registered landscape architect as applicable), shall be drawn on 24" by 36" sheets and shall include:

a. Copies of the detailed layout and Engineering Plans and specifications for the proposed subdivision;
b. The name of the proposed subdivision and the name of the owner, developer and applicant;
c. The name of the individuals who surveyed the property and prepared, stamped, signed and sealed the plans and specifications;
d. A copy of the approved preliminary plat, reflecting required amendments;
e. The location and description of existing and proposed sewerage facilities, if any central sewerage collection, treatment and disposal system is planned;
f. Plans showing the dimensions, as well as the proposed vertical and horizontal alignments of water, sewer, gas, electrical and telecommunications lines;
g. Location and construction details of all utility appurtenances, including, but not limited to switches, valves, pumps, and manholes;
h. The proposed location and design of light standards and fire hydrants;
i. Specifications of the proposed improvements, including typical street cross-sections, utilities, and the materials to be used in such improvements;
j. Horizontal alignments of all streets and sidewalks;
k. Details of plans for sewerage disposal, tie-in to existing collection systems, construction of a new collection and disposal system, use of lagoons, lift stations, force mains, etc.;
l. Information required to demonstrate compliance with the drainage requirements of Chapter 4 of this UDO;
m. A phasing schedule describing the location, sequencing and timing of infrastructure improvements and lot development for subareas of an overall proposed subdivision *(if applicable)*; and

n. Copies of the proposed covenants or restrictions governing the use of the property and the construction of improvements in the subdivisions.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.19 of this UDO.

**Additional information may be required. Fees are subject to change.*

MAJOR SUBDIVISION – FINAL PLAT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Director		**X**	
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all applications for a Major Subdivision – Final Plat. If any of the information or required materials is missing or incomplete, the application will not be processed.

☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.

☐ **FINAL PLAT** – Copies (1 full sized copy and 1 digital copy) drawn at a scale of 1" = 100' on sheets with maximum dimensions not exceeding 24 inches by 36 inches. If more than two sheets are required, an index sheet of the same dimensions shall be filed showing the entire subdivision on one sheet and the component areas shown on the other sheets. The plat shall contain the following information:

a. Name of the subdivision;
b. The name of the owner or owners, or subdividers;
c. Date, scale and north arrow, on each page. Each sheet of the plat shall indicate its page number in relation to the total number of sheets;
d. The correct legal description of the property being subdivided shall be shown on the Plat;
e. Accurate references to known or permanent monuments, giving the bearing and distance from said monuments and State Plane coordinates of at least two subdivision corners;
f. The location of all survey monuments and their descriptions;
g. All dimensions, both linear and angular, necessary for locating the boundaries of the subdivision, lots, streets, alleys, easements and other areas for public or private use. Linear dimensions are to be given to the nearest 1/100th of a foot. The radii, arcs or chords, points of tangency and central angles for all curvilinear streets and radii for rounded corners;
h. The names, lines and right-of-way widths of all proposed streets with accurate dimensions in feet and hundredths of feet with angles to right-of-way lines and lot lines;
i. The location of the subdivision based on an accurate traverse giving angular and linear dimensions which shall mathematically close. Bearings and distances of all exterior boundary lines and along the center lines of streets shall be furnished;
j. Accurate location of all existing and recorded roads intersecting the boundaries of the tract;
k. The gross area, net area and lot area of the land being subdivided;
l. The boundary lines of all adjoining lands for a distance of 150 feet and showing (with dotted lines) the right-of-way lines, adjacent streets and alleys with their widths and names, and adjacent zoning districts;

m. Easements and easements for rights-of-way provided for public use, services or utilities, with figures showing their dimensions and listing uses that are being provided and any limitations on such easement;
n. Clearly numbered lots in sequence and blocks clearly lettered in sequence;
o. The location of floodplain boundaries, as applicable;
p. A statement dedicating all easements, streets alleys and other public areas not previously dedicated, including an accurate outline of any portions of the property intended to be dedicated or granted for public use;
q. Appropriate certificates as determined by the Town Attorney. These certificates shall include, but not be limited to:
   (1) Certification signed and dated by a licensed North Carolina Land Surveyor;
   (2) Certificate of Approval (see template below)
   (3) Certification of platting signed and dated by the owner, appearing on or attached to the plat and on all separate sheets comprising the plat, acknowledging the dedication to public use of all streets, alleys, parks or other open spaces shown thereon and the granting of easements required;
   (4) Certificate of Survey and Accuracy (see template below);
   (5) NCDOT Certification (for streets proposed as public that are outside of municipal corporate limits, see template below); and
   (6) Review Officer Certification (see template below).

Certificate of Approval

I hereby certify that all streets shown on this plat are within the Town of Southern Pines' planning jurisdiction, all streets and other improvements shown on this plat have been installed or completed or that their installation or completion (within twelve months after the date below) has been assured by the posting of a performance bond or other sufficient surety, and that the subdivision shown on this plat is in all respects in compliance with the Southern Pines Town Unified Development Ordinance, and therefore this plat has been approved by the Southern Pines Planning Director, subject to its being recorded in the Moore County Registry within sixty days of the date below.

_____

Date Planning Director

Certificate of Ownership and Dedication:

I hereby certify that I am the owner of the property described hereon, which property is located within the subdivision regulation jurisdiction of the Town of Southern Pines, that I hereby freely adopt this plan of subdivision and dedicate to public use all areas shown on this plat as streets, alleys, walks, parks, open space and easements, except those specifically indicated as private and that I will maintain all such areas until the offer of dedication is accepted by the appropriate public authority. All property shown on this plat as dedicated for a public use shall be deemed to be dedicated for any other public use authorized by law when such other use is approved by the Southern Pines Town Council in the public interest.

_____

Date Owner

Certificate of Survey and Accuracy:

I,_____, certify that this plat was drawn under my supervision from an actual survey made under my supervision. (Deed description recorded in Book_____ , Page _____, etc. (other); that the boundaries not surveyed are clearly indicated as drawn from information found in Book _____, Page _____; that the ratio of precision or positional accuracy as calculated is_____; that this plat was prepared in accordance with G.S. § 47-30. Witness my original signature, license number and seal this _____day of_____, A.D. 20____.

Seal or Stamp

_____

Land Surveyor

_____

License Number

Division of Highways District Engineer Certificate

I hereby certify that the public streets shown on this plat have been completed, or that a performance bond or other sufficient surety has been posted to guarantee their completion, in accordance with at least the minimum specifications and standards in accordance with at least the minimum specifications and standards of the State Department of Transportation for acceptance of subdivision streets on the state highway system for maintenance.

_____

Date District Engineer

Certificate of Review Officer

Certificate of Review Officer

I, _____, Review officer of _____ County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

_____

_____Review Officer

Date: _____

☐ **DEVELOPMENT AGREEMENT** *(if applicable)* – approved as to form by the Town Attorney.

☐ **SUBDIVISION IMPROVEMENT AGREEMENT**, (if applicable) – Copy of Agreement as prepared by applicant and approved to form by Town Attorney as well as acceptable security, per section 2.20.7.

☐ **STREET NAME APPROVAL,** (if applicable) – Formal written approval from Moore County Public Safety and Moore County GIS of street names within subdivisions.

☐ **APPROVED ENGINEERING PLANS**, or as-built plans, conforming with the requirements of the UDO, for all streets, grading, sanitary sewerage system, storm drainage facilities, water distribution system, and other pertinent site improvements.

☐ **COVENANTS AND RESTRICTIONS** *(if applicable)* – two copies of all covenants and restrictions and, if applicable, articles of incorporation and bylaws of a homeowner's association for the proposed subdivision;

☐ **HOMEOWNERS ASSOCIATION DOCUMENTATION** *(if applicable)* – homeowners' association articles of incorporation and/or bylaws shall contain the following information:

a. The legal description of the common land;
b. A description of common facilities;
c. The restrictions placed upon the use and enjoyment of the lands or facilities;
d. Persons or entities entitled to enforce the restrictions;
e. A mechanism to assess and enforce the common expenses for the land or facilities (e.g., utility systems, private roads and other public or quasi-public improvements) including upkeep and maintenance expenses, real estate taxes and insurance premiums;
f. A mechanism for resolving disputes among the owners or association members;
g. The conditions and timing of the transfer of ownership and control of land facilities to the association;
h. Any other matter the developer deems appropriate.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **PUBLIC UTILITY EASEMENTS (if applicable)** – copies of utility easements granting the Town of Southern Pines access for future operations and maintenance of utilities.

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.19 of this UDO.

**Additional information may be required. Fees are subject to change.*

UDO CONDITIONAL USE PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Director		**X**	
Planning Board		**X**	
Town Council			**X**
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all applications for a Conditional Use Permit. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DESCRIPTION AND JUSTIFICATION FOR THE NEED FOR THE CUP**
- ☐ **SITE PLAN** – see site plan checklist. Not applicable to Major Subdivisions.
- ☐ **PRELIMINARY PLAT** – see Preliminary Plat checklist. Not applicable to CUPs for development on a single Lot or Parcel
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.20 of the UDO.

**Additional information may be required. Fees are subject to change.*

UDO VARIANCE APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director		**X**	
Planning Board			**X**
X = ***indicates required action***			
● = ***indicates action that may be applicable based on impacts***			

Submittal Requirements*

Please include the following information on all applications for a Zoning Variance. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DESCRIPTION AND JUSTIFICATION FOR THE VARIANCE** – Specific description of the variance sought and the justification addressing the variance criteria in Section 2.21.
- ☐ **SITE PLAN** – see site plan checklist.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 3.05.06.

**Additional information may be required. Fees are subject to change.*

APPEALS OF STAFF DETERMINATION APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director		**X**	
Planning Board			**X**
X = ***indicates required action***			
● = ***indicates action that may be applicable based on impacts.***			

Submittal Requirements*

Please include the following information on all applications for an Appeals of Staff Determination. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DESCRIPTION AND JUSTIFICATION FOR THE APPEAL REQUESTED** – Specific description of the grounds for the appeal to include the identification of specific provisions being relied upon by the applicant.
- ☐ **APPLICATION FEE** – as specified in Appendix ___.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.22 of the UDO.

**Additional information may be required. Fees are subject to change.*

VESTED RIGHTS DETERMINATION APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Planning Director	**X**		
Town Council			**X**

X = ***indicates required action***

● = ***indicates action that may be applicable based on development impact***

Submittal Requirements*

Please include the following information on all applications for a Vested Rights Determination. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DESCRIPTION AND JUSTIFICATION FOR THE VESTED RIGHTS CLAIM** – Describe the specific facts, actions and determinations being relied upon by the applicant for the vested rights claim.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.23 of the UDO.

**Additional information may be required. Fees are subject to change.*

ARCHITECTURAL COMPLIANCE PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director		**X**	
Town Council			**X**

X = ***indicates required action***

● = ***indicates action that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Architectural Compliance Permit. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **SITE PLAN** – see site plan checklist.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.25.

**Additional information may be required. Fees are subject to change.*

CERTIFICATE OF APPROPRIATENESS APPLICATION CHECKLIST

The Planning Director shall determine whether the application is for Major or Minor Work based on the following definitions (see subsequent tables for guidance). No certificate of appropriateness is required for ordinary maintenance.

(1) **Major Work:** Exterior work that is involves a significant alteration, addition, reconstruction or demolition of an existing building or structure, or the erection of new buildings or structures.

(2) **Minor Work:** Exterior work that involves the repair and/or partial replacement of an architectural feature or building element, but does not involve a significant alteration ior addition to the existing building or structure. All Minor Work shall be undertaken in accordance with adopted design guidelines. In addition, Minor Work shall include alterations and new construction of significant landscape and natural features.

(3) **Ordinary Maintenance:** Exterior work that is undertaken on a frequent and routine basis to maintain the functional and structural integrity of an existing building, structure, or architectural or appurtenant features. Ordinary Maintenance is defined further as being repair work that maintains, and does not change, the architectural material, design, style, size and scale, arrangement, detailing or texture of the feature.

Process Overview

Decision Making Body	Review	Recommend	Decision
Application Review for Major Works			
Technical Review Committee	●		
Director		X	
Historic District Commission			X
Application Review for Minor Works			
Technical Review Committee	●		
Director			X

X = ***indicates required action***

● = ***indicates action that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Certificate of Appropriateness. If any of the information or required materials is missing or incomplete, the application will not be processed.

☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.

☐ **NOTICE –** for major works only

☐ **SITE PLAN** – see site plan checklist.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.27 or 2.43.

**Additional information may be required. Fees are subject to change.*

Work Procedures for Certificates of Appropriateness

Type of Work	Ordinary Maintenance	Minor Work	Major Work	Design Guidelines Reference
Addition, New			■	*New Additions/Buildings*
Building, New			■	*New Additions/Buildings*
Deck				*Accessory Structures*
New, Rear		■		
New, Side			■	
Repair	■			
Rebuild, Rear or Side		■		
Demolition			■	*Demolition*
Doors				*Doors and Windows*
New			■	
Repair	■			
Replace			■	
Fencing, Low Walls				*Landscape, Site Development*
New, Rear or Side		■		
New, Front			■	
Repair	■			
Rebuild		■		
Foundation				*Walls and Foundations*
Repair	■			
Rebuild			■	
Replace			■	
Garage				*Accessory Structures*
New, Rear or Side			■	
Repair	■			
Rebuild		■		
Gutters and Downspouts				*Roofs*
Repair	■			
Replace			■	
Lighting				*Lighting, Accessory Structures, Storefronts*
Repair	■			
New Exterior, Residential		■		
New Exterior, Commercial			■	
Masonry				*Walls and Foundations, Roofs , Chimneys*
Repair	■			
Repoint			■	
Rebuild			■	
Painting				*Facades and Storefronts*
Repaint, Same Color and Placement	■			
Repaint, Approved Color and Placement		■		
Repaint, New Color			■	
Paint Previously Unpainted Surface			■	

Type of Work	Ordinary Maintenance	Minor Work	Major Work	Design Guidelines Reference
Parking				*Site Development*
Resurfacing, Commercial		■		
New Driveway or Lot			■	
New Landscaping		■		
Porches				*Porches*
Repair	■			
Rebuild		■		
Replace			■	
Enclose			■	
Remove			■	
Roof				*Roofs*
Repair	■			
Replace Same Materials		■		
Replace Different Materials			■	
Rebuild			■	
New Structure (skylight, solar panel, roof access structure, etc.)			■	
Siding				*Walls, Storefronts*
Repair	■			
Replace			■	
New Material			■	
Sign				*Signs*
Repair Existing	■			
Replace Existing signboard with different lettering		■		
New Structure or Placement			■	
Stairs				*Accessory Structures, Porches*
Repair	■			
Rebuild		■		
New, Rear		■		
New, Front or Side			■	
Storefronts				
Repair	■			
Rebuild			■	
New			■	
Walks, Patios, Driveways				*Landscape*
Repair	■			
New, Rear		■		
New, Front or Side			■	
Windows				*Windows and Doors, Walls*
Repair	■			
Rebuild			■	
Replace			■	
New			■	

Type of Work	Ordinary Maintenance	Minor Work	Major Work	Design Guidelines Reference
Vegetation				*Landscape*
Pruning	■			
New Tree Planting		■		
Tree Removal			■	
Landscape & Site Work				*Landscape, Site Development*
Curb & Gutter - Patching, Replace Same	■			
Curb & Gutter - New Material		■		
Parks & Parkways - Maintain, Repair, Replace same equipment or furnishings	■			
Parks & Parkways – New site furnishings, walks, steps, paving			■	
Sidewalks (public) – patch, replace same	■			
Sidewalks, (public) – widen, new		■		
Streets – Patch, replace same, mark pavement	■			
Streets – Widen, realign, new		■		
Streetlights, Utility Poles, Utilities (public right of way) – Maintain, repair, replace same	■			
Streetlights, Utility Poles, Utilities (public right of way) – Widen, realign, new			■	
Vegetation (Private) – Prune	■			
Vegetation (Public) – Prune		■		
Vegetation – New, Remove			■	
Water Feature – new pools, fountains, pond			■	

MINOR-1 SUBDIVISION APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee		X	
Director			X

X = ***indicates required action***

● = ***indicates actions that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a minor-1 Subdivision. If any of the information or required materials is missing or incomplete, the application will not be processed.

☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.

☐ **FINAL PLAT** – Copies drawn at a scale of 1" = 100' on sheets with maximum dimensions not exceeding 24 inches by 36 inches. If more than two sheets are required, an index sheet of the same dimensions shall be filed showing the entire subdivision on one sheet and the component areas shown on the other sheets. The plat shall contain the following information:

a. Name of the subdivision;
b. The name of the owner or owners, or subdividers;
c. Date, scale and north arrow, on each page. Each sheet of the plat shall indicate its page number in relation to the total number of sheets;
d. The correct legal description of the property being subdivided shall be shown on the Plat;
e. Accurate references to known or permanent monuments, giving the bearing and distance from said monuments and State Plane coordinates of at least two subdivision corners;
f. The location of all survey monuments and their descriptions;
g. All dimensions, both linear and angular, necessary for locating the boundaries of the subdivision, lots, streets, alleys, easements and other areas for public or private use. Linear dimensions are to be given to the nearest 1/100th of a foot. The radii, arcs or chords, points of tangency and central angles for all curvilinear streets and radii for rounded corners;
h. The names, lines and right-of-way widths of all proposed streets with accurate dimensions in feet and hundredths of feet with angles to right-of-way lines and lot lines;
i. The location of the subdivision based on an accurate traverse giving angular and linear dimensions which shall mathematically close. Bearings and distances of all exterior boundary lines and along the center lines of streets shall be furnished;
j. Accurate location of all existing and recorded roads intersecting the boundaries of the tract;
k. The gross area, net area and lot area of the land being subdivided;
l. The boundary lines of all adjoining lands for a distance of 150 feet and showing (with dotted lines) the right-of-way lines, adjacent streets and alleys with their widths and names, and adjacent zoning districts;

m. Easements and easements for rights-of-way provided for public use, services or utilities, with figures showing their dimensions and listing uses that are being provided and any limitations on such easement;
n. Clearly numbered lots in sequence and blocks clearly lettered in sequence;
o. The location of floodplain boundaries, as applicable;
p. A statement dedicating all easements, streets alleys and other public areas not previously dedicated, including an accurate outline of any portions of the property intended to be dedicated or granted for public use;
q. Appropriate certificates as determined by the Town Attorney. These certificates shall include, but not be limited to:
   (1) Certification signed and dated by a licensed North Carolina Land Surveyor;
   (2) Certificate of Approval (see template below;
   (3) Certification of platting signed and dated by the owner, appearing on or attached to the plat and on all separate sheets comprising the plat, acknowledging the dedication to public use of all streets, alleys, parks or other open spaces shown thereon and the granting of easements required; and
   (4) Certificate of Survey and Accuracy (see template below);
   (5) NCDOT Certification (for streets proposed as public that are outside of municipal corporate limits, see template below; and
   (6) Review officer certification (see template below).

Certificate of Approval

I hereby certify that all streets shown on this plat are within the Town of Southern Pines' planning jurisdiction, all streets and other improvements shown on this plat have been installed or completed or that their installation or completion (within twelve months after the date below) has been assured by the posting of a performance bond or other sufficient surety, and that the subdivision shown on this plat is in all respects in compliance with the Southern Pines UDO, and therefore this plat has been approved by the Southern Pines Planning Director, subject to its being recorded in the Moore County Registry within sixty days of the date below.

_____

Date Planning Director

Certificate of Ownership and Dedication:

I hereby certify that I am the owner of the property described hereon, which property is located within the subdivision regulation jurisdiction of the Town of Southern Pines, that I hereby freely adopt this plan of subdivision and dedicate to public use all areas shown on this plat as streets, alleys, walks, parks, open space and easements, except those specifically indicated as private and that I will maintain all such areas until the offer of dedication is accepted by the appropriate public authority. All property shown on this plat as dedicated for a public use shall be deemed to be dedicated for any other public use authorized by law when such other use is approved by the Southern Pines Town Council in the public interest.

_____

Date Owner

Certificate of Survey and Accuracy:

I,_____, certify that this plat was drawn under my supervision from an actual survey made under my supervision. (Deed description recorded in Book_____ , Page _____, etc. (other); that the boundaries not surveyed are clearly indicated as drawn from information found in Book _____, Page _____; that the ratio of precision or positional accuracy as calculated is _____; that this plat was prepared in accordance with G.S. § 47-30. Witness my original signature, license number and seal this _____day of_____, A.D. 20____.

Seal or Stamp

_____

Land Surveyor

_____

License Number

Division of Highways District Engineer Certificate

I hereby certify that the public streets shown on this plat have been completed, or that a performance bond or other sufficient surety has been posted to guarantee their completion, in accordance with at least the minimum specifications and standards in accordance with at least the minimum specifications and standards of the State Department of Transportation for acceptance of subdivision streets on the state highway system for maintenance.

_____

Date District Engineer

Certificate of Review Officer

Certificate of Review Officer

I, _____, Review officer of _____ County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

_____

_____Review Officer

Date: _____

☐ **SUBDIVISION IMPROVEMENT AGREEMENT,** (if applicable) – Copy of Agreement as prepared by applicant and approved to form by Town Attorney as well as acceptable security, per section 2.20.7.

☐ **APPROVED ENGINEERING PLANS** (if applicable), or as-built plans, conforming with the requirements of the UDO, for all streets, grading, sanitary sewerage system, storm drainage facilities, water distribution system, and other pertinent site improvements.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section __ of this UDO.

**Additional information may be required. Fees are subject to change.*

VACATION OF STREETS, PLATS OR EASEMENTS APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	**X**		
Director		**X**	
Town Council			**X**
X = ***indicates required actions***			

Submittal Requirements*

Please include the following information on all applications for a vacation. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DESCRIPTION AND JUSTIFICATION FOR THE ABANDONMENTS REQUESTED** – Specific description of the streets, alleys, Easements, plat or portions thereof being requested for abandonment and the justification for the request.
- ☐ **UTILITY LETTERS** – letters stating that the impact the abandonment would have on the availability of service and improvements necessary to provide services.
- ☐ **REPLACEMENT EASEMENTS** *(if applicable)* – legal instruments that when executed and filed will establish easements necessary to mitigate or compensate for the utility service impacts caused if the abandonment is granted.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.31.

**Additional information may be required. Fees are subject to change.*

PLAT AMENDMENTS APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director			**X**

X = ***indicates required actions***

● = ***indicates actions that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Plat Corrections. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **DESCRIPTION AND JUSTIFICATION FOR THE CORRECTIONS REQUESTED** – Specific description of the final plat discrepancies being remedied.
- ☐ **CORRECTED FINAL PLAT**
- ☐ **APPLICATION FEE** – as specified in Appendix ___.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.32.

**Additional information may be required. Fees are subject to change.*

ZONING PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Planning Director			**X**

X = ***indicates required action***

● = ***indicates action that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Zoning Permit Plan. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **SITE PLAN** *(if applicable)* – see site plan checklist.
- ☐ **BUILDING CONSTRUCTION PLANS** *(if applicable)* – scale drawings in sufficient detail to demonstrate compliance with applicable building code provisions.
- ☐ **DRAINAGE IMPACT ANALYSIS** *(if applicable)* – see drainage impact analysis checklist.
- ☐ **LANDSCAPING PLAN** *(if applicable)* – see landscaping plan checklist.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.33, 2.35, 2.37, and 2.44 as applicable.

**Additional information may be required. Fees are subject to change.*

LAND DISTURBANCE PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Town Engineer			**X**

X = ***indicates required documentation***

● = ***indicates action that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Land Disturbance Permit. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **SITE PLAN** – see site plan checklist.
- ☐ **GRADING PLAN** – see grading plan checklist.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.34.

**Additional information may be required. Fees are subject to change.*

SIGN PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director			**X**

X = ***indicates required action***

● = ***indicates action that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Sign Permit. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **SITE PLAN** *(if applicable)* – see site plan checklist. Sign locations may be added to an existing approved site plan or the Applicant may submit a site plan showing all building footprints, vehicle use areas, landscape areas and sign locations.
- ☐ **SIGN PLANS** – scaled and dimensioned drawings in plan and elevation view for each sign.
- ☐ **MASTER SIGN PLAN** – if applicable, showing the prior allocation of signage and the allocation subject to this permit application.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.39.

**Additional information may be required. Fees are subject to change.*

DRIVEWAY/ROW PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Town Engineer			**X**

X = ***indicates required action***

● = ***indicates action that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Driveway/Right-of-Way Permit. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **SITE PLAN** *(if applicable)* – see site plan checklist. Location of proposed work may be added to an existing approved site plan or the Applicant may submit a site plan showing vehicle use areas, landscape areas, proposed driveway, right-of-way, edge of pavement, specimen trees and affected drainage improvements.
- ☐ **APPROVED ENGINEERING PLANS** (*if applicable*)
- ☐ **PROPOSED CONSTRUCTION DETAILS** – Copies of a drawing at a scale approved by the Town Engineer showing:
  - (a) the extent of construction;
  - (b) horizontal and vertical alignment of proposed improvements;
  - (c) construction materials and dimensions to be used;
  - (d) proposed traffic safety measures;
  - (e) proposed erosion control measures; and
  - (f) tree protection measures.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.40 of the UDO.

**Additional information may be required. Fees are subject to change.*

HOME OCCUPATION PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee	●		
Director			**X**

X = ***indicates required action***

● = ***indicates action that may be applicable based on development impact.***

Submittal Requirements*

Please include the following information on all applications for a Home Occupation License. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP OR AUTHORIZATION BY OWNER TO CONDUCT THE HOME OCCUPATION** .
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.41 of the UDO.

**Additional information may be required. Fees are subject to change.*

HOME OCCUPATION PERMIT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Director			**X**

Submittal Requirements*

Please include the following information on all applications for a Home Occupation Permit. If any of the information or required materials is missing or incomplete, the application will not be processed.

- ☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.
- ☐ **APPLICATION FEE** – as specified in Appendix H.
- ☐ **SITE PLAN** *(if applicable)* – see site plan checklist. Location of and configuration of the proposed temporary use activities and improvements shall be shown insufficient detail to demonstrate compliance with applicable approval criteria.
- ☐ **SIGNED APPLICATION** – by the applicant or authorized agent. A property owner authorized agent requires an affidavit giving permission to sign the application.
- ☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.42 of the UDO.

**Additional information may be required. Fees are subject to change.*

DRAINAGE IMPACT ANALYSIS CHECKLIST

PROJECT NAME:	
Developer:	Engineer:
Point of Contact:	Firm:
Address:	Address:
Phone:	Phone:
Email:	Email:

The purpose of this checklist is to expedite and facilitate the review process. This checklist gives the minimum requirements needed for initiation of drainage review by the Southern Pines Town Council. All items shall be checked as included or marked N/A. The omission of required items may be cause for rejection of the submittal without review.

I. General Requirements

☐ Bound drainage impact analysis containing three (3) distinct and designated parts (Project Summary, Analysis, and Calculations).

☐ Each submittal shall contain a minimum of two (2) complete copies.

☐ Pre and Post development output for each storm event as well as supporting calculations shall be separated with dividers bound in the report.

☐ Cover sheet for the drainage impact analysis shall be signed and sealed by the Engineer of Record as shown above.

☐ All maps, drawings, or calculations shall be bound and made a part of the impact analysis. Maps and drawings shall be 11 by 17 in fold outs only.

☐ The drainage impact analysis shall be based on the 10 year storm and checked for the 100 year storm for new developments.

II. Drawings / Maps

☐ A legible copy of the most recent soil survey map with the proposed location clearly identified.

☐ A watershed map reflecting the following minimum information:

i. Overall watershed boundaries delineated using LIDAR two-foot interval contours approved by CPPJ Engineer.
ii. Two (2) foot topographic site contours within the boundary of the development delineated using actual onsite topographic surveys.
iii. Delineated drainage areas including offsite watershed areas with acreage shown.
iv. Each basin shall be annotated with its slope, travel length to the entry point and/or exit point of the development, and curve number or runoff coefficient.
v. Composite curve numbers or runoff coefficients shall be clearly designated on the pre-development drainage map and calculations supporting each composite number shall be included in the drainage analysis.
vi. Existing land use and vegetative cover for all drainage areas.
vii. The location, description, and elevation of all permanent and temporary benchmarks used for the analysis and to be used for the development construction.

viii. Overall view of drainage and ultimate drainage disposal map including the limits of the watershed downstream of development to the point where said development is less than ten (10) percent of the entire watershed.
ix. 100-year flood zones and base flood elevations, if applicable, including all regulatory floodways and coastal high hazard areas.
x. Identification of all existing drainage features whether natural or man-made.
xi. The pre-development map shall be produced at a scale which legibly shows all pertinent existing drainage information on sheets no larger than 11 by 17 in.
xii. At a minimum, the pre-development drainage map shall include a north arrow, vicinity map, and a title block with the name of the development. The name of the development shall match the name shown on this form.

☐ A development drainage layout with the following minimum information:

i. Existing and proposed development contours at two (2) foot intervals. One (1) foot contours may be required by the Town engineer where additional information is needed to define topographic features of a site.
ii. Various drainage areas based on conceptual design and proposed layout of development.
iii. Offsite drainage areas shown at entry points to the development with calculated ten (10) year peak discharge rates.
iv. Clear delineation of each drainage basin both on and off site. Each basin shall be uniquely identified. No two drainage areas regardless of pre or post condition shall have the same identifier.
v. Existing and proposed drainage patterns, slope, and travel length with estimated ten (10) year peak discharge rates based upon existing and future land use and zoning of the offsite drainage areas. Future conditions will be based on the current land use and zoning maps.
vi. Each basin shall be annotated with its drainage area, hydraulic length, hydraulic slope, and curve number or runoff coefficient.
vii. Composite curve numbers or runoff coefficients shall be clearly designated on the post-development drainage map and calculations supporting each composite number shall be included in the drainage analysis.
viii. Existing and proposed drainage and maintenance easements.
ix. Delineated flood zones, regulatory floodways, coastal high hazard areas, and the highest recorded inundation, where available.
x. Existing and proposed ditches, culverts, or other hydraulic features or structures.
xi. The location of the outfall of the entire drainage area shall be identified to include location, total acreage, and peak discharge for the design storm. If more than one outfall exists for the development, each outfall shall be identified separately.
xii. The post-development map shall be produced at a scale which legibly shows all pertinent drainage information.
xiii. At a minimum the post-development drainage map shall include a north arrow, vicinity map, and a title block with the name of the development.

III. Detention Facilities

☐ Typical Sections for each detention facility in the development shall be shown.

☐ Stage vs. Storage and Stage vs. Discharge information shall be provided for each detention facility.

☐ The development inflow hydrographs for the 10-year and 100-year frequencies and all parameters and assumptions utilized to develop the hydrographs shall be reported.

☐ The routing calculations and outflow hydrographs for the 10-year and 100-year frequencies shall be reported.

☐ The peak water elevation in the detention facility for the10-year design storm shall be noted.

☐ Freeboard amount between overtopping elevation and peak water elevation for the design storm shall be noted.

☐ The performance of the detention facility in a 100 year storm shall be investigated and reported in the drainage analysis.

☐ The combination of existing/relocated outfalls with proposed detention facilities is permitted, however the performance of this system shall be sufficiently detailed to ensure staging in the facility does not increase the upstream water surface elevation.

☐ When roadside ditches in a subdivision are designed to meet the detention criteria, all ditches in series will be considered a single facility.

☐ In addition to the criteria listed above, developments having roadside ditches which provide detention shall clearly show the maximum hydraulic grade line (HGL) for each detention facility as well as the proposed top bank. Should parallel ditches be shown on a single plan profile sheet, each hydraulic grade line shall be clearly distinguished from adjacent HGL's.

☐ For roadside detention, the effects of all future driveways shall be included in the hydraulic analysis.

IV. Fill Mitigation Requirements

☐ Delineated 100-year floodplain elevation on pre-development two (2) foot contour intervals.

☐ Post development two (2) foot contours

☐ Location of proposed fill credits to mitigate the fill volume below the 100-year elevation with cross sections

☐ Watershed boundaries should be identified.

V. Flood Zone Requirements

☐ Developments within the 100 year floodplain shall contain sufficient calculations and details to demonstrate that the 100 year flood stage is not increased.

☐ Detailed information shall be provided which identifies the location and amount of fill placed in the floodplain.

VI. Floodway Requirements

☐ When any portion of a development falls within a Federally designated floodway, a no-rise certificate shall be completed and submitted with the drainage analysis regardless of the type of construction in the floodway.

☐ A signed copy of the no-rise certificate shall be permanently bound and made a part of the drainage analysis.

VII. Plats

☐ For subdivisions designed with open ditches the plat shall include the note stating that the open ditch will not be allowed to be enclosed at any time.

☐ The plat shall include a statement regarding the required pipe size for all driveways. Should various pipe sizes be required for hydraulic capacities, the locations of the sizes shall be clearly noted.

☐ A note shall be included that requires the lot owner to provide the proper grading of lots to match drainage designs including lot flow arrows identifying grading requirements to satisfy drainage design.

☐ The location of all flood zones and/or floodways shall be clearly marked on the plat along with base flood elevations.

VIII. Additional Requirements

☐ Engineering Plans submitted for approval which do not match the approved drainage analysis will be returned without review.

I, the undersigned, acknowledge by signature that the submitted drainage impact analysis meets or exceeds the requirements set forth by ordinance for the Town of Southern Pines. I understand that failure to comply with the requirements set forth may result in the return of the submitted drainage documents without review.

Signature Date NC License Number

SITE PLAN CHECKLIST

Please include the following information on all applications. If any of the information or required materials is missing or incomplete, the application will not be processed unless the Director has approved the omission.

A. Format Requirements:

Site plans submitted to the Town of Southern Pinesshall be:

(1) 24" by 36" in size (all sheets);

(2) Drawn to scale, at a scale of not less than 1" = 20' if the site is less than three (3) acres and 1" = 100' if the site is three (3) acres or more in size;

(3) Bound on left side (if multiple sheets);

(4) Numbered and organized in a manner than allows for convenient review and reference.

B. Content Requirements:

Site plans submitted to the Town of Southern Pines shall contain the following basic information:

(1) Name of development;
(2) Name(s) and contact information for applicant(s), developer(s) and all design professionals participating in the application;
(3) Town of Southern Pines "Approved for Construction" signature block;
(4) North arrow, legend(s) and graphic and ratio scale(s);
(5) Inset vicinity map at a scale of not less than 1" = 2,000';
(6) Date the plan was prepared and the date(s) of revisions;
(7) Property lines with dimensions and applicable metes and bounds, lot numbers, setbacks, zoning boundaries, phasing boundaries and corporate limit/ETJ boundary lines.
(8) Physical address(es) and/or PIN(s) for subject properties and adjacent properties;
(9) Acreage of subject properties and adjacent properties;
(10) Zoning information for subject properties and adjacent properties; Contour lines, not greater than 5' intervals;
(11) Existing vegetation, indicating if it is to be removed or retained;
(12) Existing development on subject property and within 50' in any direction of subject property (streets, buildings, parking, sidewalks, stormwater facilities, water, wastewater, utilities, etc.) indicating if it is to be removed or retained;
(13) Existing right(s) of way and easements;
(14) Proposed building(s) labelled with intended use, finished floor elevation (FFE), gross floor area,
(15) Proposed vehicle use area(s) designated by surface material; Proposed sidewalks;
(16) Location of any Special Flood Hazard Area(s) on or within 50' of the subject property;
(17) Location of wetlands on or within 50' of the subject property;

C. Site plans submitted to the Town of Southern Pines shall also contain adequate information to demonstrate compliance with applicable design requirements. Separate checklists with current requirements are available from:

(1) Engineering Department

(2) Fire Department

(3) Planning Department

D. Submittal Requirements:

(1) **Initial Site Plan Submittal:**

- ☐ Completed Initial Site Plan Review Application;
- ☐ Application Fee;
- ☐ Engineering, Fire and Planning Department Checklists;
- ☐ Four (4) 24" by 36" paper copies of site plan.

(2) **Subsequent Site Plan Submittal:**

- ☐ Four (4) 24" by 36" paper copies of site plans
- ☐ Letter addressing final comments from previous submittal

(3) **Final Site Plan Submittal:**

- ☐ Three (3) 24" by 36" paper copies of site plan
- ☐ One (1) half-size (11" by 17") paper copy of site plan.
  One (1) electronic (.pdf) copy of site plan.

LANDSCAPING PLAN CHECKLIST

Please include the following information on all applications. If any of the information or required materials is missing or incomplete, the application will not be processed.

LANDSCAPING PLAN A qualified professional shall draw landscape plans. The landscape plan shall, at a minimum, include:

a. The planting plans shall be drawn to a universal scale (i.e. 1" = 10', 1/4" = 1', etc.);
b. All plants drawn on the planting plan shall be shown at the average mature size;
c. All buildings, walkways, vehicular use areas, utility areas, sight triangles, and miscellaneous site structures;
d. All utilities, easements, rights-of-way and easements on or adjacent to the site;
e. Proposed routing of utility service to proposed buildings;
f. Current zoning and land use of abutting property;
g. The trunk location, trunk size (DBH) and canopy of trees to be used for preservation credits. Where an area of existing vegetation is to be preserved, show the canopy spread of the area;
h. Location, species, sizes and specifications of all proposed plantings;
i. Dimensions and plantings in required buffers, including the locations of proposed fences, walls and berms;
j. Location design and materials of all required screening;
k. All existing and proposed paved surfaces, curbs, sidewalks, steps and grade changes;
l. Existing and proposed topography, existing natural features, and drainage information;
m. Schedule of materials to be planted on the site;
n. Irrigation or watering system plans;
o. Other information necessary to demonstrate compliance with the provisions of this UDO.

TRAFFIC IMPACT ANALYSIS CHECKLIST

(to be used for both Traffic Impact and Traffic Design Analyses)

Please include the following information on all applications. If any of the information or required materials is missing or incomplete, the application will not be processed unless the Town Engineer has approved the omission.

A. **Project and Site Description**. Illustrations and narrative that describe the characteristics of the site and adjacent land uses as well as expected development in the impact area that will influence future traffic conditions. A description of the proposed development including access plans, staging plans and an indication of land use and intensity shall be provided.

B. **Study Area**. The analysis shall identify the geographic area under study and identify the critical intersections and access points to be analyzed.

C. **Existing Traffic Conditions**. The analysis shall contain a summary of the data used in the analysis of existing traffic conditions, including:
   a) Existing demand, including traffic count and turning movement information, including the source of and date when traffic count information was collected;
   b) Roadway characteristics, including the design configuration of existing roadways, existing traffic control measures (speed limits, traffic signals, etc.) and existing driveways and turning movement conflicts in the impact area; and
   c) The existing LOS for intersections without project development traffic using methods documented in the Special Report 209: Highway Capacity Manual, published by the Transportation Research Board, or comparable accepted methods of evaluation.

D. **Traffic Assignment**. The TIA shall identify projected peak hour traffic volumes for applicable intersections and driveways in the study area. The Town Engineer shall identify applicable intersections, driveways, and traffic distribution assumptions prior to completion of the study. Projected trip generation shall be based on latest data from the ITE or other studies approved in writing by the Town Engineer. This section will document all assumptions affecting the direction, volume and mode split of traffic generated by the project.

E. **Analysis**. The analysis shall be based on buildout and ten (10) year projections. The analysis shall compare existing demand plus projected background demand plus proposed site demand with planned capacity for the applicable projections.

F. **Mitigation / Alternatives**. In situations where the LOS standards are projected to be exceeded, the analysis shall consider each of the following alternatives for achieving the traffic service standards:
   a) Identify additional right-of-way and street improvements needed to implement mitigation strategies;
   b) Identify a phasing schedule for development and transportation improvements where needed to maintain compliance with LOS standards;
   c) For developments impacting constrained facilities, identify access, pedestrian, transit or other improvements required to mitigate the impacts of the proposed development on the constrained facility.

G. **Other Information**. Other information required to demonstrate compliance with the UDO.

H. **Number of Copies**. The applicant shall furnish two (2) complete copies and PDFs of the analysis document.

CONCEPTUAL TRANSPORTATION PLAN CHECKLIST

A Conceptual Transportation Plan submitted with a Conceptual Development Plan shall consist of text, photos, illustrations and maps as necessary to provide the following information:

A. The project boundary and the area surrounding the project that is included in the Conceptual Transportation Plan.

B. Proposed transportation facilities within the project boundary including:

(1) Location and type of transportation facilities. Examples may include (but are not limited to) streets, sidewalks, bridges, shared-use paths and trails.

(2) Location and type of intersections where transportation facilities cross.

(3) Location and type of stormwater management facilities that will serve proposed transportation facilities.

(4) Identification of street classifications (arterial, collector, local, service, etc.).

(5) Identification of ownership arrangement for proposed transportation facilities (public or private).

(6) For transportation facilities that are to be privately owned, information on long- term maintenance and replacement of facilities.

(7) Estimated rights of way necessary for proposed transportation facilities.

(8) Cross-section illustrations with labelled dimensions of proposed transportation facilities.

(9) Identification and description of unique transportation elements to be utilized within the project. Examples may include (but are not limited to) complete streets, traffic calming, noise mitigation, public art, landscaping and wayfinding.

C. For proposed transportation facilities within the project boundary that deviate from the standard design requirements found in Chapter 4 of the UDO, clear identification of the deviation(s) and explanation of the purpose of the deviation(s).

D. Location of proposed connection points or "gateways" between project transportation facilities and existing or future community transportation facilities. Include a description of the reason for the selected locations as well as a discussion of compliance with basic transportation engineering concepts with regard to the selected locations.

E. Route distances and approximate travel times from project gateways to common community destinations. Examples may include (but are not limited to) shopping centers, schools, parks, major employers and downtown.

F. An inventory of existing community transportation facilities in the vicinity of the proposed development including:

(1) Location and type of facility,

(2) Connectivity to other community facilities,

(3) Information on the condition and capacity of each facility,

G. A description of entitled development projects in the vicinity of the proposed development that involve planned improvements to community transportation facilities.

H. Planned improvements to community transportation facilities intended to mitigate impacts of the proposed development. Examples may include (but are not limited to) improvements to connectivity, safety, capacity and aesthetics.

I. If the timeline for completion of any portion of the transportation facility improvements associated with the project does not match the overall project timeline or phasing plan as set forth in the Conceptual Development Plan, a separate timeline or phasing plan for transportation facility improvements shall be included in the Conceptual Transportation Plan.

J. Name and professional affiliation(s) of the individual(s) that prepared the CTP.

MINOR-2 & 3 SUBDIVISION SITE PLAN APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee		**X**	
Planning Director			**X**
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all applications for a Minor-2 Subdivision – Site Plan. If any of the information or required materials is missing or incomplete, the application will not be processed.

☐ **PROOF OF OWNERSHIP** – Filed deed, vendor's lien, act of donation or tax assessment with legal description.

☐ **SUBDIVISION BASE STANDARDS** – The site plan meets all base standards required for a Minor-2 or Minor-3 Subdivision as listed in ***Table 1*** below.

☐ **SUBDIVISION INCENTIVES** – The site plan does not exceed the development incentives granted by meeting the required base standards for Minor-2 Subdivisions, which are shown in ***Table 2*** below.

☐ **INCENTIVIZED STANDARDS *(MINOR-3 ONLY)*** *(if applicable)* – The site plan earns 15 points of additional Minor-3 incentivized standards, as listed in ***Table 3*** below, to build single-family attached developments comprising 10-21 Lots.

☐ **ARCHITECTURAL PLAN ELEVATIONS** – The elevations shall demonstrate consistency with the base standards for architecture (shown in ***Table 1*** below) and, if applicable, with the incentivized standards for architecture (shown in ***Table 3*** below).

☐ **EASEMENTS/RIGHTS-OF-WAY** – shall include separate legal instrument when off-site improvements require easements or rights-of-way.

☐ **SITE PLAN (SKETCH PLAT) & ENGINEERING PLANS** – A digital copy of the Site Plan and Engineering Plans shall be signed and sealed by a professional engineer in the State of North Carolina (and registered landscape architect as applicable), shall be drawn on 24" by 36" sheets and shall include:

a. Copies of the detailed Site Plan layout and Engineering Plans and specifications for the proposed Subdivision;
b. The name of the proposed subdivision and the name of the owner, developer, and applicant;
c. The name of the individuals who surveyed the property and prepared, stamped, signed and sealed the plans and specifications;
d. Lot and block numbers;
e. Alignment and dimensions of proposed lots, blocks, existing and proposed streets, and easements that adjoin, traverse, or are included in the proposed subdivision;
f. Proposed street names, which may not duplicate or be substantially similar to any existing streets in the Town as determined by the Director;

g. The location and description of existing and proposed sewerage facilities, if any central sewerage collection, treatment and disposal system is planned;
h. Plans showing the dimensions, as well as the proposed vertical and horizontal alignments of water, sewer, gas, electrical and telecommunications lines;
i. Location and construction details of all utility appurtenances, including, but not limited to switches, valves, pumps, and manholes;
j. The proposed location and design of light standards and fire hydrants, (*if applicable)*;
k. Specifications of the proposed improvements, including typical street cross-sections, utilities, and the materials to be used in such improvements;
l. Horizontal alignments of all streets and sidewalks;
m. Details of plans for sewerage disposal, tie-in to existing collection systems, construction of a new collection and disposal system, use of lagoons, lift stations, force mains, etc.;
n. Information required to demonstrate compliance with the drainage requirements of Chapter 4 of this UDO;
o. Boundaries of open space, common areas, greenways, and other subdivision amenities;
p. Location and extent of existing and proposed boundaries of floodways and floodplains;
q. The location of all wetlands on or within 50' of the subject property;
r. d All areas of the subdivision with a slope greater than 30 percent;
s. Topographic contour lines at two-foot intervals or as otherwise approved by the Planning Director; and
r. A phasing schedule describing the location, sequencing, and timing of infrastructure improvements and lot development for subareas of an overall proposed subdivision *(if applicable)*.

☐ **UTILITY LETTERS** – letters confirming the availability of service and improvements necessary to provide water, wastewater, natural gas, or telecommunications services (not needed for Town services).

☐ **COVENANTS & RESTRICTIONS** *(if applicable)* – a copy of proposed private property restrictions.

☐ **DRAINAGE CONCEPT PLAN** *(if applicable)* – see drainage impact analysis checklist.

☐ **TRAFFIC IMPACT /DESIGN ANALYSIS AND TOWN ENGINEER'S REPORT** *(if applicable)* – see section 4.12 of the UDO.

☐ **APPLICATION FEE** – as specified in Appendix H.

☐ **SIGNED APPLICATION** – by the legal property owner(s). Owner voluntary consent to the minor-2 base standards and minor-3 incentivized standards, as applicable, is required pursuant to G.S. §160D-702(b), UDO §2.49.2(A), and UDO §2.50.2(A).

☐ **ADDITIONAL DOCUMENTATION** – Additional text and/or maps provided to demonstrate consistency with the approval criteria in section 2.19 of this UDO.

**Additional information may be required. Fees are subject to change.*

Table 1 – Minor-2 Subdivision Base Standards

Standard	Details
Authorized District	Minor-2 subdivisions, unless preceded by a Conditional Zoning District that approves multiple housing types, may apply only to single-family attached Subdivisions. Single-family attached developments are only allowed in RM-1, RM-2, CB, NB, and OS zoning districts; however, PD zoning may also provide for single-family attached Subdivisions, depending on provisions in the subject Conceptual Development Plan.
Square Feet Limit	The individual unit footprint is limited to 1,000sf and the individual total heated-floor-area is limited to 2,000sf.
Footprint Dimensions	Heated floor area depth shall not exceed 2.5 times the width (ex: a unit 20-feet in width shall not exceed 50-feet in depth).
Building Materials	The exterior finish of building front façades shall be constructed with at least **20% brick**, exclusive of doors and windows. The permit issuing authority may approve the use of alternative materials to brick, provided they establish an equivalent appearance and have equal or greater durability.
Building Articulation	All units shall incorporate depth and variety in articulation, design appearance, and color. Bump outs, porches, changing roof directions, variations in roofline, and/or design characteristics that achieve commensurate depth in design may be used to accomplish this standard.
Building Projection	For townhouse buildings of 3 or more units, the design must articulate front facades by including projections of at least 2 feet at least once every 50 feet along the façade.
Garages	Garages shall not project further than the articulation of the principal structure.
Street Trees	Install at the rate: 1 tree per 30’ along all public and private streets.
Buffer Requirements	Install according to zoning standards (see UDO exhibit 4-2)
Open Space	Set at least 10% of the project area as dedicated open space. Preserve any existing mature trees, 6-inch diameter and greater, within that space. Any environmentally sensitive areas on site shall be a part of the delineated open space, and open space that reflects natural character shall take priority over usable open space–up to 100% of the required area. Buffers wider than 20-feet may count pursuant to UDO §4.3.4(B)(5).

Flood Zones & Wetlands	No disturbance, grading, or impervious surface installation may occur in a wetland or flood zone.
Watersheds	All minor-2 and 3 applications must conform to the watershed regulations, and gain an approved 5/70 exemption, if applicable. A Watershed Protection Permit application must be included with minor-2 or 3 applications, which is an administrative approval in conjunction with a minor-2 or minor-3 Subdivision, if applicable.
Retain All Existing Trees Feasible	Retain all existing trees, 6-inch diameter and greater, within the subject property that do not interfere with: • Building footprints • Access alleys, driveways, and/or parking spaces • Utility installation • Essential site grading Trees that the developer identifies, and town staff confirm during site plan review, as necessary to remove for one of the four reasons listed above are permitted for removal. Trees within public rights-of-way that do not interfere with access and utilities installation shall be retained. The developer should prioritize existing tree preservation within designated buffers, open space, and all other non-built-upon surface areas. Trees counting for any credits pursuant to UDO §4.3 shall be protected with tree protection fencing pursuant to UDO §4.3.13.
Stormwater Control	The application complies with the Town's stormwater control regulations pursuant to UDO §4.14. Creative design to meet this standard of addressing stormwater should be employed whenever possible; examples include: planted stormwater ponds, rock gardens, and ditch & swale designs.
Overlays	The application conforms to any applicable overlays as detailed in the UDO (HCO, DTO, etc.).
Street & Access Standards	Access must meet UDO §4.11 standards and fire access requirements.
Does not Violate Applicable Federal or State Regulations	The application must not violate any federal and/or state regulations that pertain to the project; additional documentation or adjustments may be necessary to demonstrate compliance with applicable regulations.

Table 2 –Incentives (Enabled by Meeting the Minor-2 Subdivision Base Standards (Table 1)

Incentive	Details
Reduced Minimum Lot Size	The minimum lot size of the parent tract is reduced by 50% of the underlying zoning standards, or to 1,500sf, whichever is larger.

Reduced Setbacks	The minimum setbacks of the parent tract may be reduced in accordance with the "Building Setback Reduction" standards found under the Administrative Relief section of the UDO, §2.46.3(A).
Minimum Lot Width	No minimum lot width shall apply to single-family attached lots.
Tree Protection Fencing	Tree protection fencing may be combined with silt fences where feasible (but must remain marked as "tree protection zone" on the silt fence).
Watershed Protection Permit	Watershed Protection Permits qualify for administrative approval under the minor-2 and minor-3 Subdivisions, if applicable.
Maximum Building Height	Maximum building height shall be 45-feet, regardless of the underlying zoning district's prescribed height limit.

Table 3 – Minor-3 Incentivized Standards (Earn 15 Points to Enable 10-21 Lot Developments)

Point Value	Standard	Details
15	Redevelopment Site Selection	The proposed Minor-3 development is on redevelopment site that comprises no more than 30% virgin land (land that reflects Southern Pines natural character).
15	Built to SystemVision Construction Standards	To earn credit, the proposed Minor-3 development must build the proposed units to the TOSP modified SystemVision Program Standards for new home construction. See UDO Appendix B.
7.5	Parking	Parking shall be accomplished by one, or a combination of, the following: on-street parking, rear-loaded driveways or garages, and/or parking space to the side or rear of buildings. Parking spaces in between the primary right-of-way and building are not permissible.
5	Install sidewalks	To earn credit, a sidewalk adjacent to all applicable public and private streets shall be installed. The town's greenway trail standards (found in Appendix B) and concrete are both allowable materials. The chosen material shall match the sidewalk materials used on adjacent properties, if applicable.
5	Pedestrian connectivity	To earn credit, a pervious walking trail, that is not adjacent to public or private streets, shall be constructed to connect to nearby pedestrian infrastructure.
2.5	Install gutters	Gutters must channel water away from all structure(s) into the site's stormwater management system.

2.5	Exterior Lighting	All exterior lighting, to include street lights and exterior building lights, shall use Light-Emitting Diode (LED) lighting not to exceed 0.2 lumen per square foot limit per UDO §4.8.
5	Improved landscaping	Provide additional landscaping in all applicable vehicle use areas and building foundation areas. Vehicle use area plantings shall follow the standards set in UDO §4.3.6 and Exhibit 4-5. Foundation plantings shall follow the planting rate for perimeter landscaping, found in UDO Exhibit 4-5, but for shrubs plantings only. *This standard requires a landscaping site plan sheet to accompany the Minor-3 submittal requirements.*
7.5	Open Space	Set at least 20% of the project area as dedicated open space. Preserve all existing mature trees, 6-inch diameter and greater, within that space. Any environmentally sensitive areas on site shall be a part of the delineated open space, and open space that reflects natural character shall take priority over usable open space, up to 100% of the required area. Buffers wider than 20-feet may count pursuant to UDO §4.3.4(B)(5).
10	Build to modified §4.10.4 architecture standards	The exterior finish of all building façades comprises at least **60% brick**, exclusive of doors and windows. The Planning Director may approve the use of alternative materials to brick, provided they establish an equivalent appearance and have equal or greater durability.
X	Incentive negotiated in conjunction with a CZD	The incentive point value should be commensurate with similar incentives noted in this list.
	= Total Earned (15 points needed).	

MINOR-2 & 3 SUBDIVISION – FINAL PLAT APPLICATION CHECKLIST

Process Overview

Decision Making Body	Review	Recommend	Decision
Technical Review Committee		**X**	
Director			**X**
X = ***indicates required action***			

Submittal Requirements*

Please include the following information on all submittals for a Minor-2 or Minor-3 Subdivision – Final Plat. If any of the information or required materials is missing or incomplete, the submittal will not be processed.

☐ **FINAL PLAT** – Copies (1 full sized copy or 1 digital copy) drawn at a scale of 1" = 100' on sheets with maximum dimensions not exceeding 24 inches by 36 inches. If more than two sheets are required, an index sheet of the same dimensions shall be filed showing the entire subdivision on one sheet and the component areas shown on the other sheets. The plat shall contain the following information:

a. Name of the subdivision;
b. The name of the owner or owners, or subdividers;
c. Date, scale and north arrow, on each page. Each sheet of the plat shall indicate its page number in relation to the total number of sheets;
d. The correct legal description of the property being subdivided shall be shown on the Plat;
e. Accurate references to known or permanent monuments, giving the bearing and distance from said monuments and State Plane coordinates of at least two subdivision corners;
f. The location of all survey monuments and their descriptions;
g. All dimensions, both linear and angular, necessary for locating the boundaries of the subdivision, lots, streets, alleys, easements and other areas for public or private use. Linear dimensions are to be given to the nearest 1/100th of a foot. The radii, arcs or chords, points of tangency and central angles for all curvilinear streets and radii for rounded corners;
h. The names, lines and right-of-way widths of all proposed streets with accurate dimensions in feet and hundredths of feet with angles to right-of-way lines and lot lines;
i. The location of the subdivision based on an accurate traverse giving angular and linear dimensions which shall mathematically close. Bearings and distances of all exterior boundary lines and along the center lines of streets shall be furnished;
j. Accurate location of all existing and recorded roads intersecting the boundaries of the tract;
k. The gross area, net area and lot area of the land being subdivided;
l. The boundary lines of all adjoining lands for a distance of 150 feet and showing (with dotted lines) the right-of-way lines, adjacent streets and alleys with their widths and names, and adjacent zoning districts;

m. Easements and easements for rights-of-way provided for public use, services or utilities, with figures showing their dimensions and listing uses that are being provided and any limitations on such easement;
n. Clearly numbered lots in sequence and blocks clearly lettered in sequence;
o. The location of floodplain boundaries, as applicable;
p. The location of all wetlands on or within 50' of the subject property;
q. A statement dedicating all easements, streets alleys and other public areas not previously dedicated, including an accurate outline of any portions of the property intended to be dedicated or granted for public use;
r. Appropriate certificates as determined by the Town Attorney. These certificates shall include, but not be limited to:
   (7) Certification signed and dated by a licensed North Carolina Land Surveyor;
   (8) Certificate of Approval (see template below)
   (9) Certification of platting signed and dated by the owner, appearing on or attached to the plat and on all separate sheets comprising the plat, acknowledging the dedication to public use of all streets, alleys, parks or other open spaces shown thereon and the granting of easements required;
   (10) Certificate of Survey and Accuracy (see template below);
   (11) NCDOT Certification (for streets proposed as public that are outside of municipal corporate limits, see template below); and
   (12) Review Officer Certification (see template below).

Certificate of Approval

I hereby certify that all streets shown on this plat are within the Town of Southern Pines' planning jurisdiction, all streets and other improvements shown on this plat have been installed or completed or that their installation or completion (within twelve months after the date below) has been assured by the posting of a performance bond or other sufficient surety, and that the subdivision shown on this plat is in all respects in compliance with the Southern Pines Town Unified Development Ordinance, and therefore this plat has been approved by the Southern Pines Planning Director, subject to its being recorded in the Moore County Registry within sixty days of the date below.

_____

Date Planning Director

Certificate of Ownership and Dedication:

I hereby certify that I am the owner of the property described hereon, which property is located within the subdivision regulation jurisdiction of the Town of Southern Pines, that I hereby freely adopt this plan of subdivision and dedicate to public use all areas shown on this plat as streets, alleys, walks, parks, open space and easements, except those specifically indicated as private and that I will maintain all such areas until the offer of dedication is accepted by the appropriate public authority. All property shown on this plat as dedicated for a public use shall be deemed to be dedicated for any other public use authorized by law when such other use is approved by the Southern Pines Town Council in the public interest.

_____

Date Owner

Certificate of Owner Voluntary Consent to the minor-2 Subdivision Base Standards:

I hereby certify that I am the owner of the property described hereon, which property is located within the subdivision regulation jurisdiction of the Town of Southern Pines, and that I hereby voluntarily consent to the minor-2 base standards as defined in the Town of Southern Pines Appendix A, pursuant to G.S. 160D-702(b).

_____

Date Owner

Certificate of Owner Voluntary Consent to the minor-3 Subdivision Incentivized Standards:

I hereby certify that I am the owner of the property described hereon, which property is located within the subdivision regulation jurisdiction of the Town of Southern Pines, and that I hereby voluntarily consent to the minor-3 incentivized standards, that are applicable to the subject property, as defined in the Town of Southern Pines Appendix A, pursuant to G.S. 160D-702(b). The minor-3 incentivized standards that apply to the subject Final Plat are as follows:

_____

_____

_____

Date Owner

Certificate of Survey and Accuracy:

I,_____, certify that this plat was drawn under my supervision from an actual survey made under my supervision. (Deed description recorded in Book_____ , Page _____, etc. (other); that the boundaries not surveyed are clearly indicated as drawn from information found in Book _____, Page _____; that the ratio of precision or positional accuracy as calculated is_____; that this plat was prepared in accordance with G.S. § 47-30. Witness my original signature, license number and seal this _____day of_____, A.D. 20____.

Seal or Stamp

_____

Land Surveyor

_____

License Number

Division of Highways District Engineer Certificate

I hereby certify that the public streets shown on this plat have been completed, or that a performance bond or other sufficient surety has been posted to guarantee their completion, in accordance with at least the minimum specifications and standards in accordance with at least the minimum specifications and standards of the State Department of Transportation for acceptance of subdivision streets on the state highway system for maintenance.

_____

Date District Engineer

Certificate of Review Officer

Certificate of Review Officer

I, _____, Review officer of _____ County, certify that the map or plat to which this certification is affixed meets all statutory requirements for recording.

_____

_____Review Officer

Date: _____

☐ **SUBDIVISION IMPROVEMENT AGREEMENT**, (if applicable) – Copy of Agreement as prepared by applicant and approved to form by Town Attorney as well as acceptable security, per section 2.20.7.

☐ **STREET NAME APPROVAL,** (if applicable) – Formal written approval from Moore County Public Safety and Moore County GIS of street names within subdivisions.

☐ **APPROVED SITE PLAN AND ENGINEERING PLANS**, or as-built plans, conforming with the requirements of the UDO, for all streets, grading, sanitary sewerage system, storm drainage facilities, water distribution system, sediment and erosion control, and other pertinent site improvements.

☐ **HOMEOWNERS ASSOCIATION DOCUMENTATION** *(if applicable)* – a copy of the Homeowners' Association Articles of Incorporation and bylaws, to be recorded with the Register of Deeds, shall contain the following information:

i. The legal description of the common land;
j. A description of common facilities;
k. The restrictions placed upon the use and enjoyment of the lands or facilities;
l. Persons or entities entitled to enforce the restrictions;
m. A mechanism to assess and enforce the common expenses for the land or facilities (e.g., utility systems, private roads and other public or quasi-public improvements) including upkeep and maintenance expenses, real estate taxes and insurance premiums;
n. A mechanism for resolving disputes among the owners or association members;
o. The conditions and timing of the transfer of ownership and control of land facilities to the association;
p. Any other matter the developer deems appropriate.

☐ **COVENANTS AND RESTRICTIONS** *(if applicable)* – one copy of all covenants and restrictions corresponding to the Homeowners Association for the proposed subdivision;

☐ **PUBLIC UTILITY EASEMENTS (if applicable)** – copies of utility easements granting the Town of Southern Pines access for future operations and maintenance of utilities.

☐ **ADDITIONAL DOCUMENTATION** – Additional text, maps, and/or TOSP modified SystemVision construction standards provided to demonstrate consistency with the approval criteria in section 2.19, 2.49, or 2.50 of this UDO, as applicable.

**Additional information may be required. Fees are subject to change.*

APPENDIX B: ENGINEERING AND CONSTRUCTION STANDARDS MANUAL

Engineering and Construction Standards Manual

December 9, 2025

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CHAPTER 1: SPECIFICATIONS AND SPECIAL PROVISIONS

1. GENERAL NOTES

A. The Town of Southern Pines Engineering and Construction Standards Manual has been adopted by the Town of Southern Pines to define the minimum standards for the design and construction of new infrastructure within the Town limits of Southern Pines and the ETJ. Additional requirements may be deemed necessary by the Director of Public Services or Town Engineer depending on the proposed improvement. There are supporting specifications from multiple agencies listed in Chapter 6 – REFERENCES. All specifications used and noted will be the most current revision for the respective specification and publication. The more restrictive specification shall be enforced.

B. No work associated with excavations, tie-ins to existing utilities, lane or road closures requiring observation by Town personnel will be allowed outside of the hours of 7:00AM to 5:00PM on weekdays, or on weekends and holidays unless written authorization is obtained from the Director of Public Services.

C. No work will be permitted outside of the hours of 7:00AM to 9:00PM on weekdays and 8:00AM to 9:00PM on Saturday without authorization from the Director of Public Services.

D. Contractors performing work in the Town of Southern Pines shall have a North Carolina Contractor License with the appropriate classification for the work being performed.

E. No land disturbing activities shall be allowed until an erosion control permit has been obtained from the Town. Land disturbing activities include, but are not limited to, grubbing, grading and utility installations.

F. Prior to grading operations, a grading permit shall be obtained from the Town of Southern Pines.

G. Prior to beginning construction in the Town of Southern Pines, a preconstruction meeting with the Town Inspector shall be held, and submittals (shop drawings) shall be approved. The submittals should include all materials (roadway, storm and utilities) to be used during construction. Please allow 2 weeks for the review.

H. Erosion control measures shall be installed as required by the erosion control and sediment permit. Maintenance and documentation as required by the erosion control and sediment permit is the responsibility of the contractor and erosion control measures shall not be removed without the permission of the Town Engineer. Sediment leaving a site, regardless of size of project, shall have corrective actions taken immediately by the financially responsible person to avoid further loss of sediment from the site. Methods of conveyance of sediment from the site include water, air, gravity or ice.

I. The use of Town water to perform construction activities shall be metered. The Town has 1 fire hydrant for obtaining non-potable water for construction located at the Town's Pubic Works Annex, 801 SE Service Road, Southern Pines, NC 28387. Prior to obtaining water from the hydrant, a permit application shall be submitted to the Utilities Superintendent. In lieu of using the fire hydrant at the Town's OC, a fire hydrant meter may be obtained from the Town for specific locations. For details to obtain a fire hydrant meter, contact Town of Southern Pines Public Works Department at 910-692-1983. The meter applicant is responsible for backflow prevention at the meter and payment for water used.

2. ACRONYMS

AASHTO – American Association of State Highway and Transportation Officials

ACI – American Concrete Institute

ANSI – American National Standards Institute

ASTM – American Society for Testing and Materials

CIP – Capital Improvement Projects

CTP – Comprehensive Transportation Plan (Developed by the TARPO)

DIP – Ductile Iron Pipe

DWQ – North Carolina Department of Environmental Quality, Division of Water Quality

FHA – Federal Highway Administration

IFC – International Fire Code

MUTCD – Manual for Uniform Traffic Control Devices

NACTO – National Association of Town Transportation Officials

NCAC – North Carolina Administrative Code

NCDEQ – North Carolina Department of Environmental Quality

NCDOT – North Carolina Department of Transportation

NPDES – National Pollutant Discharge Elimination System

PROWAG – Public Right of Way Accessibility Guidelines

PVC – Polyvinyl Chloride

RCP – Reinforced Concrete Pipe

SCM – Stormwater Control Measure

TARPO – Triangle Area Rural Planning Organization

UDO – Unified Development Ordinance

USACE – United States Army Corps of Engineers

USGS – United States Geological Survey

CHAPTER 2: STREETS

1. GENERAL NOTES

A. All work and materials shall conform to the latest edition of the NCDOT Standard Specifications for Roads and Structures unless otherwise specified in this manual.

B. Depending on the proposed construction activities, a bond may be required for possible damages to Town streets and, shall be in an amount established by the Town.

C. The contractor shall maintain two-way traffic at all times when working within existing streets in accordance with the latest edition Manual for Uniform Traffic Control Devices (MUTCD) and NCDOT.

D. Street cuts and sidewalks should be completely repaired in an expedient manner. Unless otherwise noted in construction documents, cuts must be filled per Standard Details, with flowable fill or suitable material to within 1.5" of finished grade within 3 days of initial work. Finished roadway surfaces, sidewalks and curbs must be restored within 15 days of initial work.

E. Trench Backfill Requirements:

1. All backfill shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Materials deemed by the Inspector as unsuitable for backfill purposes shall be removed and replaced with select backfill material.

2. All trenches in the street right-of-way shall be backfilled immediately after the pipe is laid. No more trench shall be opened in advance of pipe laying than is necessary to expedite the work. One block or 200' (whichever is less) shall be the maximum length of open trench on any line under construction.

3. All trench backfill shall be compacted to 8" below the finished surface to a 100% density in accordance with AASHTO T 99 as modified by NCDOT. All trench backfill greater than 8" below the finished surface shall be compacted to 95% density in accordance with AASHTO T 99 as modified by NCDOT.

4. All trench backfill shall be compacted in maximum 6" lifts.

F. All subgrade shall be compacted to a depth of 8" below the finished surface to a 100% density in accordance with AASHTO T 99 as modified by NCDOT. All embankment shall be compacted to 95% density in accordance with AASHTO T 99 as modified by NCDOT for depths greater than 8".

G. All trench backfill, subgrade, embankment fill, and ABC shall require density tests be performed at a frequency as follows. Test reports shall be conveyed to the Town on a weekly basis.

Road subgrade	1 test group for every 1,000 feet of road
Parking subgrade	1 test group for every 3,000 square yards
Aggregate Base Course	Same as subgrade
Trenches	1 test group for every 2,000 feet of trench or every road crossing
Embankment Fill	1 test group for every 5,000 cubic yards or fraction thereof

*A test group shall consist of 1 test for every other lift

H. All manholes, junction boxes, water valve boxes and other appurtenances shall be covered at subgrade level with a steel plate until the first lift of surface course asphalt is placed. At that time, the utility may be raised to the finished grade.

I. A tolerance for grading the subgrade shall be +/- ½" from the established grade will be permitted after the subgrade has been graded to a uniform surface. A tolerance of +/- ¼" will be permitted under concrete pavement mainline lanes. Perform the grading operation such that the maximum difference

between the established grade and the graded subgrade within any 100' section is ½" for normal subgrade and ¼" for subgrade for concrete pavement.

J. A proof roll witnessed by an accredited testing firm and the Town Inspector shall be required prior to placing curb and gutter, ABC, and asphalt. A report of the proof roll shall be provided to the Town Engineer. Equipment to be used for the proof rolls shall be a loaded tandem dump truck. Proof rolls shall not occur more than 10 days prior to the placement of the associated work.

1. Proof rolls will not be performed on frozen subgrades and inclement weather will void any proof roll if the associated work has not been completed.
2. A motor grader may be used in some circumstances for a proof roll on curb and gutter only. Prior approval by the Town Engineer is required for use of a motor grader.
3. Weight requirements for equipment:
   Motor Grader 30,000 lbs
   Tandem Truck 45,000 lbs

K. Upon completion of the subgrade proof rolling, a report from an accredited testing laboratory shall be provided to the Town Engineer. The report shall present the results of a Proctor analysis demonstrating that the subgrade compaction is acceptable in accordance with standard requirements of NCDOT in all the significant fill areas. The testing firm shall also inspect the subgrade to verify conformance with the pavement design report and provide a report of the findings to the Town Engineer. Upon acceptance and approval, the stone base course may be placed. However, no stone base may be placed prior to backfilling behind the curb. The stone base course materials should be placed and compacted to grade. Compaction and thickness testing shall be performed at a rate of 1 set of tests/ 1,000 linear feet with a minimum of three tests. Once the thickness and density of the ABC stone has been verified, and prior to the placement of concrete or asphalt, another proof roll of the ABC stone shall be performed under the supervision of the accredited testing laboratory and the Town Engineer. Once a passing proof roll is achieved, concrete and/or asphalt should be placed as soon as possible. In the event that inclement weather occurs after the ABC stone proof roll and before the placement of concrete or asphalt, or if a period of greater than 10 days lapses before paving, another proof roll of the ABC stone will be required. The contractor shall bear the cost of laboratory testing and inspections.

L. Concrete or asphalt shall not be placed in inclement weather. The contractor shall protect freshly placed concrete or asphalt in accordance with Section 420 (Concrete Structures), Division 6 (Asphalt Pavements), and Division 7 (Concrete Pavements and Shoulders) of NCDOT Standard Specifications. Prior to any concrete being placed, a pre-pour meeting shall be required. Schedule the pre-pour meeting with the inspector.

M. All concrete used for streets, curb and gutter, sidewalks and drainage structures, etc. shall be approved NCDOT mixes, unless otherwise directed by the Town Engineer or project special provisions. Concrete testing shall follow requirements and frequency set forth by NCDOT and ACI.

N. The concrete temperature at the time of placement shall be between 50°F and 95°F except where other temperatures are required by NCDOT Specifications, Section 420. Do not place concrete without permission when the air temperature measured at the location of the concrete operation in the shade away from artificial heat is below 35°F. When such permission is granted, uniformly heat the aggregates and/or water to a temperature not higher than 150°F. Heated concrete shall be between 55°F and 80°F at the time of placement.

O. All excess concrete on the front edge (lip) of gutter shall be removed when curb and gutter is poured with a machine.

P. Straight forms shall not be used for forming curb and gutter in curves.

Q. Contraction joints, expansion joints and joint sealer shall follow NCDOT Specifications and Town Standard Details.

R. All concrete shall be cured with curing compound. Use white pigmented curing compound which meets ASTM C 309, as required by NCDOT Section 825 and Section 1026, applied at a uniform rate per manufacturer's instructions. Apply the membrane curing compound after the surface finishing is complete and immediately after the free surface moisture disappears, but at no point, more than 24 hours of after placement of the concrete.

S. All curb and gutter shall be backfilled with soil approved by the Town Engineer within 7 days after construction, but not before 3 curing days has elapsed. Do not place ABC or pavement adjacent to the curb before the 3 curing days has elapsed.

T. Prior to any asphalt being placed, a pavement coordination meeting shall be required. Schedule the pavement coordination meeting with the Town Inspector. All testing reports shall be provided to the Town Engineer prior to scheduling the pavement coordination meeting.

U. Asphalt shall not be placed unless the minimum temperatures are met in NCDOT Specifications, Section 610. Do not place plant mix base course that will not be covered with surface or intermediate course during the same calendar year or within 15 days of placement if the plant mix is placed in January or February. The asphalt supplier and/or paving contractor shall perform all required field and laboratory testing in accordance with the current NCDOT standards during the production and installation of the paving materials. The results of the field and laboratory testing data will be provided to the Town Engineer for review and for final approval of the paving materials.

V. When delaying the installation of the final lift of asphalt, drainage shall be maintained on the streets between the first lift of S9.5B and the second lift of S9.5B when the street is accepted. Use Southern Pines Standard Details to accommodate drainage in low areas.

W. Surfaces shall be tacked when asphalt is being placed over existing asphalt streets or adjoining concrete, storm drain and sanitary sewer structures. In the event more than 1 lift of asphalt is placed in a single day, tack is still required between lifts.

X. All asphalt cuts shall be made with a saw when preparing street surfaces for patching or widening strips. Milling is an acceptable alternative to saw cuts when applicable.

Y. Paper joints shall be used to seal the ends of an asphalt pour so that future extensions can be made without causing rough joints.

Z. When placing asphalt against existing surfaces, a straight edge shall be used to provide a smooth and consistent transition between the two surfaces at that location.

AA. Dead-end streets without cul-de-sacs shall be required to install object signs designating the dead-end.

BB. Fire apparatus access road shall be capable of supporting the imposed load of fire apparatus weighing at least 75,000 lbs in any weather condition, including during development construction. The access road minimum unobstructed width shall be 20', exclusive of shoulders, with a 13'-6" unobstructed vertical height (IFC Section 503.2.1) and shall not exceed a 10% grade. In the event a fire hydrant is located on the access road, the minimum width of the road shall be 26', exclusive of shoulders (IFC Appendix D). Grades steeper than 10% as approved by the fire chief. See Appendix A for dead-end access road turnarounds.

CC. During phasing of residential developments temporary turnarounds are required for fire apparatus access. The temporary turnaround is required for streets 150' + from the intersecting street without a designed cul-de-sac.

DD. All permanent striping shall conform to NCDOT Specifications, and MUTCD standards and specifications. Temporary striping may be paint and conform to NCDOT specifications for the duration of time in which the striping can be installed prior to installing the permanent striping.

EE. Traffic Calming Devices shall be prohibited unless approved by the fire code official (2018 NC Fire Code 5.3.4.1).

2. STANDARDS OF STREET DESIGN

A. **Streets** (Public and Private): Refer to Appendix A for Street Classifications.

B. **Intersections:**

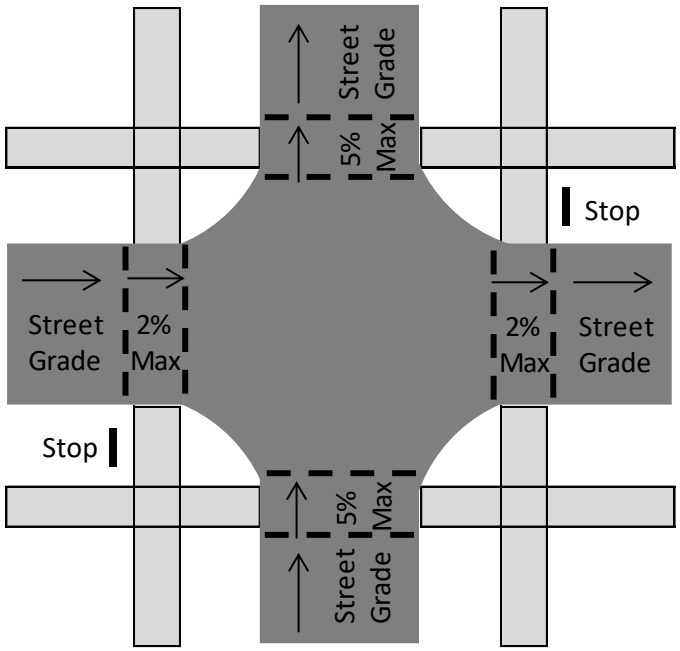
1. Maximum Street Grade at Intersections (See Diagram 2-1):

a. STOP or YIELD Condition: Vertical alignment is 2% maximum through the crosswalk areas (marked or unmarked). Outside of the crosswalk areas, the vertical alignment is 5% maximum within 100’ of an intersection.

b. THROUGH MOVEMENT Condition: Vertical alignment is 2% maximum through the crosswalk areas. Where feasible, it is recommended that the vertical alignment for a through movement street also be set at 2% maximum through the crosswalk areas (marked or unmarked).

c. Insofar as practical, streets shall intersect at an angle of 90° for a minimum of 50’ from the roadway intersection. In no case shall the angle be less than 75°. Intersections having more than 4 corners shall be prohibited. Proposed streets which intersect opposite sides of another street (either existing or proposed) shall be laid out to intersect directly opposite each other.

DIAGRAM 2-1: INTERSECTION GRADES



C. **Intersection Sight Distance:**

1. Minimum sight triangles will be provided at each intersection corner. Sight distance shall be measured a minimum of 15 feet from the edge of the travel lane or 10 feet from the back of the curb, whichever is greater.
2. Sight triangles shall contain no fence, structure, earth bank, hedge, planting, wall or other obstruction between a height greater than 2' above the property line grade as established by the Town Engineer. The following are exempted from this provision:
   a. Existing public utility poles.
   b. Existing trees trimmed (to the trunk) to a height at least 9' above the level of the intersection.
   c. Other plant species of open growth habit that are not planted in the form of a hedge and which are so planted and trimmed as to leave in all seasons a clear and unobstructed cross-view.
   d. A supporting member or appurtenance to a permanent building lawfully existing on the effective date of this ordinance.
   e. Official warning signs or signals.

D. **Stopping Sight Distance:** Intersections designs shall account for stopping sight distances in accordance with Tables 2-1 and 2-2.

TABLE 2-1: STOPPING SIGHT DISTANCE

MINIMUM STOPPING SIGHT DISTANCE (ft)							
Vehicle Speed (mph)	**UPGRADES**			**FLAT**	**DOWNGRADES**		
	9 %	6 %	3 %	0 %	-3 %	-6 %	-9 %
25	140	145	150	155	160	165	175
30	180	185	200	200	205	215	230
35	225	230	240	250	260	275	290
40	270	280	290	305	315	335	355
45	320	330	345	360	380	400	430
50	375	390	405	425	450	475	510

TABLE 2-2: DESIGN INTERSECTION SIGHT DISTANCE, LEFT TURN FROM STOP

Design Speed (mph)	**Stopping Sight Distance (ft)**	**Intersection Sight Distance for Passenger Cars**	
		Calculated (ft)	Design (ft)
15	80	165.4	170
20	110	220.5	225
25	155	275.6	280
30	200	330.8	335
35	250	385.9	390
40	305	441.0	445
45	360	496.1	500
50	425	551.3	555

E. **Cul-de-sac Streets:**

1. Shall not exceed a more than 500 feet of length from the connection to the intersecting street to the furthest paved point. Temporary cul-de-sacs on stub streets shall not exceed one-thousand (1,000) feet unless no other practicable alternative is available.

   a. The preliminary and final site plan shall show a stub connecting the cul-de-sac to adjoining areas or parcels where future roadways are delineated on a recorded subdivision or site plan (provided reasonable connection can be achieved without the need for a bridge or other feature to negate substantial topography). The stub shall be improved as pedestrian walkway, trail, or bikeway.

   b. The radius for the circular terminus, or turnaround, shall be not less than 43'.

F. **A Traffic Impact Analysis (TIA) and Traffic Design Analysis (TDA):** Are required per section 4.11 Transportation/Traffic Analyses of the UDO.

G. **Pavement Design:**

1. All public roads and private roads classified as collectors or higher shall follow the NCDOT's Pavement Design Procedure. The design engineer shall provide a design report verifying compliance with the design procedure manual.

2. Private residential local roads shall follow NCDOT's Subdivision Road Minimum Construction Standards. The design engineer shall provide a design report verifying the roadway classification subgrade soil type, and documentation of the minimum pavement design to be used for the project.

H. **Driveways**

1. Refer to Southern Pines Standard Details for driveway layout and separation requirements.

2. Driveway Permits and inspections are required per UDO.

I. **Design Vehicles**

1. Site designs and/or street designs shall evaluate the minimum turning radius for the vehicular traffic intended for use to support the proposed improvement. The evaluation of the vehicular turning radius shall include, but not be limited to, parcel delivery trucks, garbage trucks, semi-truck and trailers and current Southern Pines Fire Department fire apparatus vehicles. See Appendix A for appropriate design vehicles.

2. Regardless of the street classification or design vehicle, radii may need to be adjusted to meet the requirements of the proposed usage and vehicle. The Town Engineer may request the additional requirements based on the proposed usage warrants.

J. Roadway Geometric Design

1. All commercial collector and higher roads shall be designed in accordance with the NCDOT's Roadway Design Manual. The design engineer shall provide a design report verifying compliance with the standards.

2. All residential roads shall be designed in accordance with the NCDOT's Subdivision Road Minimum Construction Standards. The design engineer shall provide a design report verifying compliance with the standards.

3. In no case shall a road exceed a maximum of a 10% grade.

4. Roads built without a curb and gutter shall not exceed a 5% grade.

5. Cul-de-sac radius shall be in accordance with the Town's design standards.

3. GRADING

A. The maximum slope for cuts and fill embankments is 3:1. Fill embankment materials shall be placed and thoroughly compacted in successive layers ≤ 10" in depth for the full width of the cross-section, including the width of the slope area. No stumps, trees, brush, rubbish or other unsuitable materials or substances shall be placed in the embankment.

B. Longitudinal grades shall have a minimum grade of 1% and a maximum grade of 10%. Grades shall not exceed 5% on roads without curb and gutter.

C. Transverse grade or crown shall be 2% with +/- 0.5% tolerance unless otherwise approved by the Town Engineer.

4. ROADWAY BASE

A. Stone base course shall conform in all respects to Section 520 (Aggregate Base Course), Section 1006 (Aggregate Quality Control/Quality Assurance), Section 1010 (Aggregate for Non-Asphalt Type Bases) of the NCDOT Standard Specifications for Roads and Structures.

B. The stone base shall be compacted to 100% in accordance with AASHTOT180 as modified by NCDOT when conventional density test #3 is used. When nuclear density testing is performed, a nuclear target density of at least 98% shall be obtained. In addition, the nuclear density of any single test location shall be at least 95% of the nuclear target density.

C. ABC will not be allowed within widening strips less than 5' in width.

D. Prior to the placement of base material, all subgrade, trench, and embankment testing shall be completed and provided to the Town.

5. ROADWAY INTERMEDIATE AND SURFACE COURSE

A. Plant mixed asphalt shall conform in all respects to Section 610 (Asphalt Concrete Plant Mix Pavements) of the NCDOT Specifications for Roads and Structures.

B. A pavement coordination meeting shall be required prior to placing any asphalt. All testing reports shall be provided to the Town prior to scheduling of the meeting.

C. An approved NCDOT Job Mix Formula shall be required to be submitted prior to paving.

D. The contractor shall have a third party QMS Roadway Technician on-site during the paving operation. A report of the Technician's inspections and testing shall be provided to the Town.

E. The contractor may elect to leave the final lift of asphalt surface course, for residential subdivision streets, withheld until the portion platted is occupied (occupied means a certificate of occupancy has been issued) and no conflicts exist between the water and sewer services and the proposed driveways. A subdivision improvement agreement will be required for the final lift of asphalt.

F. Roadway Final Lift Inspection Procedures:

1. Contractor puts down intermediate course and/or first lift of surface course and raises structures to final grade (including concrete collars 1" to 1.5" below final grade). Asphalt is to be placed around structures to prevent damage.

2. Contractor submits Record Drawings to the Town Engineer.

3. Upon approval by the Town Engineer, Contractor may request final inspection for water and/or sanitary sewer. Owner, along with the Town Inspector, shall then verify the water services and/or sanitary sewer laterals are not in conflict with driveways and/or other proposed infrastructure.

4. The final asphalt must be placed before 2 years have lapsed since the approval of the intermediate asphalt layer. The Town must approve surety to cover the 2-yr period.
5. After placement of the final asphalt, the Contractor may request final inspection for the roadway, and upon approval, the 1-yr warranty of the roadway begins.

G. In the event construction traffic must be routed on newly paved streets, a bond shall be provided to the Town until construction activities are completed.

H. Prior to placing the final layer of surface course asphalt, the Town inspector shall be given a 48 hr notification to inspect the roadway for deficiencies. All deficiency repairs are to be completed prior to application of final layer.

I. Cores or nuclear density may be used on base, intermediate and first lift of surface course mixes. Cores will not be permitted on the final lift of surface course. Only nuclear density testing shall be used on the final lift of surface course.

J. Access must be maintained during the paving operation. Residents, emergency vehicles, solid waste collection and mail delivery will need to be addressed during the pavement coordination meeting.

6. SIDEWALKS AND RAMPS

A. Where sidewalks and pedestrian routes within street crossings (including marked and unmarked crosswalks) are provided, they must be constructed so they are accessible to all potential users, including those with disabilities and conform to the Americans with Disability Act.

B. Sidewalks shall be constructed of not less than NCDOT, Class B concrete, and shall be 4" thick, constructed on an adequately graded base, except where a sidewalk crosses a driveway it shall be 6" thick. Subgrade shall be compacted to 95% of the maximum density obtainable in accordance with AASHTO T 99 as modified by NCDOT. The surface of the sidewalk shall be steel trowel and light broom finished and cured with an acceptable curing compound. Tooled joints shall be provided at intervals of not less than 5', and ½" expansion joints at intervals of not more than 50'. ½" expansion joints will be required where the sidewalk joins any rigid structure. The sidewalk shall have a maximum lateral slope of 2% toward the street.

C. All expansion joints shall be filled with joint sealer.

D. Planting strip adjacent to sidewalk shall be graded to ¼"/ft, except where excessive natural grades make this requirement impractical. In such cases, the Town Engineer may authorize a suitable grade.

E. Sidewalk widths shall be a minimum of 5' unless otherwise specified.

F. Approval of sidewalk construction plans must be obtained as part of the plan review process. Except in unusual circumstances, the sidewalk must be located a minimum of 6' from the back of the curb or at the back of the right-of-way. A recorded public sidewalk easement is required for all sidewalk located outside public right-of-way; the width shall be equal to the distance from the right-of-way line to the back of the sidewalk plus two feet or to the face of building, whichever is less. The sidewalk easement must be recorded with the Moore County Register of Deeds prior to issuance of a certificate of occupancy for the corresponding building(s).

G. Running slope of directional ramps shall be from 7.5% to 8.33% maximum. Ramp length is not required to exceed 15' regardless of the resulting slope, which shall be uniform for the length of the ramp. Curb ramps are required where sidewalks intersect curbing at any street intersection and at Type III driveway connections.

H. Truncated domes shall be Federal Standard Color Code number 20109, "Red Brown."

I. Refer to the MUTCD (latest edition) for construction zone pedestrian routes and signalization and controls for actuators. Curb ramps shall be designed and constructed in accordance with the Americans with Disability Act.

J. Where pedestrian routes are contained within a street or right-of-way, the grade of pedestrian access routes shall not exceed the general grade established for the adjacent street or highway.

7. DRIVEWAYS

A. All driveway entrances and other openings onto town-maintained streets shall, at a minimum, conform to the requirements set forth in this section. Driveway entrances to state-maintained streets shall also conform to the standards contained herein as well as those of the North Carolina Department of Transportation. In the event of a conflict between the two sets of standards, the most restrictive standard shall apply.

B. A Driveway Permit from the Town of Southern Pines is required prior to making connection to a Town street. Refer to the Land Development details for driveway layout requirements.

C. The Town requires inspections of the street connections. Provide a minimum notice of 48 hours to schedule the inspection.

D. Depending on the type of connection to streets or roadways, additional right of way, dedicated to the Town, may be required for improvements to the existing roadway. The cost of the right of way acquisition and street improvements is the responsibility of the Developer.

E. Medians or islands may be permitted for street type driveways and private street entrances only, upon approval of the Town Engineer and subject to the following conditions:

1. The raised median or island shall be constructed on private property to the rear of the right-of-way line.

2. The minimum width of the median or island as measured nearest the right-of-way line (excluding the nose) shall be 15’, the minimum length shall be 50’.

3. For street type driveways with a median or island, the combined width of pavement of the separated driveway segments shall not exceed 48’.

F. The standards for driveway spacing delineated in this section are intended as general guidelines for driveways with low and moderate traffic volumes. Spacing for high volume driveways (such as shopping centers, major apartment complexes, etc.) shall be determined by the Town Engineer based upon actual traffic conditions and needs.

G. The number of permissible driveways on an individual property shall be determined as follows in Table 2-4:

TABLE 2-4: MAXIMUM NUMBER OF DRIVEWAYS BY STREET

Maximum Number of Driveways by Street		
Frontage	**Arterial**	**All Other**
<50'	1	1
51'-150'	1	2
151'-500'	2	3
>500'	3	4
See UDO Section 3.6.5 for additional limitations on the number of driveways for property located within highway corridor overlay district.		

H. Applicants for driveways may be required to dedicate right-of-way for and construct or reimburse the cost of constructing medians, acceleration and deceleration lanes and traffic storage lanes to connect a driveway to a street. The need for these improvements will be determined by the Town Engineer and in cases involving driveway connections onto state-maintained roads, the consent of the North Carolina Department of Transportation must also be obtained. The need for the improvements must be reasonably attributable to the traffic utilizing the driveway and the improvements must be designed to serve the driveway traffic.

8. PARKING

A. Off-street parking spaces shall be provided in accordance with the requirements in Chapter 4.5 Off Street Parking and Loading of the Southern Pines UDO. The Planning Department reviews and approves the parking requirements and the Planning Director shall be authorized to approve any alternate parking plans for developments.

B. A parking lot pavement design shall follow the procedure found in NCDOT's Subdivision Road Minimum Construction Standards. The design engineer shall provide a design report verifying the appropriate comparable classification, subgrade, soil type, and documentation of the minimum pavement design to the used for the project.

C. Concrete parking areas shall be designed and constructed the same as pavement except that the concrete surface shall be a minimum of six (6) inches in thickness.

D. When justified, the Town Engineer may allow other paving materials to be used so long as a design report is produced and certified by a professional engineer that an equivalent level of stability is achieved.

E. When parking areas are not required to be paved with asphalt, concrete, or other paving material in accordance with Chapter 4.5 Off Street Parking and Loading of the UDO, the parking areas shall be designed and constructed the same as pavement with a minimum depth of six (6) inches of base stone and two (2) inches of surface stone.

9. NCDOT COORDINATION

A. Any connection or potential impact to a NCDOT roadway shall require approval by NCDOT. It is recommended coordination meetings take place early in the development process with the developer, NCDOT and Town of Southern Pines discussing potential requirements for roadway improvements, access to the site and right of way dedications. NCDOT has the ultimate authority for any work in NCDOT right of way.

B. It is the sole responsibility of the requesting party to determine if a street is State maintained or not.

C. Plan submittals, review and approvals should be coordinated concurrently with both, NCDOT and the Town of Southern Pines, to avoid conflicting requirements. The coordination should account F for the review process of the two agencies may not coincide and communication of submittals from the requesting party is essential in avoiding delays. In situations where an agency's regulation differs from that of the other agency, the more restrictive of the two shall govern.

D. NCDOT and the Town of Southern Pines require approvals for connections to existing roadways. The Town of Southern Pines will approve any connections to Town streets. Prior to obtaining Site Plan approval or Town driveway permit, the requesting party shall provide the Town of Southern Pines an approved driveway permit from NCDOT allowing access to the site from a NCDOT street.

E. During construction of the project, both NCDOT and the Town of Southern Pines have enforcement authority to ensure safety in the right of way is not being compromised. Both agencies have the ability to affect the project's progress if there is reason to believe proper construction practices are not being adhered to and/or if unsuitable materials are being used in the right of way. Failure to comply with permits and the approved plans may result in revocation of permits.

10. BRIDGES

A. The use of a bridge for a publicly maintained project shall require prior approval by the Town Engineer.

B. The layout and design of bridges shall follow the current applicable NCDOT policies and manuals and shall be designed under the responsible charge of a registered design professional.

C. The bridge shall be designed to include support for lighting, public water lines and other public utilities. Private utility lines are not allowed to be attached to the structure.

D. Design submittals shall include copies of foundation reports, design load assumptions, and bridge design calculations for structural components.

E. The developer shall be responsible for providing geotechnical testing, engineering oversight and construction observation of the bridge and associated structures by a qualified individual. Copies of the inspection reports and the design engineer's as-built certification shall be provided with the as-built drawings for the bridge.

11. GREENWAYS

A. Greenways constructed in the jurisdiction of the Town of Southern Pines shall follow current guidelines by NCDOT, NCDOT Greenway Specification Z-200, MUTCD, AASHTO, FHWA, ADA and this manual.

B. Construction of greenways and trails shall require permits be obtained from each agency having jurisdiction within the construction area. Potential agencies requiring permits for greenway construction are: NCDOT, FEMA Conditional Letter of Map Revision (CLOMR/LOMR), U. S. Army Corps of Engineers, DWQ and NCDEQ.

C. Minimum stopping sight distance for various design speeds, vertical and horizontal curves, and grades need to be considered to ensure safe braking distance on a shared use path. The AASHTO Guide for the Development of Bicycle Facilities provides methodologies, tables and graphs of stopping sight distance for various combinations of grade and design speed.

D. Horizontal radii shall be a minimum 90' centerline radius.

E. Radii at greenway intersections shall be a minimum 20' to accommodate maintenance vehicles.

F. Greenway intersections should be aligned at 90° angles when possible.

TABLE 2-5: GREENWAY MINIMUM STOPPING SIGHT DISTANCE

A	English Units - Minimum Length of Crest Vertical Curve (L) Based on Stopping Sight Distance														
%	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
2												30	70	110	150
3								20	60	110	140	180	220	260	300
4						15	55	95	135	175	215	256	300	348	400
5					20	60	100	140	180	222	269	320	376	436	500
6				10	50	90	130	171	216	267	323	384	451	523	600
7				31	71	111	152	199	252	311	376	448	526	610	700
8			8	48	88	128	174	228	288	356	430	512	601	697	800
9			20	60	100	144	196	256	324	400	484	576	676	784	900
10			30	70	111	160	218	284	360	444	539	640	751	871	1000
11			38	78	122	176	240	313	396	489	592	704	826	958	1100
12		5	45	85	133	192	261	341	432	533	645	768	901	1045	1200

1. When S>L = 2S – 900/A Shaded area represents S = L
2. When S<L = $AS^2/900$

L = Minimum Length of Vertical Curve (ft)
A = Algebraic Grade Difference (%)
S = Stopping Sight Distance (ft)
Height of Cyclist's Eye = 4.5'
Height of Object = 0'
Minimum Length of Vertical Curve = 3'
Source: AASHTO, Guide for the Development of Bicycle Facilities

G. Shared-use trails shall be constructed to a minimum width of 10'. Trails to be used for pedestrians only shall be constructed to a minimum width of 6'.

H. Shoulders for all trails shall have a minimum 2' width on each side of the trail. 5' shoulders shall be required in fill areas and 3' shoulders in cut areas.

I. A clear, unobstructed, space from the edge of pavement of 10' shall be required. Trees greater than 15" in diameter may remain, provided they are at least 2' clear of the trail.

J. Greenways and trails shall not be constructed with a crown. All greenways and trails shall be constructed with cross-slopes between 1% - 2%.

K. Longitudinal slope shall be less than 5% unless existing contours prohibit. In the event grades are steeper than 5%, an 8.33% grade shall not be longer than 200', a 10% grade shall not exceed 30' and a 12.5% grade shall not exceed 10' without a rest area.

L. Rest areas shall be greater than 5' in length, have a width greater than the width of the trail segment to and from the rest area, have a grade less than 5%, have a cross-slope that exceeds 2%, have a minimal change of grade and cross-slope on the segment connecting the rest area with the main pathway and have accessible designs for amenities such as benches, where provided.

M. The typical section for greenways shall include:

1. Geotextile fabric for soil stabilization placed on subgrade compacted to a density of 92% in accordance with AASHTO T99 as modified by NCDOT.
2. ABC shall be placed at a 6" compacted depth with a density of 92% in accordance with AASHTO T180 as modified by NCDOT for both nuclear and ring test.
3. Asphalt option: place asphalt, 2" of S9.5B placed in one lift, in accordance with Section 610 of the Standard Specifications, compacted to at least 85%. Coring of the final surface course will not be allowed.

N. Provide a 54" safety rail when the following is within 6' of the edge of pavement:

1. Slope ≥ 3:1 & drop of 6'.
2. Slope ≥ 2:1 & drop of 4'.
3. Slope ≥ 1:1 & drop of 1'.

O. The current North Carolina Building Code requires handrails for instances where the distance from the top of a boardwalk deck to the bottom of the creek or top of ground is 30" or more. For instances where the distance is less than 30", a 6" toe board shall be used to prevent falls.

P. Bridges shall have at least 10' clear inside dimensions. For bridges 10' in width, a design load of H5 shall be required. For bridges 12' in width, a design load of H10 shall be required.

Q. Overhead clearance shall be 8' minimum of vertical height for pedestrian trails and 10' of vertical height for multi-use trails.

R. During paving operations, dump truck loads shall be prohibited to 15 tons to prevent damage to the compacted ABC.

S. In environmentally sensitive areas, alternative seeding specifications may be required.

CHAPTER 3 STORM DRAINAGE

1. GENERAL NOTES

A. All work and materials shall conform to the latest edition of the NCDOT Standard Specifications for Roads and Structures, NCDOT Standard Drawings and the Southern Pines Engineering and Construction Standards.

B. Prior to beginning construction in the Town of Southern Pines, a preconstruction meeting with the Town shall be held, and submittals (shop drawings) shall be approved. The submittals should include all materials (roadway, storm, and utilities) to be used during construction.

C. Storm Drainage Pipe Cover

1. Minimum cover is 2’ measured from the final surface. Less than 2’ requires prior approval by the Town Engineer.
2. Maximum cover: reference NCDOT Highway Design Branch Roadway Design Manual.

D. In areas where downstream impoundments will create a tailwater that backs water up into the pipe system, culverts shall be constructed with O-ring seals in the joints, which may require testing of the system. The Town Engineer shall determine locations of the system testing.

E. Storm Drainage Pressure Testing. When pipe testing is required, the storm structures shall also be tested as required. Vacuum testing may be used as outlined in ASTM C1244. Exfiltration tests may also be performed as follows:

1. Plug the inlet and outlet and fill the manhole with water to within 6” of the top of the manhole.
2. Allow the water to stabilize for 1/2 hr and refill the manhole to the original elevation.
3. Mark the initial depth of water, and after 1 hr record the drop in the water level in the manhole.
4. The maximum allowable drop in vertical water height in the manhole shall be ¼” for all diameter sizes of manholes. If the water level in the manhole drops below the allowable drop amount, the Contractor shall repair the leak and retest.

F. Storm drainage piping shall be placed in a straight alignment at uniform grade. No changes in alignment shall be allowed except at catch basins, manholes, or other junctions that provide appropriate clean out access. The maximum length between access points is 400’.

G. The interior surfaces of all storm drainage structures shall be pointed up and smoothed to an acceptable standard using mortar mixed to manufacturer’s specifications.

H. All pipes in storm drain structures shall be flush with the inside wall. The floor of all storm drain structures shall be filled with concrete to an elevation flush with the downstream invert.

I. All storm drain structures over 3’-0” in height must have steps in accordance with standard details set forth in NCDOT Standard Specifications for Roads and Structures.

J. Catch basins with frame, grates and hoods installed in curb and gutter sections less than 2’-6” wide shall offset the frame, grate and hood to the back of the structure to maintain a consistent width of roadway.

K. Frames, grates and hoods shall not be offset from the catch basin more than 4”, front to back.

L. Density tests shall be required on trench backfill at a frequency established in Chapter 2 of the Town Engineering and Construction Standards.

M. Precast waffle boxes may not be used in areas with traffic bearing loads. Pipe shall enter precast waffle boxes in the area provided for knock outs, the corner or supporting wall section of a waffle box shall not be cut.

N. All graded creek banks and slopes shall be at a maximum 2:1 and not to exceed 10' without terracing, otherwise the slopes shall be designed by a Professional Geotechnical Engineer and approved by the Town Engineer on a case-by-case basis.

O. Acceptance of the storm requires: 2 videos (the 1st video is prior to the first proof roll, the 2nd video is after the installation of dry utilities, but prior to acceptance of the streets); as-built drawings; and certification by the design engineer using the Certification Form in Appendix A.

2. STANDARDS FOR STORM DRAINAGE & DETENTION DESIGN

A. All storm drainage design shall conform to the standards and specifications as provided herein and the UDO. The more restrictive of any standards that conflict, shall apply.

B. Site grading shall not increase the flow rate of runoff onto downstream properties.

C. **Storm Drainage Design**

1. Minimum pipe size is 15" to an inlet and 18" for open cross pipe culverts.
2. Storm system pipes and swales shall be designed for non-pressure conditions using the rational method for the10-yr storm event.
3. Cross-drainage storm sewers shall be designed using the rational method for a 25-yr storm event.
4. Minimum pipe slope is 0.5% or that which produces a velocity of 2.5 fps when flowing full.
5. Maximum pipe slope is 10% unless special anchoring is provided.
6. Maximum pipe velocities shall not exceed 20 fps.
7. Maximum discharge velocities at pipe outlets is 10 fps.
8. Maximum headwater HW/D ≤ 1.2.
9. Minimum freeboard:
    a. 12" for pipes ≤ 3'.
    b. 18" for pipes > 3'.
    c. 6" at yard inlets.
10. Driveway pipes for subdivisions shall be sized for the 10 year storm. The pipe sizes shall be labeled on the plans and final plat.
11. Storm pipes installed outside of the ROW shall be provided with a dedicated private easement meeting the minimum dimensions in Table 3-1.

TABLE 3-1: STORM PIPE EASEMENT DIMENSIONS

STORM PIPE									
Pipe Inner Diameter (in)	**Wall Thickness (in)**	**Pipe Outer Diameter (ft)**	**Min. Bottom Width (ft)**	**Max. depth to bottom of pipe @ Esmt Width (ft.)**					
				20'	**25'**	**30'**	**35'**	**40'**	**50'**
15	2.25	1.63	3.63	8.19	10.69	13.19	15.69	18.19	20.91
18	2.50	1.92	3.92	8.04	10.54	13.04	15.54	18.04	20.98
24	3.00	2.50	4.50	7.75	10.25	12.75	15.25	17.75	21.13
30	3.50	3.08	5.08	7.46	9.96	12.46	14.96	17.46	21.27
36	4.00	3.67	5.67	7.17	9.67	12.17	14.67	17.17	21.42
42	4.50	4.25	6.25	6.88	9.38	11.88	14.38	16.88	21.56
48	5.00	4.83	6.83	6.58	9.08	11.58	14.08	16.58	21.71
54	6.25	5.54	7.54	6.23	8.73	11.23	13.73	16.23	21.89
60	6.75	6.13	8.13	5.94	8.44	10.94	13.44	15.94	22.03
66	7.25	6.71	8.71	5.65	8.15	10.65	13.15	15.65	22.18
72	7.00	7.17	9.17	5.42	7.92	10.42	12.92	15.42	22.29
* - Depth beyond those shown on this chart shall require additional easement width to the nearest 5' increment.									

D. **Inlet Design**

1. Inlets shall be designed in accordance with the NCDOT Guidelines for Drainage Studies and Hydraulics.
2. Inlet placement will be determined using Table 3-2 but shall not exceed a maximum 400' spacing.
3. Bypass shall be limited to less than 0.10-cubic feet per second (cfs) into an intersection.
4. Sag points shall be designed with a 50% clogging factor and shall be a minimum of a double catch basin.

TABLE 3-2: DESIGN FREQUENCY AND SPREAD CRITERIA FOR INLET PLACEMENT

Roadway Classification	Design speed (on grade) or Sag (low point)[1]	Design Frequency (yr)	Intensity (in/hr)	Allowable Spread (ft)
Arterials	≤ 45 mph	10	4	Shoulder [1] + 3
	> 45 mph	10	4	Shoulder [1]
	Sag (low point)[2]	50	4	Shoulder [1] + 3
Collectors, Sub-Collector, and Local Streets	≤ 45 mph	10	4	½ travel lane
	> 45 mph	10	4	Shoulder [1]
	Sag (low point)[2]	25	4	½ travel lane

1. Applies to shoulder width 6 ft or greater; for narrower shoulder widths, design spread should not exceed 6 ft.
2. Sag (low point) criteria is applicable where there is no overland relief.

E. **Site Stormwater Design**

1. In accordance with UDO 4.14 Drainage, Erosion Control, Stormwater Management, the post-development runoff rate shall be equal to or less than the pre-development rate from the design storm or a ten (10) year storm event.
2. Detention facilities shall be designed, in accordance with the most recent NCDEQ guidance, to maintain the pre-developed runoff rate for 1-yr & 10-yr, 24-hr storm events.
3. Emergency spillways shall accommodate the 100-yr, 24-hr storm event with a minimum of 6" freeboard.

12. REINFORCED CONCRETE PIPE

A. All concrete shall meet the minimum specifications set forth in Section 1032 of the NCDOT Standard Specifications for Roads and Structures.

B. Concrete pipe used within the street right-of-way shall be a minimum of Class III Reinforced Concrete Pipe, with a minimum diameter of 15" (18" minimum on cross drain culverts within the ETJ and open-ended culverts under a road). Installation of Class IV or higher concrete pipe shall be identified on the As-Built Plan and the Town inspector shall be given documentation and notification of this information prior to construction.

C. Use flexible plastic joint material except when material of another type is specified in the contract documents. Joint material of another type may be used when permitted.

D. RCP < 42" in diameter, NCDOT Section 300 shall be used for installation.

E. RCP ≥ 42" in diameter:

1. Wrap filtration geotextile fabric around all pipe joints. Extend geotextile at least 12" beyond each side of the joint. Secure geotextile against the outside of the pipe by methods approved by the Engineer.
2. #57 stone shall be used as bedding. Bedding shall consist of a minimum of 7" in depth under the pipe, continuing up to the spring line of the pipe.

F. ASTM C969 and ASTM C1103 are acceptable methods of testing concrete pipe when testing is required by the Town Engineer.

13. POLYPROPYLENE PROFILE WALL PIPE

A. The Town Engineer may approve the use of Polypropylene Profile Wall Pipe for use outside the right-of-way.

B. Polypropylene Profile Wall 15" – 60" dual wall pipe shall have a smooth interior and annular exterior corrugations; 30" – 60" triple wall pipe shall have smooth interior and exterior surfaces with the exterior having minor annular corrugations.

C. Polypropylene Profile Wall pipe of the sizes shown or specified shall conform to:

1. ASTM F2736 Standard Specification for 6" - 30" Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe
2. ASTM F2764 Standard Specification for 30" - 60" Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications

D. Submittals shall include:

1. Manufacturer's product information including details of installation, joints and pipe/manhole connections; properties and strengths of pipes; and instructions on storage, handling, transporting and installation.

2. Pipe design load calculations (suggested if deep burial is an issue).
3. Factory test reports.

E. Pipe shall be joined with a gasketed integral bell and spigot joint meeting the requirements of ASTM F2736.

F. Pipe diameters 15" - 60" shall be watertight according to the requirements of ASTM D3212, with the addition of a 15-psi requirement. Spigot shall have 2 gaskets meeting the requirements of ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gaskets are free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.

G. 15" - 60" diameters shall have a reinforced bell with a polymer composite band installed by the manufacturer.

H. Damaged pipe will be rejected and shall be replaced at the Contractor's expense. Pipe and specials stored prior to use shall be stored in such a manner as to keep the interior free from dirt and foreign matter.

I. Fittings shall not be allowed. Any change in direction and/or additional pipes shall have a catch basin, manhole or junction box installed at the necessary location.

J. Polypropylene pipe shall be installed within 6 months of delivery to project site unless written approval is granted from the manufacturer and approved by the Town Engineer. Approval of an extension in storage time must be requested in writing and accompanied by inspection within 2 weeks prior to installation by an authorized representative of the manufacturer.

K. Long-term above ground storage of polypropylene pipe and fittings shall conform to the following procedure:

1. Pipe shall be stored on flat timber supports to facilitate placement and removal of lifting slings around pipe. All pipes shall be chocked to prevent rolling in high winds.
2. If stacked, minimum 3" wide timber supports shall be used and placed at the quarter points with chocks. Pipe shall not be stacked higher than 10' above the ground.
3. Pipe and Fitting laydown should be relatively flat and free of other potentially damaging debris. Laydown area should have proper drainage. At no time, shall any portion of pipe or fittings be stored in standing water for more than 24 hrs.

L. Pipe shall be handled using textile slings or other means recommended by manufacturer. Chains and cables in direct contact shall not be allowed.

M. Installation

1. Shall be in accordance with NCDOT Specifications, Section 300, and ASTM D2321 and manufacturer recommended installation guidelines.
2. Minimum cover in traffic areas for ≤ 48" shall be 1'
3. Minimum cover in traffic areas for ≥ 60" shall be 2'.
4. Maximum cover for polypropylene pipe shall be per Table 3-3.

TABLE 3-3: MAXIMUM COVER FOR POLYPROPYLENE PIPE

Diameter	Class 1	Class 2			Class 3		Class 4
	Compacted	95%	90%	85%	95%	90%	95%
15”	42	29	21	10	22	12	11
18”	36	25	18	9	19	12	11
24”	31	22	16	7	16	11	10
30”	33	23	17	9	17	11	10
36”	32	22	16	7	16	11	10
42”	32	22	15	7	16	11	10
48”	31	21	15	6	15	10	9
60”	34	23	16	6	16	11	10

5. Backfill material for minimum cover situations shall consist of:
    a. Class 1.
    b. Class 2 95-85% SPD.
    c. Class 3 95-90%.
    d. Class 4 95%.

N. **Jointing:**

1. Clean ends of pipe and coupling components.
2. Apply joint lubricant to pipe ends and elastomeric seals of coupling. Use only lubricants approved by the pipe manufacturer.
3. Use suitable equipment and end protection to push or pull the pipes together.
4. Do not exceed forces recommended by the manufacturer for coupling pipe.
5. Join pipes in straight alignment. Do not allow any deflection angle or pipe misalignment to exceed the maximum permitted by the manufacturer.

O. **Backfill**

1. Use non-cohesive materials include gravels, gravel-sand mixtures, sands, and gravelly sands.
2. Accomplish immediately after the pipe is laid.
3. The fill around the pipe shall be placed in layers not to exceed 8”.
4. Compacted to 95% of the maximum density with the AASHTO T 99 Modified Proctor Test.
5. A density of 100% AASHTO T 99 Modified Proctor is required for the top 8”.

P. **Testing Polypropylene Profile Wall Pipe**

1. Water tightness test (if required by the Town Engineer) may be accomplished in accordance with ASTM F1417 or ASTM F2487.
2. Deflection shall be checked using a mandrel no sooner than 30 days after installation of the final backfill. The mandrel size shall not be more than 5% of the inside diameter of the pipe, see Appendix A for dimensions of mandrel.

Q. Provide properly trained manufacturer’s service technician employed by the manufacturer to ensure proper installation of Polypropylene Profile Wall Pipe.

14. CORRUGATED ALUMINIZED METAL PIPE (SPECIAL DESIGN)

A. Corrugated Aluminized Steel Type 2 pipe, Corrugated Aluminum Alloy Structural Plate pipe, or Corrugated Aluminum Alloy Structural pipe arches may be used in special locations for culverts ≥

60” in diameter with approval by the Town Engineer. Type 1A Corrugated Metal Pipe shall not be allowed. The metal pipe shall be a minimum of 14-gauge metal. All pipe must be supplied by NCDOT approved manufacturers.

B. Bedding, installation and backfill of CAMP piping shall follow NCDOT specifications for flexible pipe in Section 300.

C. The minimum cover for CAMP piping shall follow NCDOT specifications and manufacturer recommended specifications, whichever is the more restrictive.

D. Corrugated aluminum alloy culvert pipe shall meet AASHTO M 196, except that Type IA pipe will not be permitted.

E. When a pipe is proposed to be installed in a stream with high velocity (>15 fps) runoff and with heavy bed load (especially angular rocks with sharp corners), the design and pipe gage must be evaluated for abrasion.

F. The soil water environment shall have a pH range between 4.0 to 9.0 and a resistivity of 500 ohm-cm or greater.

G. Galvanized steel, asphalt coated, and polymer coated pipe shall not be permitted.

15. SPECIAL STRUCTURES

A. Bridges, arch culverts, retaining walls, box culverts bottomless culverts, large headwalls, etc. shall be reviewed on a case by case basis depending on the intended use and environmental impacts associated with the project. The Town Engineer shall set forth guidelines for the design of Special Structures.

B. All Special Structures shall be designed by a licensed professional with credentials to support the intended design and work.

C. All Special Structures shall follow the specifications, certifications and approval processes associated with Federal, State, and Local agencies, along with the requirements of this manual.

CHAPTER 4 WATER DISTRIBUTION SYSTEM

RESERVED FOR FUTURE USE

CHAPTER 5 SEWER COLLECTION SYSTEM

RESERVED FOR FUTURE USE

CHAPTER 6 CONSTRUCTION DRAWINGS CHECKLIST

Instructions: All Construction Plan submissions shall at a **minimum** contain the requirements stated within. Any construction plan submissions with missing or incomplete information may be rejected and not reviewed until all necessary information has been provided. It should be noted that not all items contained within will necessarily be required for every project. **This list is intended to give general guidelines only and is not to be considered all-inclusive. Checklist may change; website should be checked to insure most current version is being used.**

The Engineer shall place a check mark in one of the boxes (as appropriate) on each item:

☐ provided or (**N/A)** not applicable

Note: The following checklist is provided to assist the design engineer in developing a complete plan set to expedite our review process. Compliance with the checklist in no way is meant to relieve the design professional of his or her responsibility for project design. All construction plans submitted for review are to include a copy of this checklist signed by a NC registered Professional Engineer and/or Architect. Project submittals without a completed checklist will not be reviewed. Forms are available at: www.southernpines.net

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PROJECT NAME: _____

ENGINEER: _____ENGINEERING COMPANY:_____

COMPANY ADDRESS: _____

COMPANY PHONE: _____ EMAIL: _____

PROJECT PROPERTY OWNER:_____ EMAIL: _____

PROJECT ADDRESS/LOCATION_____

DATE SUBMITTED: _____/_____/_____

The Following Are the Minimum Plan Sheets to be Provided

		Applicant	
		Provided	N/A
1	Title/Cover Sheet	☐	☐
2	Existing Conditions\Demolition Plan	☐	☐
3	Overall Site Plan	☐	☐
4	Road Plan & Profile	☐	☐
5	Storm Drainage Layout Sheet	☐	☐
6	Storm Drain Plan and Profile(s)	☐	☐
7	Drainage Area map	☐	☐
8	Grading and Erosion Control Plan(s).	☐	☐
9	Utility Layout Sheet.	☐	☐
10	Water Plan & Profile	☐	☐
11	Sewer Plan & Profiles	☐	☐
12	Landscaping Plans	☐	☐
13	Details	☐	☐

1. General Plan Requirements

		Provided	N/A
1	Download latest Town Cover Sheet Requirements from: https://nc-southernpines2.civicplus.com/501/7447/Requirements?activeLiveTab=widgets	☐	☐
2	Each page is signed, sealed and dated by a NC Registered Professional Engineer and/or Architect.	☐	☐
3	All drawings in a set of construction plans are the same size sheet, 36 in. wide by 24 in. high. See folding instructions town stamp-final approval.dwg	☐	☐
4	North arrow with horizontal and vertical datum provided on each plan sheet.	☐	☐
5	Plans and Profiles contain sufficient vertical and horizontal references and information to allow stakeout and construction of proposed work by reference to the plans alone.	☐	☐
6	Plans have a horizontal scale not less than 1in. = 50ft. and a vertical scale of 1in. = 5ft. or to a scale clearly marked.	☐	☐
7	Profiles are located under the corresponding plans on the same sheet.	☐	☐
8	Profiles for all water and sewer mains are shown. (include all utility crossings)	☐	☐
9	Stationing is shown on plans. Stationing on plans should increase from left to right across the drawing. (Road centerline stationing can be used when water/sewer lines are located in/along roads).	☐	☐
10	All public right-of-ways and easements are shown and dimensioned.	☐	☐
11	All lot lines, setback and buffers are clearly shown.	☐	☐
12	All specifications, design data and calculations, are provided on an 8 ½ x 11 in. sheet, bound in a folder suitable for filing, and labeled for identification by the title.	☐	☐
13	Woodpecker and Environmental Impact Study included, if applicable.	☐	☐
14	Turn around area provided for emergency and maintenance vehicles, where required.	☐	☐
15	Grading in buffer and setbacks areas must be approved by Planning Department (692-4003)	☐	☐
16	Plans shall be folded to approximately 8.5" x 11" in size with the project title showing in the lower right-hand corner and the Town Approval Stamp in upper right corner.	☐	☐
17	A .pdf copy of all plan and calculation submittals shall be provided for all submittals.	☐	☐
18	Upon approval of construction drawings (3) full size sets and one 1/2 size set of plans shall be submitted to the town for signature. A pdf version of the final signed plans, calculations and required documentation shall also be submitted prior to any permits being issued.	☐	☐

16. Title Sheet/Overall Site Plan

		Provided	N/A
1	Vicinity Map minimum scale 1 in. = 2000 ft., with clearly labeled intersecting roadway names major streams, towns, north arrow, etc. and the site location. Shade site to be constructed.	☐	☐
2	Site Plan shows overall subdivision/site layout to scale, section limits, phases, right-of-ways, adjacent subdivisions, property owners, existing and proposed street names, and at least two (2) permanent bench mark locations and descriptions. The section to be constructed is clearly labeled	☐	☐
3	Provide an Index map with match lines for multiple sheets for all plans as needed.	☐	☐
4	Title Information – Development/site name, type of plan, section number, and phase is provided.	☐	☐
5	A legend is provided of the specific graphic special symbols applicable to the project. Standard symbols are used to the fullest extent possible.	☐	☐
6	List of abbreviations applicable to the project is provided.	☐	☐
7	Revision block includes the date and reference of each revision.	☐	☐
8	Sheet index is provided.	☐	☐
9	Provide Site Data table as shown in Town Title Block	☐	☐
10	Table showing public and private improvement quantities for water, sewer, streets, sidewalk, curb & gutter. Contact PW to obtain .dwg format	☐	☐
11	Water Application Summary table as shown as shown in Town Title Block	☐	☐
12	Sewer Application Summary table as shown as shown in Town Title Block	☐	☐
13	Provide Traffic Data Table as shown as shown in Town Title Block	☐	☐
14	Provide Watershed Data Table as shown in Town Title Block	☐	☐
15	Town standard notes as shown in Town Title Block	☐	☐
16	Town approval signature blocks (upper right corner)	☐	☐
17	Indicate 100 yr flood plain (reference FEMA panel #, date) or make reference that site is not located w/in 100 yr flood plain	☐	☐

17. Existing Conditions/Demolition

		Provided	N/A
1	Provide note requiring contractor to contact the NC One-Call Center prior to any construction activity.	☐	☐
2	Trees to be removed shown and clearly labeled. Trees being removed within Town rights of way require Tree Removal Permit. Contact the B&G superintendent at 910-692-1983	☐	☐
3	Tree protection fence shown around trees to remain	☐	☐
4	Show and label all topography with a maximum of two-foot contour intervals for the development.	☐	☐
5	Show all water lines, sanitary sewer lines, services, cleanouts, valves, hydrants within 500', water meters vaults, backflow preventers, storm sewer systems, catch basins, headwall, junction boxes and other structures, ditches and swale, all other utilities, buildings, parking, mail boxes, etc.	☐	☐
6	Clearly label any structures, utilities etc to be removed	☐	☐
7	Flood plain boundaries (100 yr, 500 yr)	☐	☐
8	Horizontal and vertical control references are specified (State plane, U.S. Coast & Geodetic Surveys, etc.). Hydrants and manholes are not acceptable control.	☐	☐
9	Source of the topography used for the preparation of the plans is provided.	☐	☐
10	Show and label all buffers, overlay district, easements etc, as defined by planning and zoning	☐	☐
11	Adjacent property owner information	☐	☐

18. General Water/Sewer and Utility Layout Requirements

		Provided	N/A
Utility Layout Sheet			
1	The utility layout sheet shall be produced with a horizontal scale of 1"=100' or larger (i.e., 1"= 50') to indicate the new layout/extension and the relationship to other proposed or existing utilities, roadways, and other pertinent structures	☐	☐
2	Legend of sanitary sewer, water, and other utilities, structures; either proposed or existing.	☐	☐
3	Construction Notes	☐	☐
4	Overall plan of the water and/or sewer extension layout, indexed to sheet numbers	☐	☐
5	Existing utilities to include water and/or sewer labeled with size and material type, if known.	☐	☐
6	"Composite" of all information contained in the plan view of the individual plan/profile sheets.	☐	☐
Sewer Permitting			
7	NCDENR fast track sewer application http://ncdenr.gov/web/wq/swp/ps/cs/ext	☐	☐
8	Flow acceptance letter from Moore County	☐	☐
9	Analysis of receiving gravity sewer, lift station, force main etc.	☐	☐
10	Confirm proposed gravity laterals meet 15A NCAC 02T .0305 when crossing water mains	☐	☐
11	Provide calculations showing sewer is designed to carry the total peak tributary flow at 1/2 of full depth (50% capacity) for 16" and smaller pipes. Include all calculations and assumptions used to show design meets NCDENR design standards for gravity sewer.	☐	☐
12	Min. flow velocity under design conditions shall be at least 2.5 feet per second. Max velocity shall not be greater than 10 fps.	☐	☐
13	Collecting sewers are a minimum of 8 inches in diameter and are designed to carry present and projected future flows for natural drainage basin. Provide calculations	☐	☐
Water Permitting			
14	NCDENR –Public Water Supply Section water extension application	☐	☐
15	Engineers Report (Report shall include requirements listed in items 12,13,15 above)	☐	☐
16	Application for Water-Sewer New Installation of Service Application submitted	☐	☐
17	System demand shall include: fire flow, peak domestic demand, sprinkler demand, and any other flow demand on the system.	☐	☐
18	The following water main data and design calculations are enclosed: average day, maximum day, and peak hour demands, fire flow requirements (ISO calculations, future requirements, probable pressures, losses, and computations for determining pipe sizes. Provide a written report summarizing the water design calculations, include junction/pipe node report and diagram clearly indicating each node and pipe, summary table showing each hydrant is capable of providing required flow, and indicate all assumptions and methods used for design.	☐	☐
19	Mains sized to provide a minimum system pressure of 20 psi at all points of the system during fire flow conditions with peak system demands and 40 psi at average daily demand conditions.	☐	☐
20	Fire sprinkler design and calculation as required by the Fire Marshal.	☐	☐

19. Gravity Sewers Plan and Profile Requirements

		Provided	N/A
	Proposed and existing water utilities are accurately and clearly shown on the plan and profiles using standard symbols and proposed utilities are accentuated by bold, heavy line weight to distinguish it from other utilities.	☐	☐
	Pipe sizes and material type is shown on plans (SDR 35 or D.I.P.)	☐	☐
	All sewer main crossings with other utilities are properly shown and called-out (include material) with minimum clearance dimensioned. Minimum vertical clearance of 24-inches from other utilities and/or storm drains is shown.	☐	☐
	Manhole number, depth, inverts, pipe slope, length and material, flow angles between main lines and manholes	☐	☐
	Call-out locations (sta #) are provided for manholes, clean-outs, connections, etc.	☐	☐
	Gravity sewer is placed at a minimum of 0.5% grade and a maximum of 10%. (Grades greater than 10% may be approved on a case-by-case basis only.)	☐	☐
	Minimum cover on gravity sewer is 3 ft from the top of pipe to finished grade.	☐	☐
	A 4 in. water tight clean-out is provided at the Right of Way or easement for each sewer service connection. A road bearing clean-out is provided in areas of vehicular traffic.	☐	☐
	50 ft maximum clean-out spacing on 4 inch service line. 6 inch service lines may have clean outs spaced at 75 feet intervals.	☐	☐
	A terminal manhole is provided at the end of each line.	☐	☐
	Show flow deflection angle at all manholes (max deflection angle per manhole = 90 degrees for 8”-10” pipe diameter)	☐	☐
	Pipes greater than 6” must tie into a manhole.	☐	☐
	All terminal reaches of sewer shall have a minimum slope of 1% .	☐	☐
	Maximum distance between manholes is 400 feet or less	☐	☐
	No service connections within the cone section of the manhole	☐	☐
	Pipe diameter and or material changes must occur at manholes.	☐	☐
	Pipe crowns matched with minimum drop of 0.20 feet between the inverts within the manhole.	☐	☐
	Meets all other design requirements as specified by NCDENR	☐	☐
	Provide SS Manhole Chart (Chart available in AutoCAD format from PW Dept.)	☐	☐
	Sewer mains shall be a minimum of 24-inches below water main to prevent conflicts with service laterals and crossings.	☐	☐
	Manholes out of roadway, pavement or in low lying areas are a minimum of 18-inches above grade.	☐	☐
	Mains must be 100 feet from any private or public water supply source, including wells, WS-1 waters or Class I or II impounded reservoirs used as a source of drinking water	☐	☐
	Mains a minimum of 50 feet from any waters classified WS-II, WS-III, B,SA, ORW, HQW or SB (and meet any NCDENR requirements)	☐	☐
	Sewer mains are 25 feet from private wells	☐	☐
	Mains shall be deep enough to serve the adjoining property and allow for sufficient slope in lateral lines	☐	☐
	Add shading to all ductile iron pipe sewer lines in profiles to distinguish from PVC material	☐	☐
	A minimum 20 ft. utility easement width centered over the main is clearly shown and identified.	☐	☐

20. Water Plan and Profile Requirements

		Provided	N/A
1	Proposed and existing water utilities are accurately and clearly shown on the plan and profiles using standard symbols and proposed utilities are accentuated by bold, heavy line weight to distinguish it from other utilities.	☐	☐
2	Water main sizes and materials (C900 or DIP) are indicated.	☐	☐
3	Call-out locations (sta #)are provided for fire hydrants, meter settings, blow-offs, manholes, clean-outs, tees, bends, valves, reducers, connections, etc.	☐	☐
4	Existing and proposed grade over the mains are indicated on the profile.	☐	☐
5	Minimum of 10ft. of horizontal separation between sanitary sewer and water lines is maintained.	☐	☐
6	Minimum 10ft. horizontal separation from storm drain structures or other utility structures is maintained.	☐	☐
7	Minimum vertical clearance from all crossing utilities is maintained.	☐	☐
8	Main line valves on straight runs between intersection shall be spaced at not less than 600’ for 6” lines and 900’ for 8” lines	☐	☐
9	All Transitions in pipe material shall have restrained joints.	☐	☐
10	Single water services are provided to each dwelling, business, warehouse or proposed lots, buildings and parcels. Backflow devices shall be installed at approved locations.	☐	☐
11	Fire hydrants spacing shall be approved by Town. The bury depth is provided on the profile.	☐	☐
12	Location of FDC, within 50 feet of fire hydrant	☐	☐
13	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.	☐	☐
14	Minimum of 3 feet clearance around all fire hydrants.	☐	☐
15	Where a water main is in a casing under a roadway or crosses under a stream bed, valves are placed on each side.	☐	☐
16	All valves, tees, bends, fire hydrants, etc. are shown with a symbol and called-out with size, type and station	☐	☐
17	No 90-degree bends shown on any water main.	☐	☐
18	Minimum cover of 3-ft. for water mains is maintained as measured from top of pipe to finished grade.	☐	☐
19	Three (3) valves are provided at each water main tee and four (4) valves at each water main cross.	☐	☐
20	All details are provided. Town details shall be used when available	☐	☐
21	Location, make and model of Back flow preventer.	☐	☐
22	Irrigation system must have privately maintained reduced pressure principal backflow prevention installed in accordance with the NC Plumbing Code. RPZ must be installed above ground and within an insulated box.	☐	☐
23	BFP must be installed within 10' of the water meter.	☐	☐
24	No service connections are to be made on fire hydrant branches or fire lines.	☐	☐
25	Direct service connection shall be allowed on mains 16” and smaller.	☐	☐
26	Services connections are perpendicular to main.	☐	☐
27	Provide the appropriate backflow prevention notes from the Town Cover Sheet requirements.	☐	☐
28	Provide an above ground enclosure for the RPZ for all commercial, industrial and institutional developments (both domestic and fire lines)	☐	☐

21. Erosion Control Plans

		Provided	N/A
1	General plan requirements as noted above.	☐	☐
2	General Site Features (plan elements)	☐	☐
3	Existing and planned drainage patterns (include OFF-SITE areas that drain through project)	☐	☐
4	Limits of disturbed area (provide acreage total, delineate limits, and label)	☐	☐
5	Existing contours and Existing conditions (buildings, roads etc) including any demo	☐	☐
6	Proposed contours	☐	☐
7	Proposed building and road locations and elevations	☐	☐
8	Land use of surrounding areas.	☐	☐
9	Rock outcrops	☐	☐
10	Seeps or springs	☐	☐
12	Wetland limits	☐	☐
13	Easements	☐	☐
14	Streams, lakes, ponds, drainage ways, dams	☐	☐
15	Stockpiled topsoil or subsoil locations	☐	☐
16	Property lines of total tract	☐	☐
17	Erosion control legend	☐	☐
18	Location of temporary and permanent measures	☐	☐
19	Construction drawings and details for temporary and permanent measure	☐	☐
20	Maintenance requirements during construction	☐	☐
21	Borrow Source or waste destination.	☐	☐
22	Size and location of culverts and sewers	☐	☐
23	Name and classification of receiving water course or name of municipal operator	☐	☐
24	Construction sequence related erosion and sediment control (include critical measures prior to the initiation of the land-disturbing activity & removal of measures after areas they serve and permanently stabilized)	☐	☐
25	Vegetative Stabilization	☐	☐
26	Area and acreage to be vegetatively stabilized	☐	☐
27	Method of soil preparation	☐	☐
28	Seed type and rates (temp. and permanent)	☐	☐
29	Mulch and fertilizer type and rates	☐	☐
30	Watering Requirements	☐	☐
31	Is there flood plain associated with project? State on plan if there is or is not and give elevation and location on plans. (if not state in narrative that it is not required)	☐	☐
32	Add NPDES ground cover requirements to plans	☐	☐

22. Erosion Control Permitting

		Provided	N/A
1	Financial Responsibility/Ownership Form	☐	☐
2	Review fee See FRO: http://www.southernpines.net/DocumentCenter/Home/View/110	☐	☐
3	Certificate of assumed named, if partnership	☐	☐
4	Name of Registered Agent	☐	☐
5	Copy of the most current Deed for the site	☐	☐
6	Narrative describing the nature and purpose of the construction activity.	☐	☐
7	Color copy of USGS Quadrangle map with site indicated	☐	☐
8	Copy of County Soils map	☐	☐
9	Required Army Corps 404 permit and Water Quality 401 certification (stream disturbances over 150 linear feet) (if not needed state in narrative that it is not required)	☐	☐
10	Soil info: type, special characteristics	☐	☐
11	Design calculation and construction details for culverts and storm sewers	☐	☐
12	Design calculations cross sections, and method of stabilization of existing and planned channels (including temporary linings)	☐	☐
13	Discharge and velocity calculations for open channel and ditch flows	☐	☐
14	Design calculations for peak discharges of runoff (including the construction phase and final runoff coefficients of the site) for each outlet point on the site.	☐	☐
15	Design calculations and construction details of energy dissipaters below culverts and storm sewer outlets (for riprap aprons, include stone sizes and apron dimensions)	☐	☐
16	Design calculations and construction details to control groundwater, i.e. seeps, high water table, etc.	☐	☐
17	Design calcs and dimension of sediment basins and traps. (include pre and post drainage area maps, surface area requirements and volume requirements)	☐	☐
18	Design calcs for other erosion control measures.	☐	☐

23. Streets

		Provided	N/A
Plans			
1	Street design meets NCDOT and Town minimum requirements for CL grades, cut/fill slopes sight distance etc. based on classification type	☐	☐
2	Define with details typical roadway cross-sections for all proposed public or private streets/alleys. Details should include typical pavement structure, size of curbing, shoulders, sidewalks, pavement widths and right-of-way widths as applicable.	☐	☐
3	Sight distance triangles at intersections and driveways (include any landscaping, signs etc. that may interfere with sight triangles)	☐	☐
4	Label proposed street classification as dictated per Planning Department	☐	☐
5	Dumpster location, size and access (show turning radii)	☐	☐
6	Fire access to all units and/or fire lanes as required-Provide fire truck turning radius sheet.	☐	☐
7	Sidewalk within public right of way	☐	☐
8	Pavement marking and street signage included.	☐	☐
9	Show Center line road data (include data for all fire lanes as well)	☐	☐
10	Heavy Duty Pavement design minimum: per Geotechnical Report or minimum per Town Engineering and Construction Standards	☐	☐
11	Light Duty Pavement design minimum: per Geotechnical Report or minimum 2" SF 9.5 (A or B), 8" Aggregate Base Course	☐	☐
12	Reference State road numbers and street names of connecting roads	☐	☐
13	Provide road profile sheets. May be comined with Storm profiles but not water and sewer profiles.		
14	Label all grades on profiles to demonstrate compliance with Table 2-1 of the Engineering and Construction Standards.	☐	☐
Submittals			
15	Provide Geotechnical Report for the design of pavement cross sections	☐	☐
16	Traffic study as required See section 4.12 of the current UDO	☐	☐
17	NCDOT right of way encroachment (two party)	☐	☐
18	NCDOT right of way encroachment (three party)- four (4) originals must be provided)	☐	☐
19	NCDOT driveway permit	☐	☐
20	Town of Southern Pines - Construction on Town ROW	☐	☐

24. Stormwater

		Provided	N/A
Plans			
1	Storm drain discharges shall be released to an existing storm collection system or surface water system	☐	☐
2	Label junction boxes, manholes, and inlets with rim and inverts.	☐	☐
3	In no instance shall the load plane of a building or structure come within 5-feet of the outside edge of a storm pipe	☐	☐
4	Minimum pipe size is 15” to an inlet and 18” for open cross pipe culverts.	☐	☐
5	All storm pipes within the Public Right of Way shall be RCP. Private storm pipes shall be per the Town Engineering and Construction Standards	☐	☐
6	Note on plans: All stormwater management facilities shall be maintained by the property owner.	☐	☐
7	Provide stormwater summary results table found in the Town AutoCAD requirements.	☐	☐
8	Provide stormwater drainage schedule table found in the Town AutoCAD requirements.	☐	☐
9	Profiles to include HGL and all water and sewer crossings.		
10	O-ring culverts are required for pressurized systems.		
11	Min slope on Storm sewer is 0.50% or slope to obtain 2.5 fps. Max slope is 10% w/o special anchoring	☐	☐
Calculations			
1	Provide a stormwater engineering report including written narrative describing stormwater control method and calculations. Include summary of method used, steps taken and results showing requirements are met.	☐	☐
2	Provide stormwater pipe system calculations for the 10 yr storm. HGL calculations shall follow methods as describe by NCDOT.		
3	Provide culvert calculations. 25yr design storm for any road crossings. Check both inlet & outlet control.	☐	☐
4	Provide drainage area maps.		
5	HGL calculations shall take into account and show all head losses, friction factors and bypass flows. Tailwater conditions must identified.	☐	☐
6	Pre-construction runoff calculations for each outlet from the site (at peak discharge points)	☐	☐
7	Provide calculations for maintaining the pre-development runoff rate.	☐	☐
8	Submittals shall include: full Analysis & Justification for determination of the following pre and post construction: composite C factors, TC , DA (on and off-site) & other date used in the development of the computations.	☐	☐
9	Pre and Post development drainage area maps provided (scale no smaller than 1"=100') (include flow paths, Analysis points and Drainage areas in acres)	☐	☐
10	Provide riprap or approved alternative outlet protection calculations for all storm drain outlets	☐	☐
11	Provide permanent channel design calculations.	☐	☐
12	Provide inlet spread/capture computations	☐	☐
13	All flow rates shall be provided in cfs to the nearest hundredth of a cfs.	☐	☐
14	All bypass flows shall be accounted for in gutter spread calculations	☐	☐
15	All bypasses shall be noted. This note shall include the inlet that it will be directed to.	☐	☐

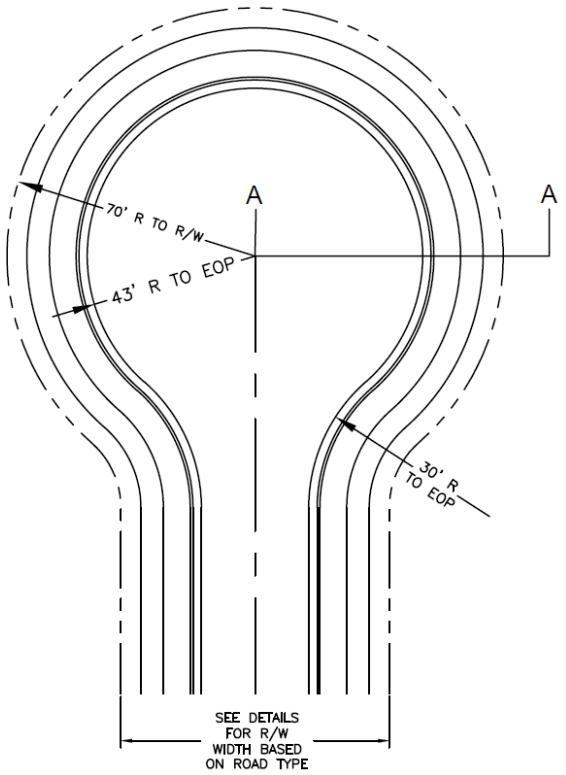
CHAPTER 7 REFERENCES

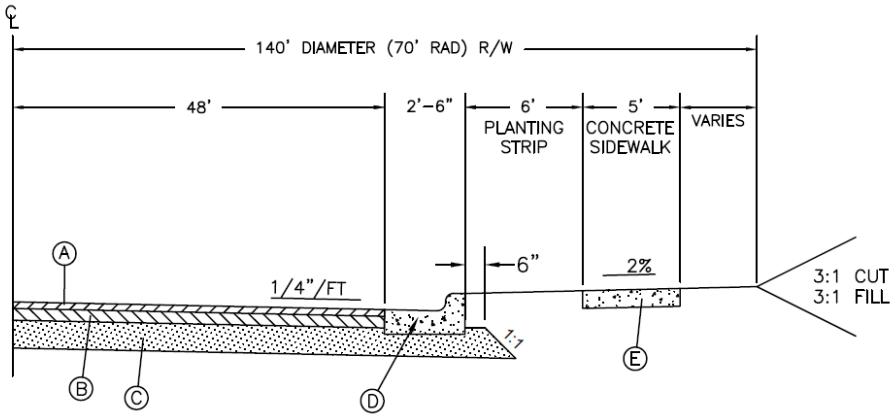
1. American Association of State Highway and Transportation Officials most recent edition, A Policy on Geometric Design of Highways and Streets
2. Contech – CMP Design Guide, 2017
3. Federal Highway Administration, Manual on Uniform Traffic Control Devices (MUTCD)
4. International Fire Code
5. National Association of City Transportation Officials, Urban Bikeway Design Guide
6. National Bridge Inspection Standards – Code of Federal Regulations
7. North Carolina Building Code
8. North Carolina Department of Environmental Quality, Minimum Design Criteria for the Permitting of Pump Stations and Force Mains
9. North Carolina Department of Environmental Quality, Stormwater Control Measures
10. North Carolina Department of Environment and Natural Resources, Erosion and Sediment Control Planning and Design Manual
11. North Carolina Department of Transportation, Asphalt Quality Management System Manual
12. North Carolina Department of Transportation, Complete Streets Planning and Design Guidelines
13. North Carolina Department of Transportation, Greenway Design Guidelines
14. North Carolina Department of Transportation, Policy on Street and Driveway Access
15. North Carolina Department of Transportation, Roadway Design Manual
16. North Carolina Department of Transportation, Roadway Standards Drawings
17. North Carolina Department of Transportation, Standard Specifications for Roads and Structures
18. Raleigh – Capital Area Greenway Planning and Design Guide
19. Raleigh Street Design Manual
20. Roundabouts: An Informational Guide (FHWA Publication No. RD-00-067)

CHAPTER 8 STANDARD DRAWINGS

1. **Drawings**

   The Town's Standard Drawings shown are to be used for design and construction for projects in the Town of Southern Pines. For construction activities not shown by the Standard Drawings, NCDOT Standard Drawings shall be used.





SECTION A–A

PAVEMENT SCHEDULE

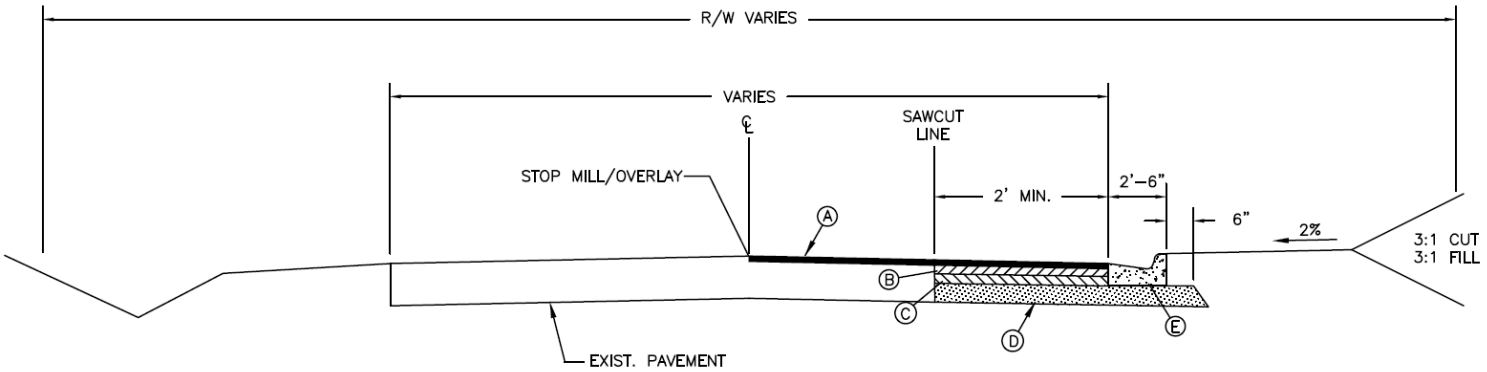
A. 1.5" S9.5a SURFACE COURSE
B. 2.5" I19.0C INTERMEDIATE COURSE
C. 8" AGGREGATE BASE COURSE (w/7.5" UNDER CURB)
   OR 4" B25.0C BASE COURSE (w/4" UNDER CURB)
D. 2'–6" CURB & GUTTER
E. 4" CONCRETE SIDEWALK

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

TYPICAL CUL–DE–SAC

R1



NOTES:

1. SIDEWALK, PLANTING STRIP AND CURB & GUTTER LOCATIONS SHALL BE DETERMINED BY THE APPLICABLE CROSS–SECTION DETAIL
2. ALL WORK TO BE DONE ON EXISTING NCDOT MAINTAINED STREETS SHALL REQUIRE NCDOT ENCROACHMENT/ACCESS APPLICATIONS, SUBMITTED TO THE CITY ENGINEER.
3. SAW CUT LOCATION TO BE DETERMINED IN FIELD.

PAVEMENT SCHEDULE

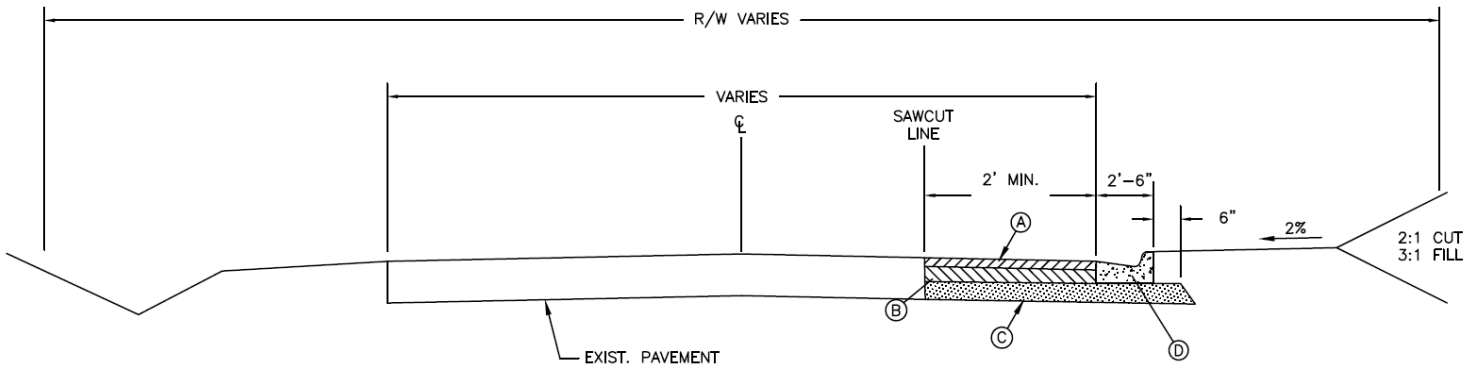
A. 1.5" S9.5A OR S9.5B SURFACE COURSE
B. 1.5" S9.5A OR S9.5B SURFACE COURSE
C. 4" I19.0C INTERMEDIATE COURSE
D. 4" B25.0C BASE COURSE
E. 2'–6" CURB & GUTTER

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

TYPICAL SECTION ROAD WIDENING

R2



NOTES:

1. SIDEWALK, PLANTING STRIP AND CURB & GUTTER LOCATIONS SHALL BE DETERMINED BY THE APPLICABLE CROSS–SECTION DETAIL
2. ALL WORK TO BE DONE ON EXISTING NCDOT MAINTAINED STREETS SHALL REQUIRE NCDOT ENCROACHMENT/ACCESS APPLICATIONS, SUBMITTED TO THE CITY ENGINEER.
3. SAW CUT LOCATION TO BE DETERMINED IN FIELD.

PAVEMENT SCHEDULE

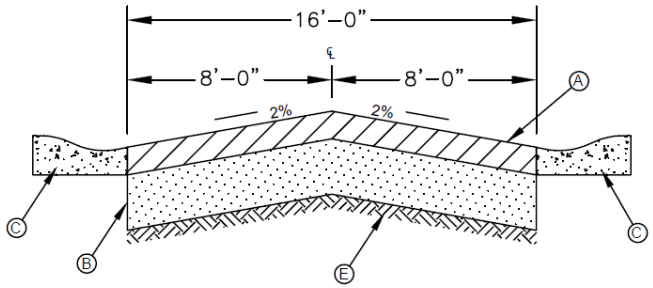
A. 3" S9.5A OR S9.5B SURFACE COURSE (PLACED IN 2–1.5" LIFTS)
B. 4" I19.0C INTERMEDIATE COURSE
C. 4" B25.0C BASE COURSE
D. 2'–6" CURB & GUTTER

NOT TO SCALE
DATE: OCTOBER 2020

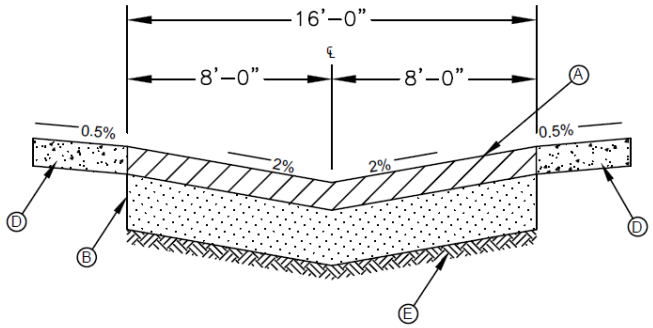
TOWN OF SOUTHERN PINES

TYPICAL SECTION CURB & GUTTER INSTALLATION ALONG EXISTING ROADWAY

R3



ALLEY WITH NORMAL CROWN



ALLEY WITH INVERSE CROWN

PAVEMENT SCHEDULE

A. 2" S9.5C SURFACE COURSE
B. 8" AGGREGATE BASE COURSE OR 4" B25.0C BASE COURSE
C. 2'-0" VALLEY GUTTER
D. 1'-0" CONCRETE STRIP
E. SUBGRADE COMPACTED TO PUBLIC STREET STANDARDS

NOTES:

1. ALLEYS SHALL BE CONSIDERED PRIVATE EASEMENTS AND WILL NOT BE ACCEPTED FOR MAINTENANCE BY THE TOWN.

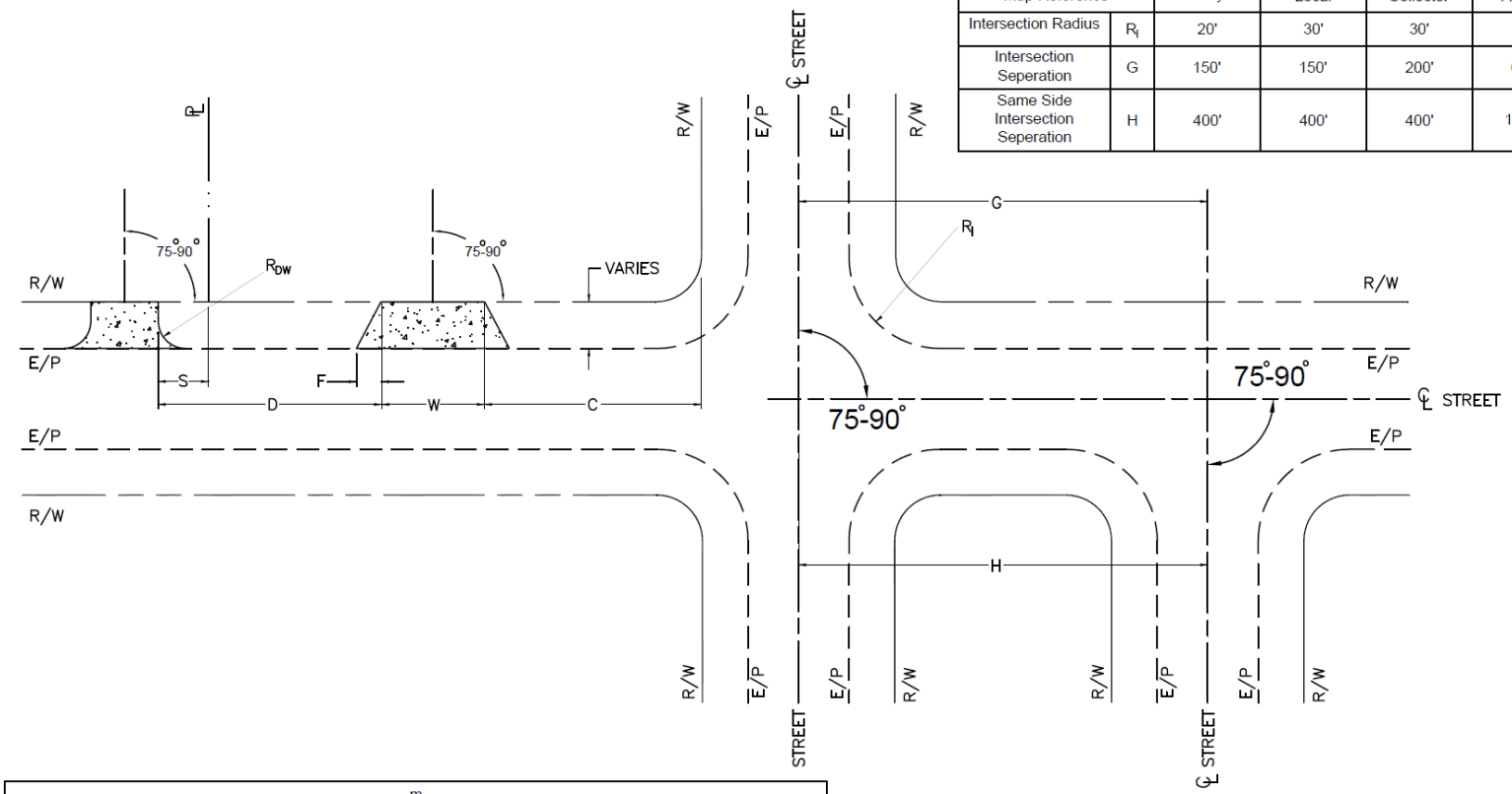
2. TYPICAL SECTION APPLIES TO SINGLE- OR DOUBLE-LOADED ALLEYS. FOR SINGLE-LOADED ALLEYS, THERE SHALL BE A 20-FOOT CLEAR ZONE FREE OF CUT SLOPES, OBSTRUCTIONS, HEDGES, ETC. FROM THE LOADED SIDE EDGE OF PAVEMENT.

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

TYPICAL SECTION RESIDENTIAL ALLEY

R4



Intersection Dimensions					
Map Reference		Alley	Local	Collector	Arterial
Intersection Radius	R_I	20'	30'	30'	30'
Intersection Seperation	G	150'	150'	200'	600'
Same Side Intersection Seperation	H	400'	400'	400'	1,000'

m				
Map Reference		1 and 2 Family Residential	Multi-Family Residential and Commercial	Industrial
Width[1]	W			
One-Way		10'-15'	15'-18'	20'-25'
Two-Way		10'-15'	30'-36'	40'-50'
Driveway Radius [2]	R_{DW}	5'	15'-30'	15'-30'
Driveway Flare	F	1'-3'	1'-3'	1'-3'
Minimum Spacing				
From Property Line	S	0' - Collector Road 20' - Arterial Road	10' - Collector Road 120' - Arterial Road	50'
From Intersection R/W	C	5' - Collector Road 50' - Arterial Road	25' - Collector Road 120' - Arterial Road	120'
Between Driveways	D	3'	40'	120'

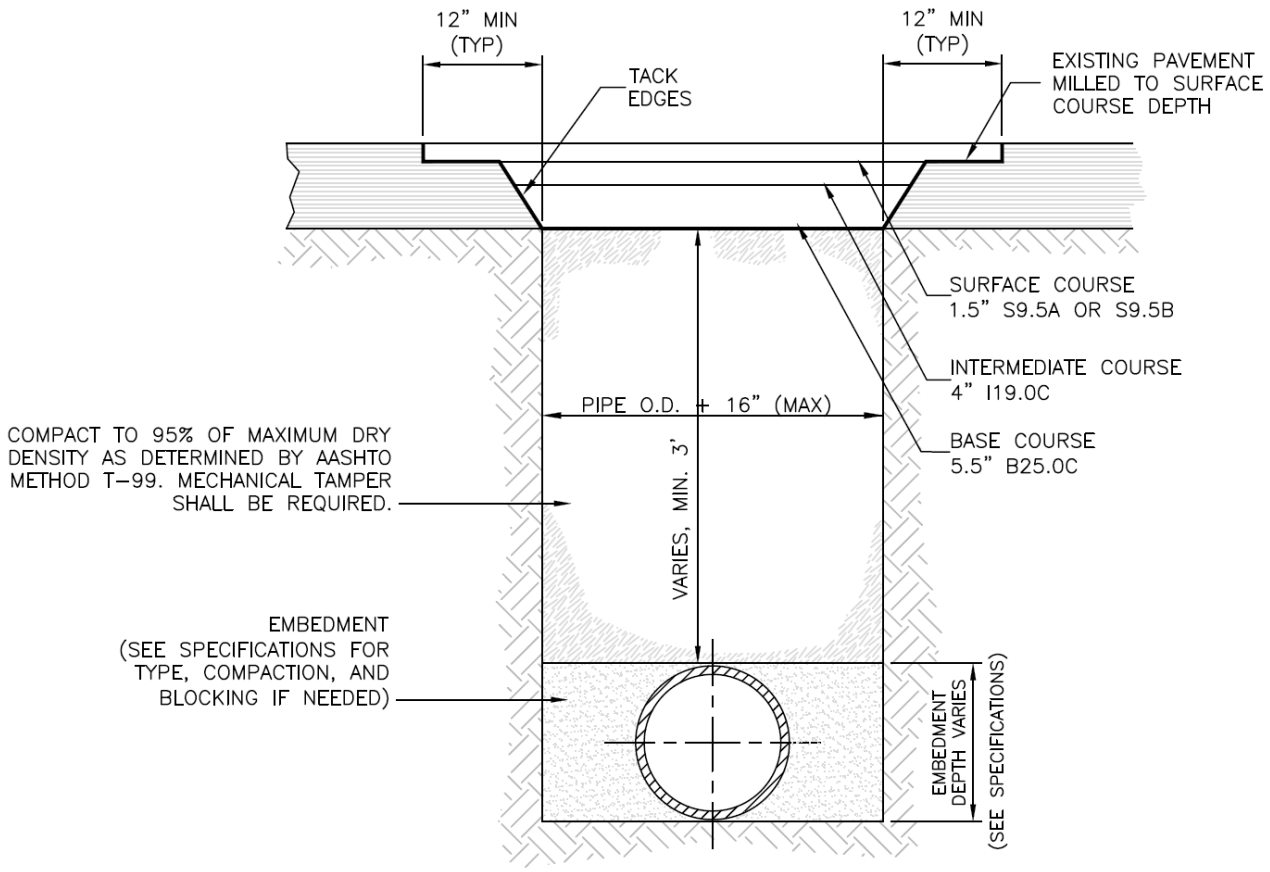
1. Multi-lane driveway widths to be determined by the Town Engineer based upon the number of lanes, the type of land use served and the use of channelizing islands.
2. The radii for major generator driveways to be determined by the Town Engineer.

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

TYPICAL DRIVEWAY & INTERSECTION LAYOUT FOR LOCAL & COLLECTOR STREETS

R5



NOTES:

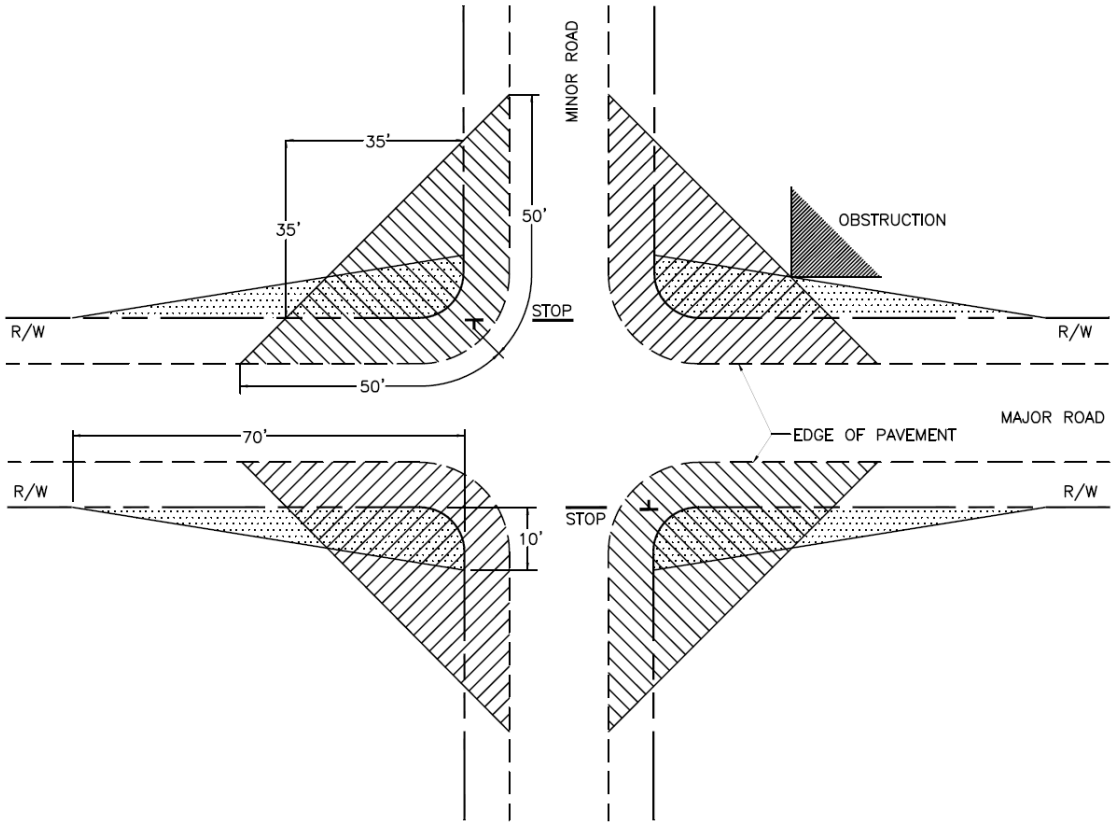
1. ASPHALT SHALL BE CUT WITH CUTTING WHEEL.

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

UTILITY CUT PAVEMENT REPAIR DETAIL

R6



NOTES:

1. SIGHT TRIANGLES SHALL BE PROVIDED AT ALL STREET INTERSECTIONS AND SHALL CONTAIN NO OBSTRUCTION GREATER THAN 2' ABOVE THE GROUND.

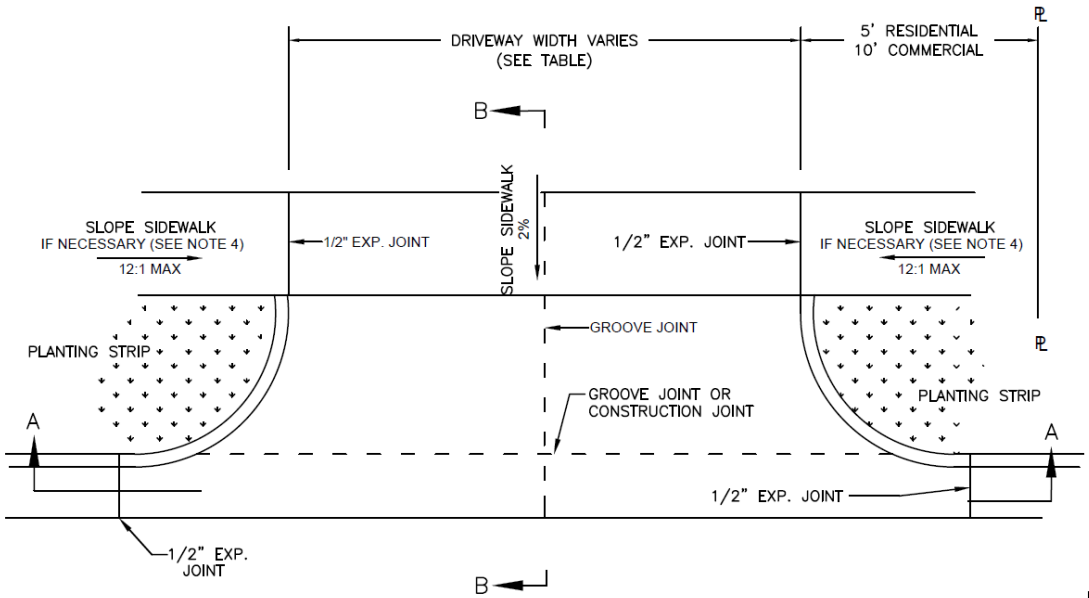
2. REFERENCE THE LATEST EDITION OF AASHTO "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" FOR ADDITIONAL REQUIREMENTS/RECOMMENDATIONS.

NOT TO SCALE
DATE: OCTOBER 2020

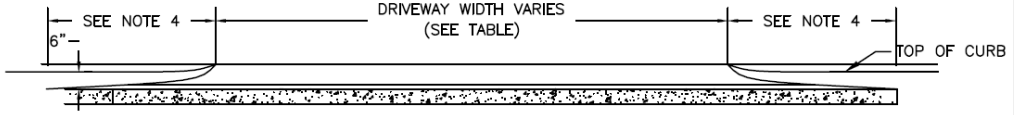
TOWN OF SOUTHERN PINES

INTERSECTION SIGHT TRIANGLES

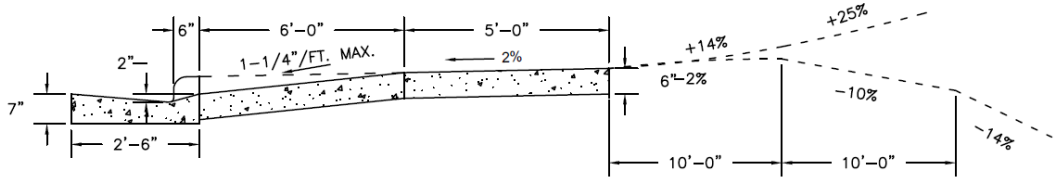
R7



PLAN VIEW



SECTION A – A



SECTION B – B

NOTES:

1. ALL CONCRETE TO BE MINIMUM NCDOT CLASS B, 6" MIN. THICKNESS.
2. ALL DRIVEWAYS MUST MEET THE CURRENT CITY DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
3. ALL CURB OR CURB AND GUTTER AND SIDEWALKS ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT.
4. FOR PLANTING STRIP LESS THAN 6–FEET, SLOPE SIDEWALK TO MEET GRADE OF ENTRANCE. SIDEWALK GRADE SHALL BE 12:1 MAX.
5. RADIUS REQUIREMENTS: SEE TABLE IN DETAIL R5
6. NO UTILITIES PERMITTED IN DRIVEWAYS.
7. NO DRIVEWAY SHALL BE WITHIN 5' (AS MEASURED ALONG STREET CURB STARTING AT THE DRIVEWAY RADIUS) OF ANY MUNICIPAL OR STATE OWNED FEATURE (I.E. CURB INLETS, FIRE HYDRANTS, UTILITY POLES OR SIMILAR STRUCTURES)

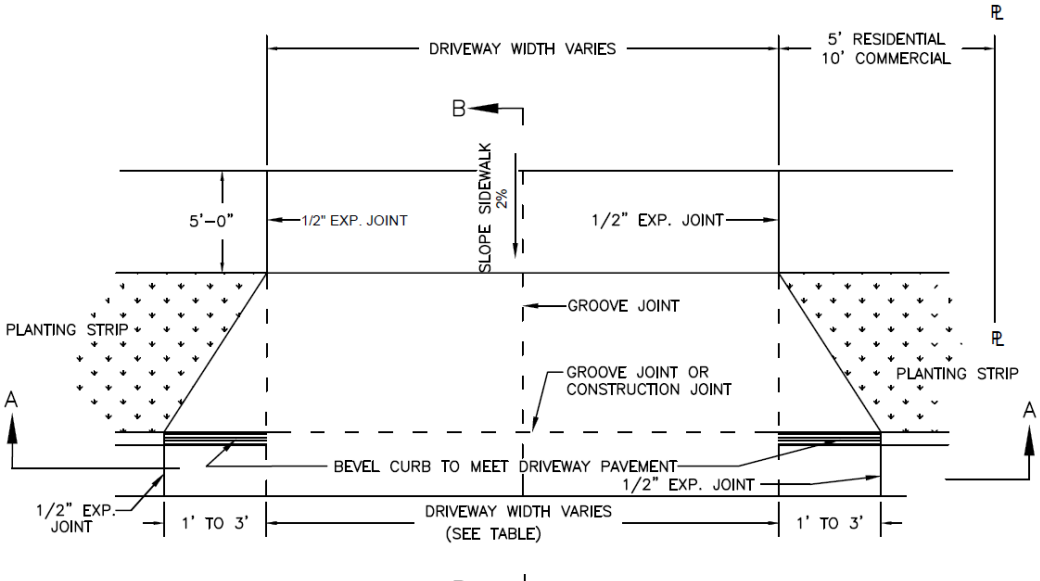
DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
RESIDENTIAL	10'	15'
COMMERCIAL/INDUSTRIAL MULTI–FAMILY	15'	36'
COMMERCIAL/INDUSTRIAL ONE–WAY	20'	50'

NOT TO SCALE
DATE: OCTOBER 2020

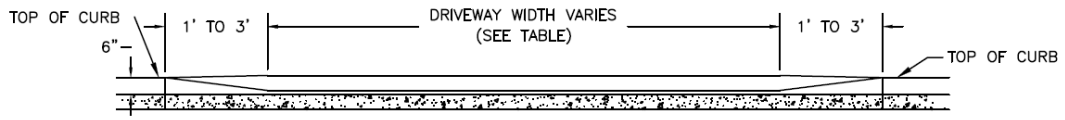
TOWN OF SOUTHERN PINES

DRIVEWAY ENTRANCE RADIUS TYPE

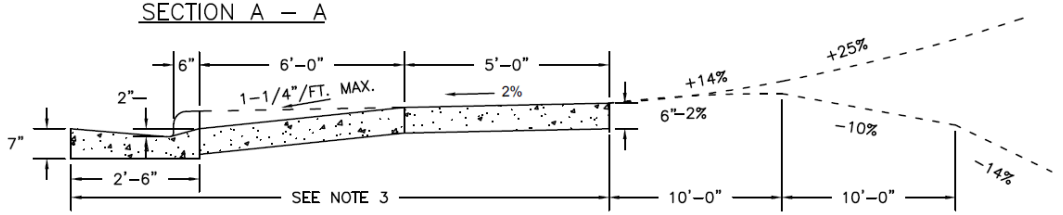
R8



PLAN VIEW



SECTION A – A



SECTION B – B

NOTES:

1. ALL CONCRETE TO BE MINIMUM NCDOT CLASS B, 6" MIN. THICKNESS.
2. ALL DRIVEWAYS MUST MEET THE CURRENT TOWN DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
3. ALL CURB OR CURB AND GUTTER AND SIDEWALKS ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT.
4. FOR PLANTING STRIP LESS THAN 6–FEET, SLOPE SIDEWALK TO MEET GRADE OF ENTRANCE. SIDEWALK GRADE SHALL BE 12:1 MAX.
5. NO UTILITIES PERMITTED IN DRIVEWAYS.
6. NO DRIVEWAY SHALL BE WITHIN 5' (AS MEASURED ALONG STREET CURB STARTING AT THE DRIVEWAY RADIUS) OF ANY MUNICIPAL OR STATE OWNED FEATURE (I.E. CURB INLETS, FIRE HYDRANTS, UTILITY POLES OR SIMILAR STRUCTURES)

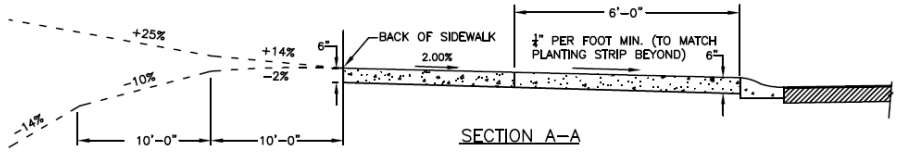
DRIVEWAY CLASSIFICATION		
TYPE DRIVEWAY	MINIMUM	MAXIMUM
RESIDENTIAL	10'	15'
COMMERCIAL/INDUSTRIAL MULTI–FAMILY	15'	36'
COMMERCIAL/INDUSTRIAL ONE–WAY	20'	50'

NOT TO SCALE
DATE: OCTOBER 2020

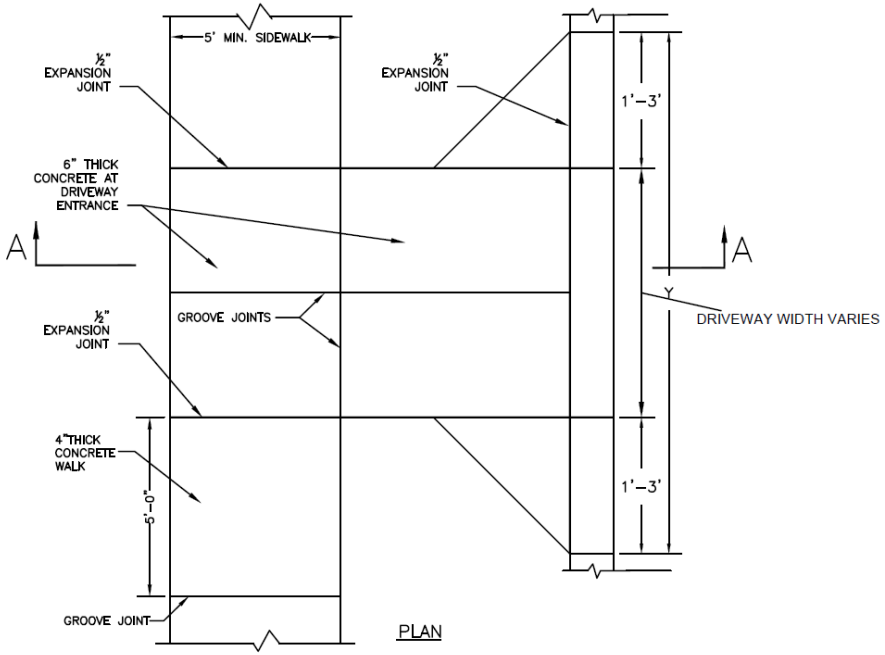
TOWN OF SOUTHERN PINES

DRIVEWAY ENTRANCE DROP CURB TYPE

R9



SECTION A–A



PLAN

NOTES:

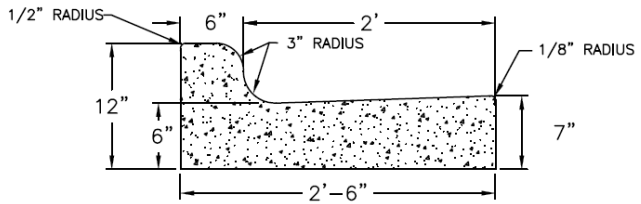
1. ALL CONCRETE TO BE MINIMUM NCDOT CLASS B, 6" MIN. THICKNESS.
2. ALL DRIVEWAYS MUST MEET THE CURRENT TOWN DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
3. ALL CURB OR CURB AND GUTTER AND SIDEWALKS ARE TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT.
4. FOR PLANTING STRIP LESS THAN 6', SLOPE SIDEWALK TO MEET GRADE OF ENTRANCE. SIDEWALK GRADE SHALL BE 12:1 MAX.
5. NO UTILITIES PERMITTED IN DRIVEWAYS.
6. NO DRIVEWAY SHALL BE WITHIN 5' (AS MEASURED ALONG STREET CURB STARTING AT THE DRIVEWAY RADIUS) OF ANY MUNICIPAL OR STATE OWNED FEATURE (I.E. CURB INLETS, FIRE HYDRANTS, UTILITY POLES OR SIMILAR STRUCTURES)

NOT TO SCALE
DATE: OCTOBER 2020

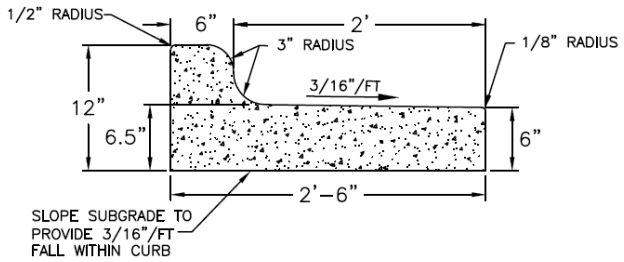
TOWN OF SOUTHERN PINES

DRIVEWAY ENTRANCE 2'–0" VALLEY GUTTER

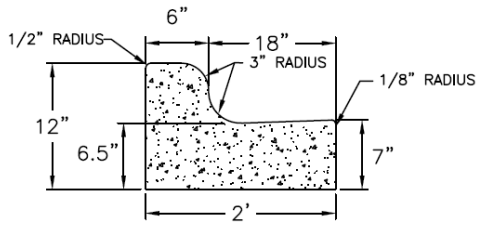
R10



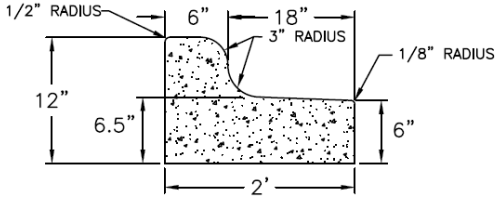
STANDARD 2'–6" CURB & GUTTER



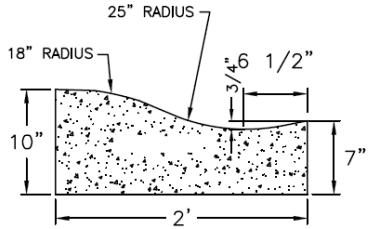
STANDARD 2'–6" SPILL CURB & GUTTER



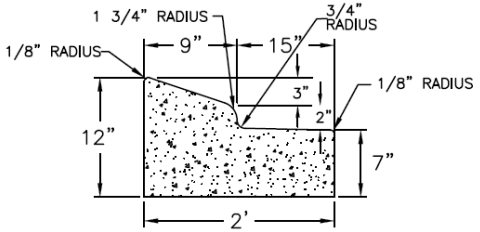
2'–0" CURB & GUTTER



2'–0" SPILL CURB & GUTTER



2'–0" VALLEY GUTTER



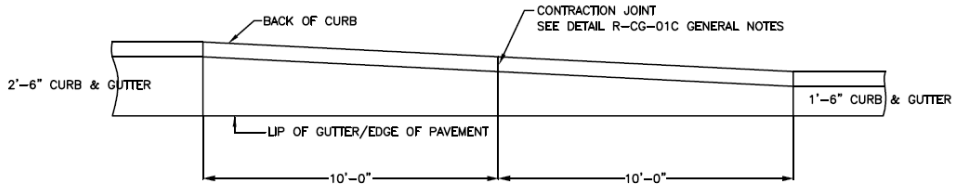
2'–0" MOUNTABLE CURB & GUTTER

NOT TO SCALE
DATE: OCTOBER 2020

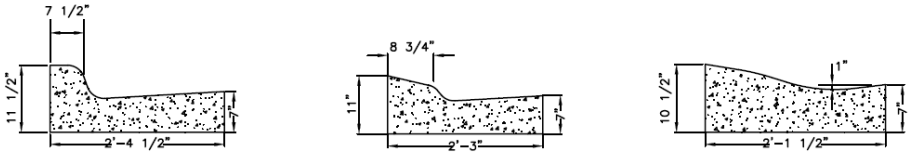
TOWN OF SOUTHERN PINES

CURB & GUTTER

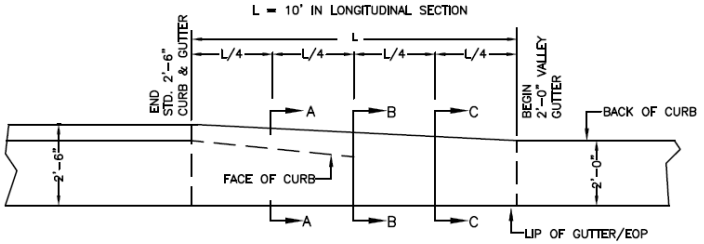
R11



PLAN VIEW
CURB TRANSITION
2'-6" CURB & GUTTER TO 1'-6" CURB & GUTTER



SECTION A-A SECTION B-B SECTION C-C



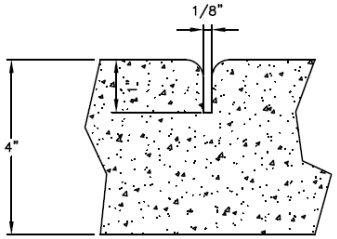
PLAN VIEW
CURB TRANSITION
2'-6" CURB & GUTTER TO 2'-0" VALLEY GUTTER

NOT TO SCALE
DATE: OCTOBER 2020

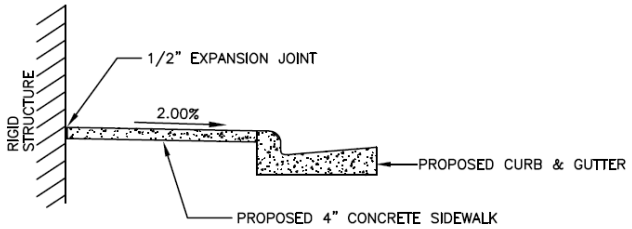
TOWN OF SOUTHERN PINES

TYPICAL CURB TRANSITIONS

R12



GROOVE JOINT IN SIDEWALK

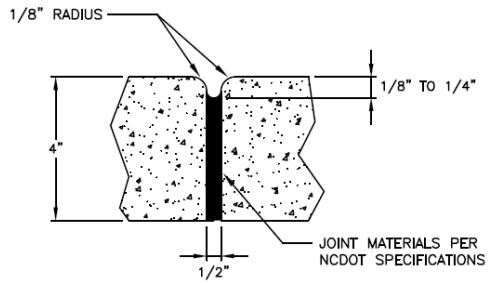


DETAILS SHOWING EXPANSION JOINTS IN CONCRETE SIDEWALK

NOTES:

1. CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.
2. CONSTRUCT SIDEWALK 5' WIDE AND 6" THICK AT DRIVEWAY ENTRANCES.
3. CONSTRUCT SIDEWALK WITH A MAXIMUM 2.00% CROSS SLOPE.
4. PLACE A GROOVE JOINT 1" DEEP WITH 1/8" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE. ALL EXPANSION JOINTS SHALL BE FILLED WITH JOINT SEALER.
5. ZONING CONDITIONS MAY REQUIRE ADDITIONAL WIDTH SIDEWALKS WHICH SHALL SUPERSEDE THESE STANDARD DIMENSIONS SHOWN.

NOT TO SCALE
DATE: OCTOBER 2020

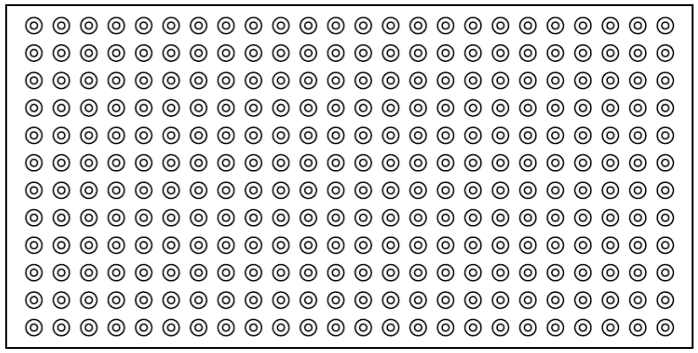


TRANSVERSE EXPANSION JOINT IN SIDEWALK

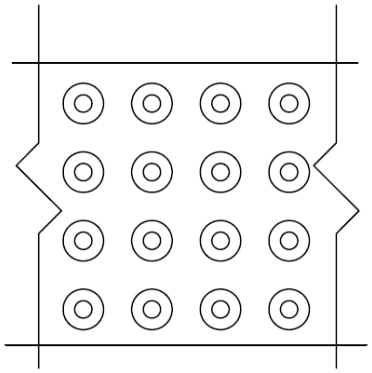
TOWN OF SOUTHERN PINES

CONCRETE SIDEWALKS

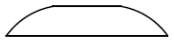
R13



PLAN VIEW



TRUNCATED DOME SPACING



TRUNCATED DOME SECTION

NOTES:

1. ALL DETECTABLE WARNING DEVICES USED IN NEW CONSTRUCTION SHALL BE OF A RIDGID PRECAST OR EMBEDDED PRODUCT APPROVED BY THE CITY ENGINEER. RETRO FIT MATS WILL ONLY BE ALLOWED ON EXISTING RAMPS WITH PRIOR APPROVAL OF THE CITY ENGINEER FOR MATERIAL TYPE AND INSTALLATION (IE. RESURFACING).
2. WIDTH OF DETECTABLE WARNING AREA SHALL MATCH THE WIDTH OF THE RAMP. IN NO CASES SHALL THE WIDTH OF THE WARNING AREA BE LESS THAN 4'.
3. LENGTH OF DETECTABLE WARNING AREA SHALL BE 2 FEET REGARDLESS OF SECTION WIDTH.
4. DETECTABLE WARNING DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
5. DETECTABLE WARNING AREA SHALL BE COLORED FS 20109 RED BROWN IN ALL LOCATIONS.
6. MATS ARE TO BE RIGID WITH TURN DOWN EDGES EMBEDDED IN CONCRETE TO ELIMINATE TRIP HAZARD.

NOT TO SCALE
DATE: OCTOBER 2020

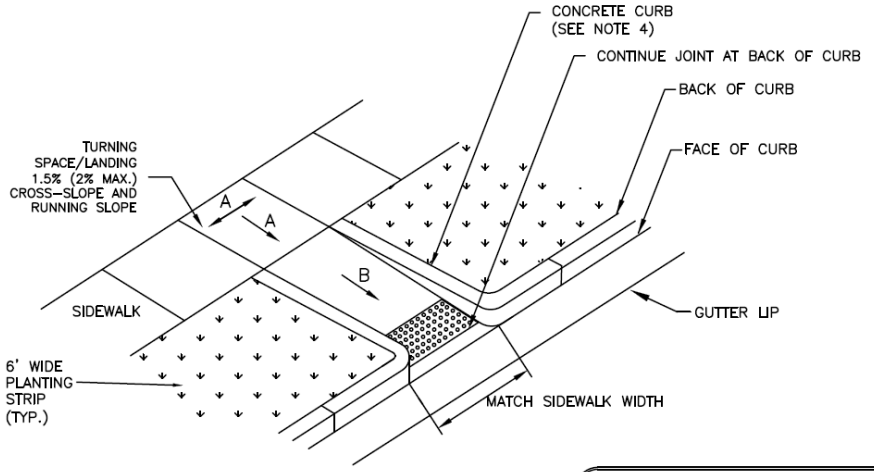
TOWN OF SOUTHERN PINES

TRUNCATED DOME DETAILS

R14

NOTES:

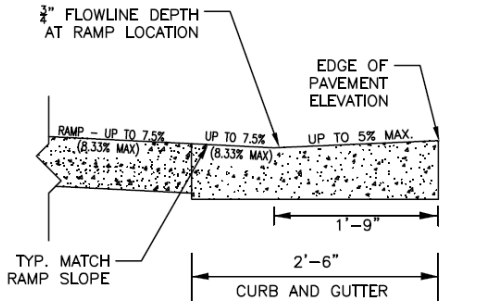
1. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.
2. TYPICALLY, THE SIDEWALK RUNNING SLOPE SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET.
3. IF THE SLOPE FROM FLOWLINE TO BACK OF CURB AT RAMP IS LESS THAN 8.33%, THEN THE SLOPE FROM LIP TO FLOWLINE AT RAMP MAY EXCEED 5% AS LONG AS THE ALGEBRAIC DIFFERENCE BETWEEN THESE TWO SLOPES IS LESS THAN 13.33%.
4. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT TYPICALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE.



SLOPE "A" = 1.5% TO 2.00% MAX

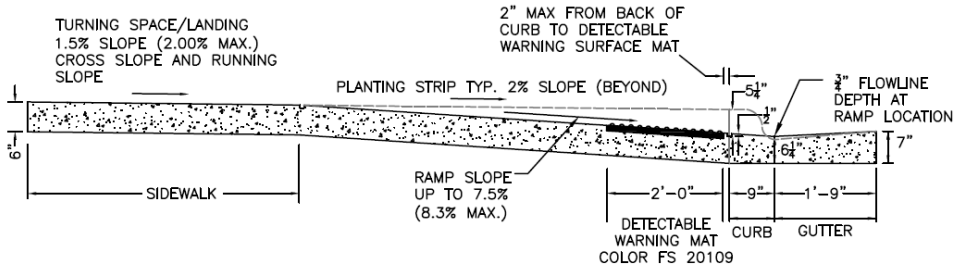
SLOPE "B" = UP TO 7.5% (8.33% MAX)

PLAN VIEW



2'-6" CURB AND GUTTER RAMP DETAIL

MAXIMUM SLOPES FOR CURB AND GUTTER DEPRESSION AT RAMPS



TYPICAL RAMP SECTION AT CENTERLINE

NOT TO SCALE
DATE: OCTOBER 2020

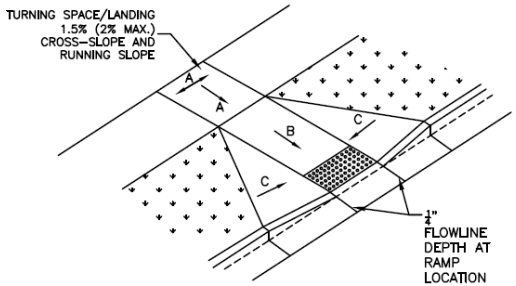
TOWN OF SOUTHERN PINES

PERPENDICULAR CURB RAMP WITH 2'6" CURB & GUTTER

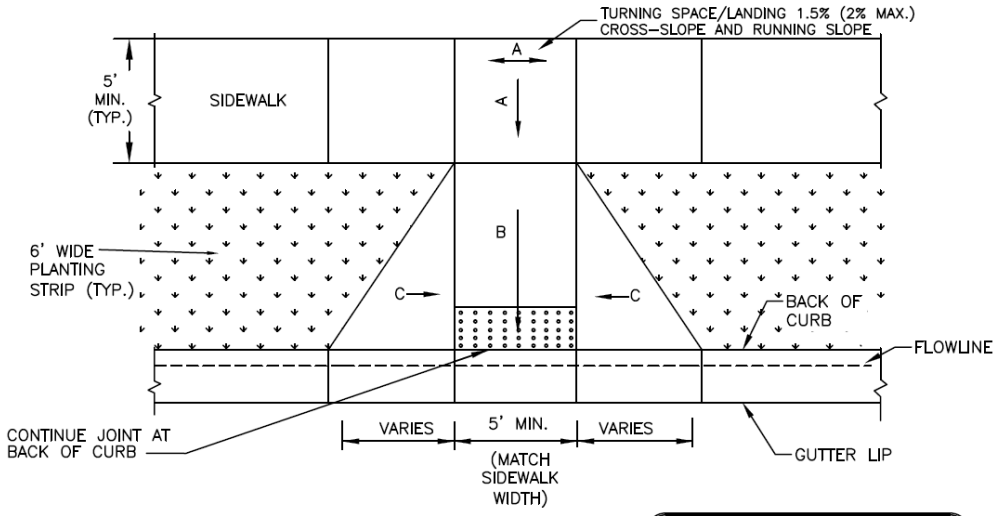
R15

NOTES:

1. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.
2. TYPICALLY, THE SIDEWALK RUNNING SLOPE SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET.
3. MAINTAIN POSITIVE DRAINAGE ALONG THE LIP OF GUTTER IN RAMP. IN FLAT AREAS, ADDITIONAL CATCH BASINS MAY BE REQUIRED ON THE SIDES OF THE RAMP TO MINIMIZE STANDING WATER AT THE RAMP LOCATION.
4. IF THE SLOPE FROM FLOWLINE TO BACK OF CURB AT RAMP IS LESS THAN 8.3%, THEN THE SLOPE FROM LIP TO FLOWLINE AT RAMP MAY EXCEED 5% AS LONG AS THE DIFFERENCE BETWEEN THESE TWO SLOPES IS LESS THAN 13.3%.

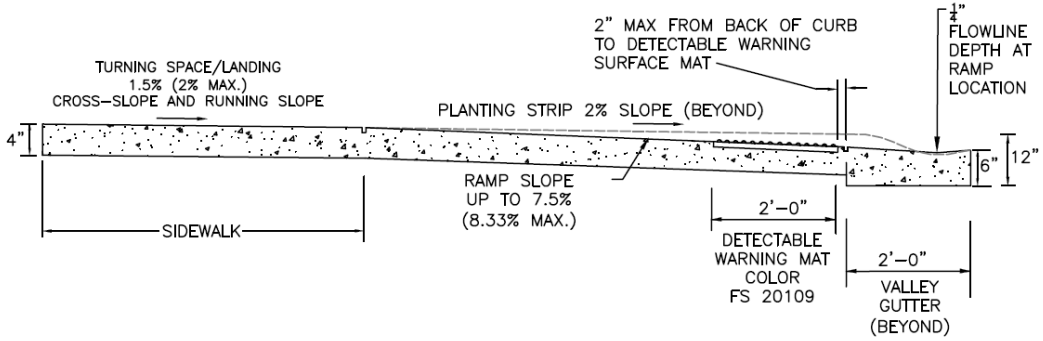


ISOMETRIC VIEW



SLOPE "A" = 1.5% TO 2.00% MAX
SLOPE "B" = UP TO 7.5% (8.33% MAX)
SLOPE "C" = UP TO 10% MAX

PLAN VIEW



TYPICAL RAMP SECTION AT CENTERLINE

NOT TO SCALE
DATE: OCTOBER 2020

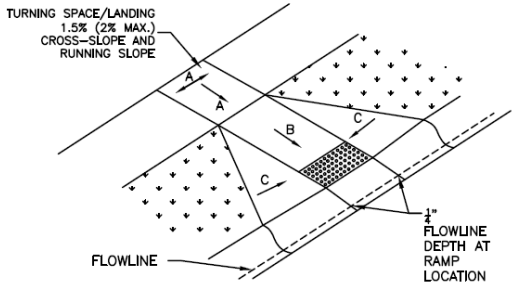
TOWN OF SOUTHERN PINES

PERPENDICULAR CURB RAMP WITH 2'6" CURB & GUTTER

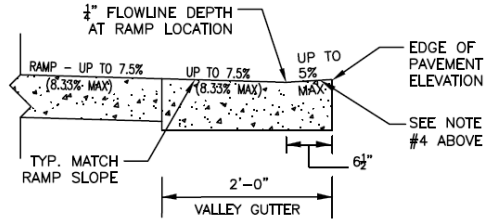
R16

NOTES:

1. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.
2. TYPICALLY, THE SIDEWALK RUNNING SLOPE SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET.
3. MAINTAIN POSITIVE DRAINAGE ALONG THE LIP OF GUTTER IN RAMP. IN FLAT AREAS, ADDITIONAL CATCH BASINS MAY BE REQUIRED ON THE SIDES OF THE RAMP TO MINIMIZE STANDING WATER AT THE RAMP LOCATION.
4. IF THE SLOPE FROM FLOWLINE TO BACK OF CURB AT RAMP IS LESS THAN 8.3%, THEN THE SLOPE FROM LIP TO FLOWLINE AT RAMP MAY EXCEED 5% AS LONG AS THE DIFFERENCE BETWEEN THESE TWO SLOPES IS LESS THAN 13.3%.



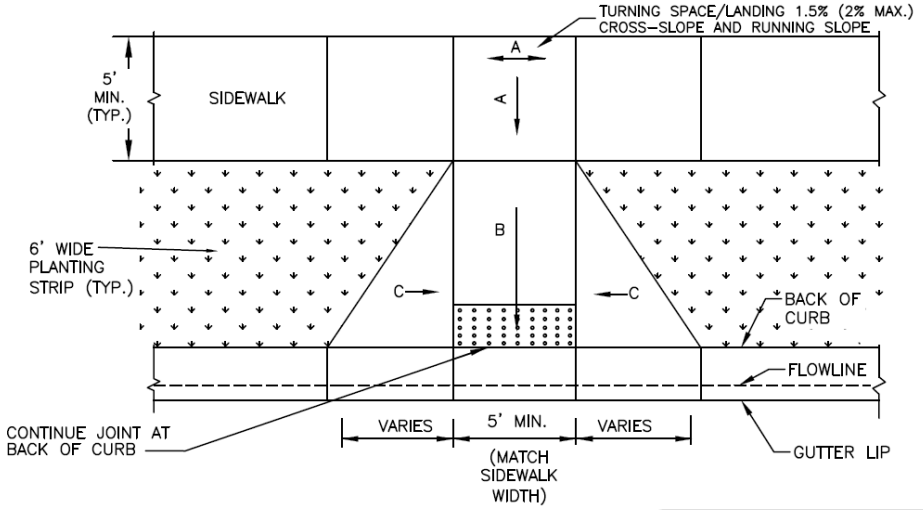
ISOMETRIC VIEW



2'-0" VALLEY GUTTER RAMP DETAIL

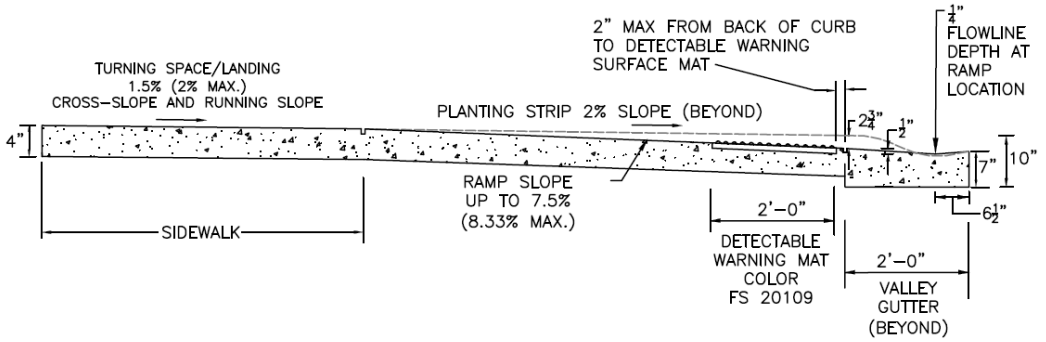
MAXIMUM SLOPES FOR VALLEY GUTTER DEPRESSION AT RAMPS

NOT TO SCALE
DATE: OCTOBER 2020



PLAN VIEW

SLOPE "A" = 1.5% TO 2.00% MAX
SLOPE "B" = UP TO 7.5% (8.33% MAX)
SLOPE "C" = UP TO 10% MAX

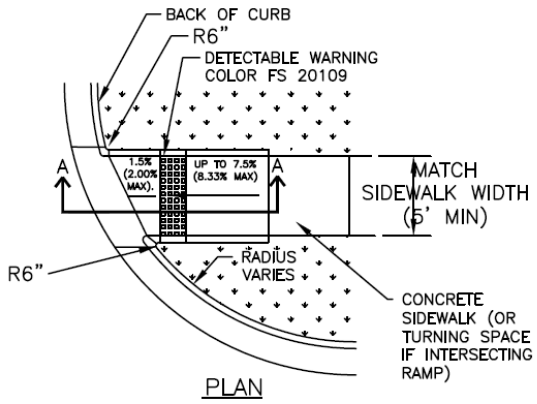


TYPICAL RAMP SECTION AT CENTERLINE

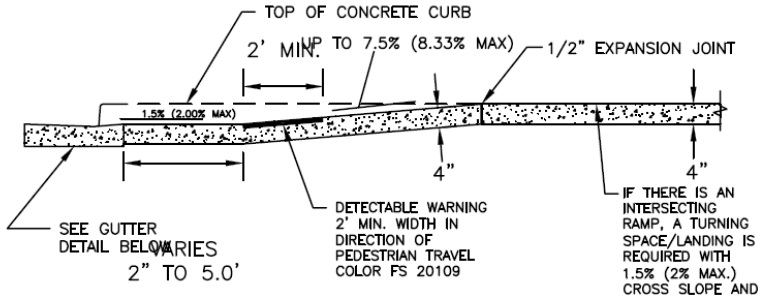
TOWN OF SOUTHERN PINES

PERPENDICULAR CURB RAMP WITH 2'-0" VALLEY CURB & GUTTER

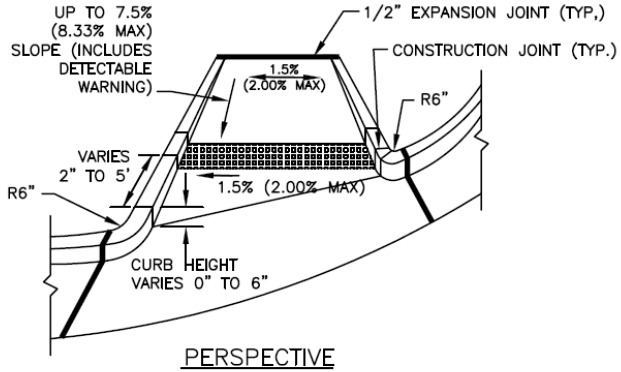
R17



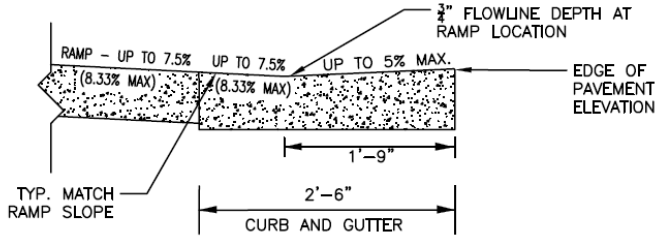
PLAN



SECTION A–A



PERSPECTIVE



2'–6" CURB AND GUTTER RAMP DETAIL

MAXIMUM SLOPES FOR CURB AND GUTTER DEPRESSION AT RAMPS

NOTES:

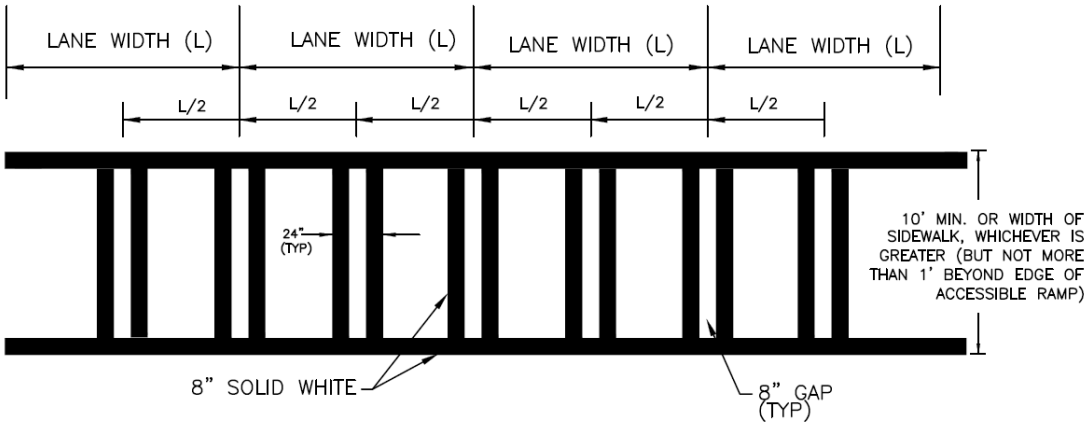
1. USE THIS DETAIL ONLY UNDER THE FOLLOWING CIRCUMSTANCES:
   - 5–FOOT SIDEWALKS WITH CURB RADII OF 35 FEET OR LESS
   - 6–FOOT SIDEWALKS WITH CURB RADII OF 30 FEET OR LESS
   - 8–FOOT SIDEWALKS WITH CURB RADII OF 25 FEET OR LESS
2. DIRECTIONAL RAMPS MAY BE USED WHEN AN 6–FOOT PLANTING STRIP IS PROVIDED. DO NOT USE THIS DETAIL IF THERE IS HARDSCAPE INSTEAD OF A PLANTING STRIP.
3. ALL CONCRETE SHALL BE AT LEAST NCDOT CLASS B.
4. ENSURE FLUSH CONDITIONS AT RAMP TO GUTTER TRANSITION.

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

DIRECTIONAL CURB RAMPS WITH 2'6" CURB AND GUTTER

R18



NOTES:

1. PER MUTCD STANDARDS, WHEN CROSSWALK LINES ARE USED THEY SHALL CONSIST OF SOLID WHITE LINES THAT MARK THE CROSSWALK. THEY SHALL BE NOT LESS THAN 150 MM (6 IN) NOR GREATER THAN 600 MM (24 IN) IN WIDTH.

2. IF TRANSVERSE LINES ARE USED TO MARK A CROSSWALK, THE GAP BETWEEN THE LINES SHOULD NOT BE LESS THAN 1.8 M (6 FT). IF DIAGONAL OR LONGITUDINAL LINES ARE USED WITHOUT TRANSVERSE LINES TO MARK A CROSSWALK, THE CROSSWALK SHOULD NOT BE LESS THAN 1.8 M (6 FT) WIDE.

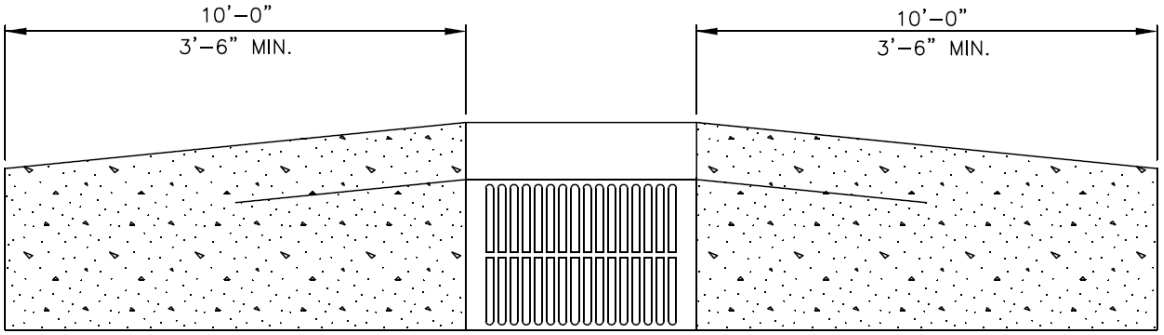
3. IF USED, THE DIAGONAL OR LONGITUDINAL LINES SHOULD BE 300 TO 600 MM (12 TO 24 IN) WIDE AND SPACED 300 TO 1500 MM (12 TO 60 IN) APART. THE MARKING DESIGN SHOULD AVOID THE WHEEL PATHS, AND THE SPACING SHOULD NOT EXCEED 2.5 TIMES THE LINE WIDTH.

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

CROSSWALK STRIPING DETAIL

R19



PLAN

NOTE:

1. TRANSITION FROM 2'–6" STANDARD CURB TO VALLEY CURB AT A DRAINAGE INLET ONLY.

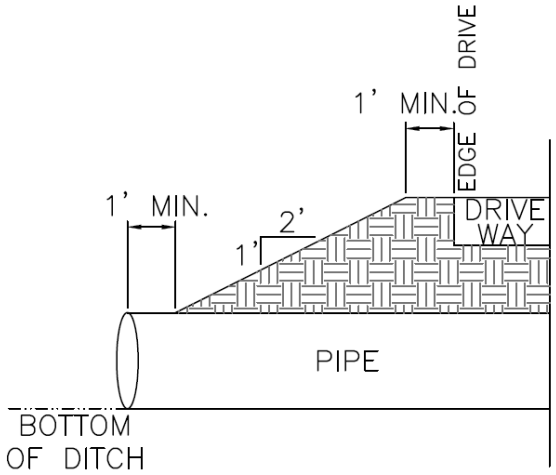
2. TRANSITIONS SHORTER THAN 10' SHALL BE APPROVED BY THE TOWN ENGINEER. UNDER NO CIRCUMSTANCE SHALL A TRANSITION BE SHORTER THAN 3'–6".

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

CATCH BASIN FRAME IN VALLEY GUTTER

R20



RESIDENTIAL DRIVEWAY PIPE DETAIL

NOTES:

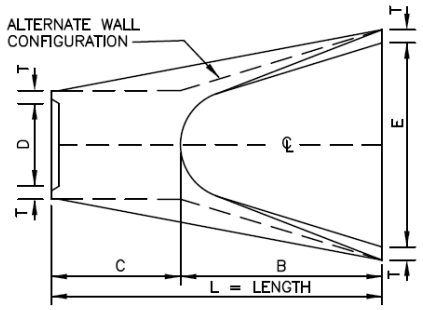
1. THE PIPE SHALL BE A MINIMUM DIAMETER OF 15" REINFORCED CONCRETE AND A MINIMUM LENGTH OF 20'.
2. A LARGER PIPE SIZE MAY BE REQUIRED IF DETERMINED BY A PROFESSIONAL ENGINEER OR THE TOWN ENGINEER.
3. THE LENGTH OF PIPE REQUIRED SHALL BE THE AMOUNT NEEDED TO EXTEND (1') BEYOND THE TOE OF A 2:1 SLOPE. SEE SECTION DETAIL.
4. NO UTILITIES IN DRIVEWAY, MUST BE MIN. 3' FROM DRIVEWAY.
5. DITCH SHALL BE INSPECTED BY PUBLIC WORKS BEFORE PIPE IS INSTALLED.

NOT TO SCALE
DATE: OCTOBER 2020

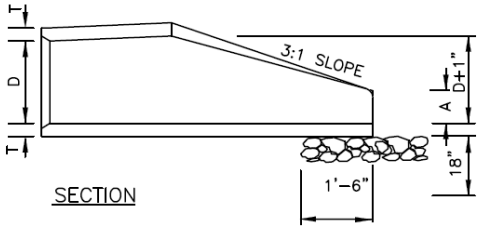
TOWN OF SOUTHERN PINES

RESIDENTIAL DRIVEWAY PIPE DETAIL
RIBBON PAVEMENT

R21



PLAN



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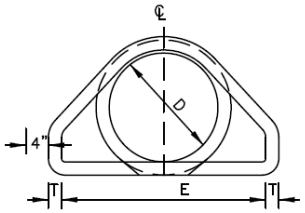


END VIEW

TABLE OF DIMENSIONS							
D	T	A	B	C	E	L	WT.
15"	2-1/4"	6"	2'-3"	3'-10"	2'-0"	6'-1"	730
18"	2-1/2"	9"	2'-3"	3'-10"	3'-0"	6'-1"	1190
24"	3"	10"	3'-8"	2'-6"	4'-0"	6'-2"	1770
30"	3-1/2"	1'-0"	4'-6"	1'-8"	5'-0"	6'-2"	2380
36"	4"	1'-3"	5'-3"	2'-11"	6'-0"	8'-2"	5320
42"	4-1/2"	1'-9"	5'-3"	2'-11"	6'-6"	8'-2"	5920
48"	5"	2'-0"	6'-0"	2'-2"	7'-0"	8'-2"	7470
54"	5-1/2"	2'-3"	5'-6"	2'-10"	7'-6"	8'-4"	8810
60"	6"	2'-6"	5'-0"	3'-3"	8'-0"	8'-3"	11180
66"	6-1/2"	3'-0"	6'-0"	2'-3"	8'-6"	8'-3"	12530
72"	7"	3'-0"	6'-6"	1'-9"	9'-0"	8'-3"	13980

NOTES:

1. REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF REINFORCED CONCRETE PIPE OF LIKE DIAMETER PER AASHTO M170, TABLE 2, WALL B.
2. ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.
3. PROVIDE TONGUE OR SPIGOT JOINT AT INLET END SECTION.
4. PROVIDE GROOVE OR BELL JOINT AT OUTLET END SECTION.
5. THE DIMENSIONS FOR END SECTIONS SHALL SUBSTANTIALLY AGREE WITH THE TABLE. MINOR VARIATIONS WILL BE PERMITTED BASED ON THE MANUFACTURER'S STANDARD FORMS AND TEMPLATES.
6. NOT TO BE USED IN NCDOT MAINTAINED RIGHT OF WAY.

NOT TO SCALE
DATE: OCTOBER 2020

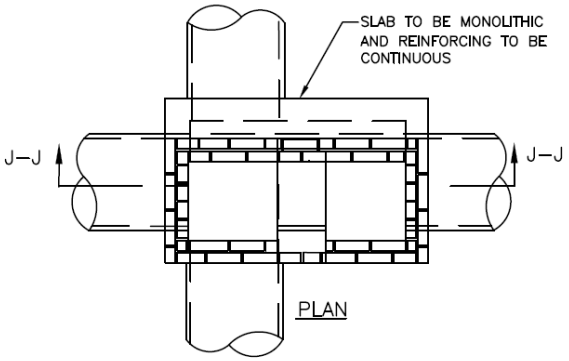
TOWN OF SOUTHERN PINES

FLARED END SECTION
15" THRU 72" PIPE

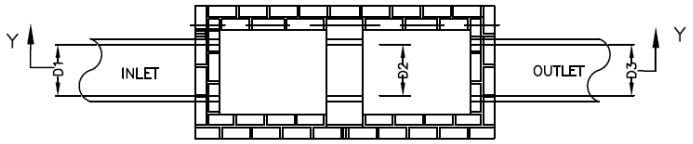
R22

NOTES:

1. SEE NCDOT STANDARD 840.01 FOR DETAILS BASED ON PIPE SIZE PER CROSS SECTION.
2. CONSTRUCT TWO SINGLE BASINS PER NCDOT STANDARD WITH DOUBLE INTERIOR WALL.
3. ALL CONCRETE TO BE NCDOT CLASS B CONCRETE.
4. BASE SLAB SHALL BE MONOLITHIC.
5. PIPE SECTION D2 CONNECTING CATCH BASINS SHALL HAVE A MINIMUM DIAMETER SAME AS OF OUTLET PIPE D3.
6. ALL REINFORCING STEEL SHOWN ON NCDOT STANDARDS IS TO BE PROVIDED AS CONTINUOUS MEMBERS. (NO LAPS, USED AS A SINGLE CONTINUOUS BAR IN THE SLAB)
7. WEEP HOLES SHALL BE PLACED IN BACK WALL WITH FILTER FABRIC OR STONE ON BACK SIDE



PLAN



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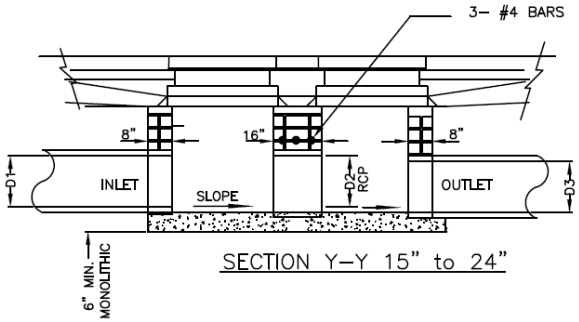
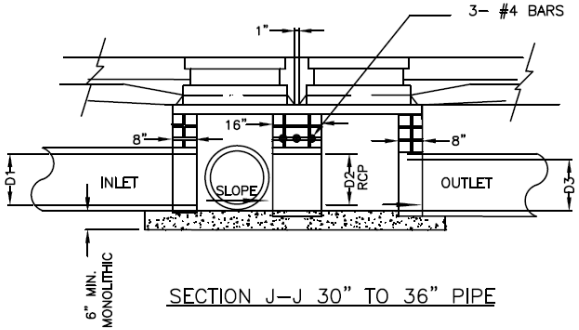


SECTION Y–Y 15" to 24"



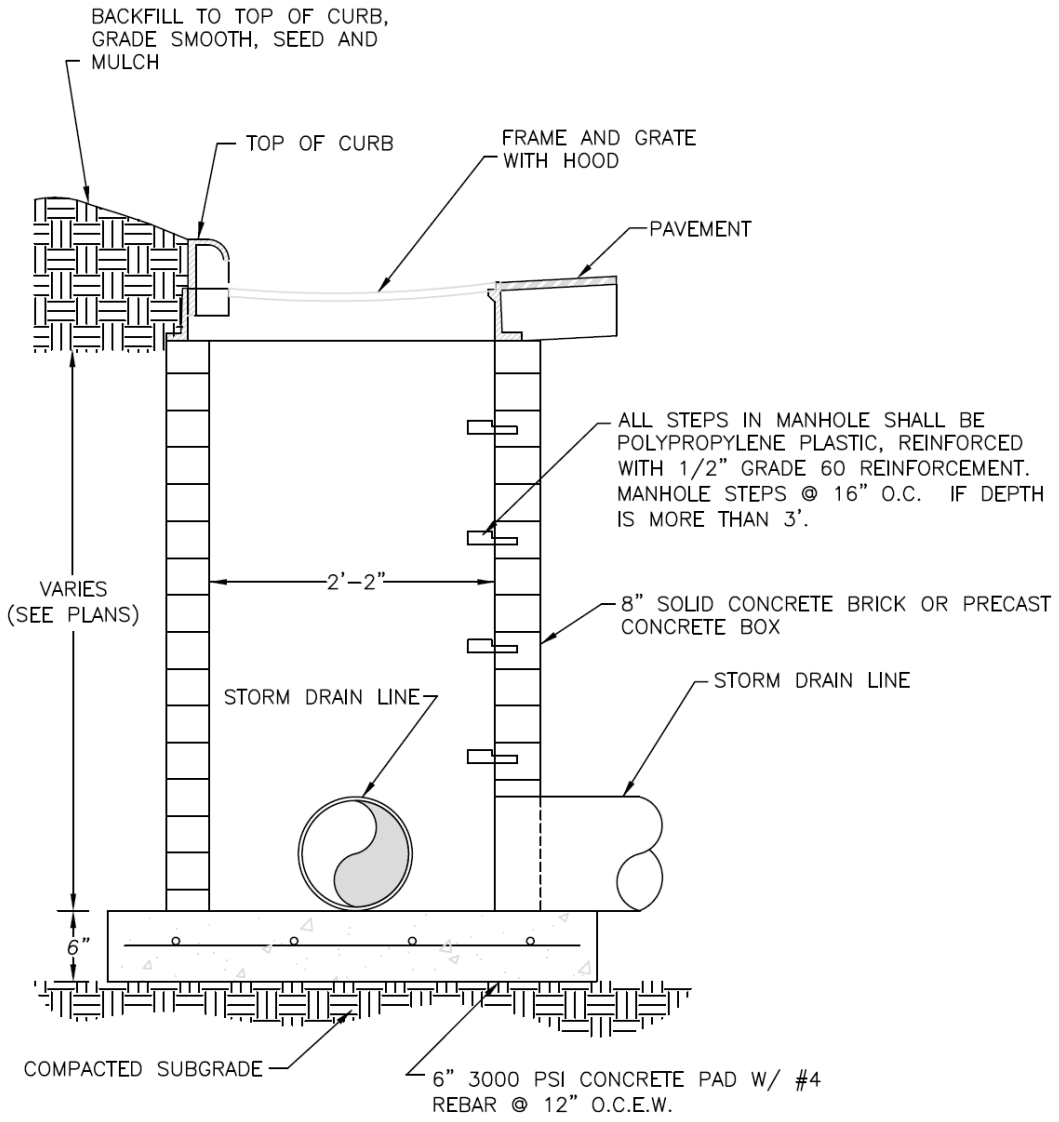
SECTION J–J 30" TO 36" PIPE

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

BRICK DOUBLE CATCH BASIN
15" THRU 36" PIPE

R23



NOTE:
NCDOT STD. #840.01 #840.02 MASONRY OR CONCRETE INLET BOXES

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

CURB INLET DETAIL

R24

EROSION CONTROL CONSTRUCTION SEQUENCE (REVISE AS NECESSARY TO ADDRESS SITE SPECIFIC ISSUES)

1. INSTALL TEMPORARY CONSTRUCTION ENTRANCE.
2. INSTALL TEMPORARY EROSION CONTROL MEASURES AT LOCATIONS SHOWN ON PLAN.
3. CALL FOR ON–SITE INSPECTION BY TOWN OF SOUTHERN PINES CONSTRUCTION INSPECTOR.
4. INITIATE GRUBBING AND TOPSOIL STRIPPING OF THE SITE.
5. AS CONSTRUCTION PROGRESSES, REMOVE SILT AND SEDIMENT BUILDUPS AT ALL MEASURES TO MAINTAIN ADEQUATE EROSION CONTROL.
6. WITHIN 7 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING AND ON SLOPES GREATER THAN 3:1, GROUND COVER SHALL BE PROVIDED ON EXPOSED SLOPES AND PERMANENT GROUND COVER SHALL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 14 CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
7. CONTINUE WITH FINE GRADING OF SITE.
8. WHEN CONSTRUCTION ACTIVITIES ARE COMPLETE AND ALL SOIL AREAS STABILIZED, CALL FOR ON–SITE INSPECTION BY TOWN OF SOUTHERN PINES CONSTRUCTION INSPECTOR.
9. IF SITE IS APPROVED, REMOVE TEMPORARY EROSION CONTROL MEASURES AS DIRECTED, SEED, FERTILIZE AND MULCH RESULTING DISTURBED AREAS. CLEAR ALL DEBRIS AND SEDIMENT ACCUMULATION. ESTABLISH PERMANENT STABILIZING VEGETATION DURING THE APPROPRIATE TIME OF YEAR.
10. UPON ESTABLISHED AND STABILIZED VEGETATION, CALL FOR FINAL INSPECTION BY TOWN OF SOUTHERN PINES CONSTRUCTION INSPECTOR.

SEED BED PREPARATION

1. RIP THE ENTIRE AREA TO 6 INCH DEPTH.
2. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
3. APPLY AGRICULTURAL LIME, FERTILIZER AND SUPERPHOSPHATE IN ACCORDANCE WITH "SEEDING SCHEDULE" AND MIX WITH SOIL.
4. CONTINUE TILLAGE UNTIL A WELL–PULVERIZED, FIRM, REASONABLY UNIFORM SEED BED IS PREPARED 4 TO 6 INCHES DEEP.
5. SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING. SEED ACCORDING TO "SEEDING SCHEDULE".
6. MULCH IN ACCORDANCE WITH "SEEDING SCHEDULE" IMMEDIATELY AFTER SEEDING.
7. INSPECT ALL SEEDING FOR COMPLIANCE WITH THE REQUIREMENTS OF THE "SEEDING SCHEDULE". MAKE NECESSARY REPAIRS AND RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE, OR THE DAMAGED AREA SHALL BE REESTABLISHED FOLLOWING THE ORIGINAL LIME, FERTILIZER AND SEEDING REQUIREMENTS.

SEEDING SCHEDULE

NOTE:
TEMPORARY SEED MIX SHALL BE USED FOR ALL AREAS EXPOSED GREATER THAN ONE WEEK AND SUBJECT TO FURTHER DISTURBANCE.

PERMANENT SEED MIX SHALL BE CHECKED FOR ADEQUACY ON JULY 15.
AN ADEQUATE COVER SHALL HAVE 50 SPRIGS OF BERMUDA OR SERICEA LESPEDEZA PER ONE SQUARE FOOT.

TEMPORARY SEEDING RECOMMENDATION for SUMMER (TO BE FOLLOWED BY PERMANENT FALL SEED MIX)

	SPECIES	RATE (LB / ACRE)
APR. 15 – AUG. 15	GERMAN MILLET	40

SOIL AMENDMENTS
APPLY 2,000 LB / ACRE GROUND AGRICULTURAL LIMESTONE and 750 LB / ACRE 10–10–10 FERTILIZER OR FOLLOW RECOMMENDATIONS OF SOIL TESTS.

MULCH
APPLY 4,000 LB / ACRE GRAIN STRAW OR EQUIVALENT COVER.
ANCHOR STRAW BY ROVING, NETTING OR BY TACKING WITH ASPHALT EMULSION AT A RATE OF 400 GAL / ACRE.

MAINTENANCE
RE–FERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, RE–FERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

TOWN OF SOUTHERN PINES

EROSION CONTROL AND SEQUENCE AND SEEDING NOTES

E1

TEMPORARY SEEDING RECOMMENDATION for FALL (TO BE FOLLOWED BY PERMANENT FALL SEED MIX)

	SPECIES	RATE (LB / ACRE)
AUG. 15 – DEC. 15	WINTER RYE (GRAIN)	120

SOIL AMENDMENTS
APPLY 2,000 LB / ACRE GROUND AGRICULTURAL LIMESTONE and 1,000 LB/ACRE 10–10–10 FERTILZER OR FOLLOW RECOMMENDED SOIL TESTS.

MULCH
APPLY 4,000 LB / ACRE GRAIN STRAW OR EQUIVALENT COVER.
ANCHOR STRAW BY ROVING, NETTING OR BY TACKING WITH ASPHALT EMULSION AT A RATE OF 400 GAL / ACRE.

MAINTENANCE
REPAIR AND RE–FERTILIZE DAMAGED AREAS IMMEDIATELY. TOPDRESS WITH 50 LB / ACRE OF NITROGEN IN MARCH. IF IT IS NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB / ACRE KOBE LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

TEMPORARY SEEDING RECOMMENDATION for LATE WINTER and EARLY SPRING (TO BE FOLLOWED BY PERMANENT FALL SEED MIX)

	SPECIES	RATE (LB / ACRE)
DEC. 1 – APR. 15	WINTER RYE (GRAIN)	120
	ANNUAL KOBE LESPEDEZA	50

OMIT LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.

SOIL AMENDMENTS
APPLY 2,000 LB / ACRE GROUND AGRICULTURAL LIMESTONE and 750 LB / ACRE 10–10–10 FERTILIZE OR FOLLOW RECOMMENDATIONS OF SOIL TESTS.

MULCH
APPLY 4,000 LB / ACRE GRAIN STRAW OR EQUIVALENT COVER.
ANCHOR STRAW BY ROVING, NETTING OR BY TACKING WITH ASPHALT EMULSION AT A RATE OF 400 GAL / ACRE.

MAINTENANCE
RE–FERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, RE–FERILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

PERMANENT SPRING SEED MIX

	SPECIES	RATE (LB / ACRE)
MARCH 1 – JULY 1	COMMON BERMUDA	30
	SERICEA LESPEDEZA	30

PERMANENT SPRING SEED MIX

	SPECIES	RATE (LB / ACRE)
SEPT. 1 – NOV. 1	COMMON BERMUDA	30
	SERICEA LESPEDEZA (UNSCARIFIED)	30
	KOBE LESPEDEZA	10

WATER

MINIMUM OF 1 INCH OF RAINFALL A WEEK (IF NOT SUPPLIED NATURALLY, CONTRACTOR SHALL SUPPLY THE REMAINING AMOUNT UNTIL GROUND COVER HAS BEEN ESTABLISHED.

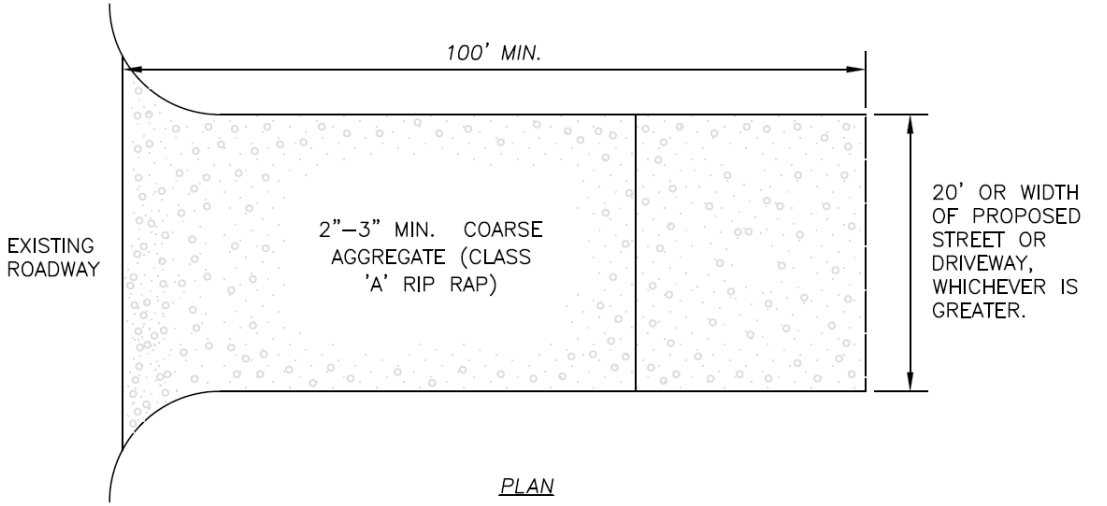
TOWN OF SOUTHERN PINES

EROSION CONTROL SEEDING NOTES

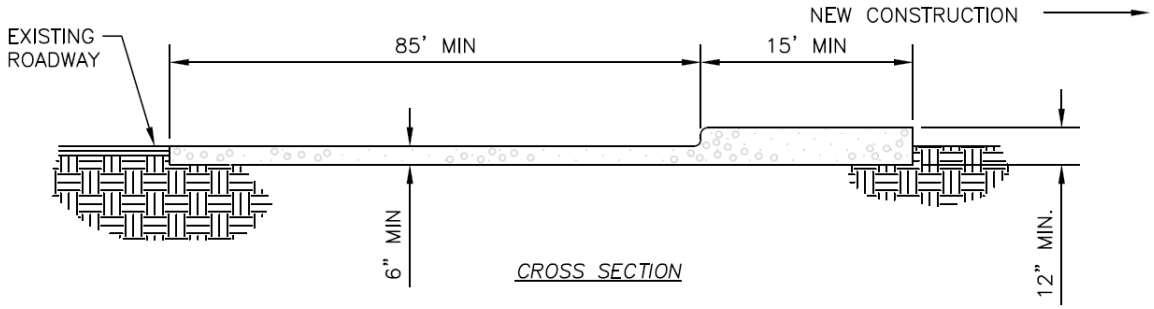
E2

NOTES & MAINTENANCE:

1. ENTRANCE(S) SHALL BE LOCATED TO PROVIDE MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
2. TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH 2" STONE WILL BE NECESSARY. CONTRACTOR SHALL MAINTAIN AS NECESSARY.
4. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROAD MUST BE CLEANED UP IMMEDIATELY.
5. FREQUENT CHECKS OF THE ENTRANCE(S) AND TIMELY MAINTENANCE SHALL BE PROVIDED.
6. NOTES ARE APPLICABLE AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED.



PLAN



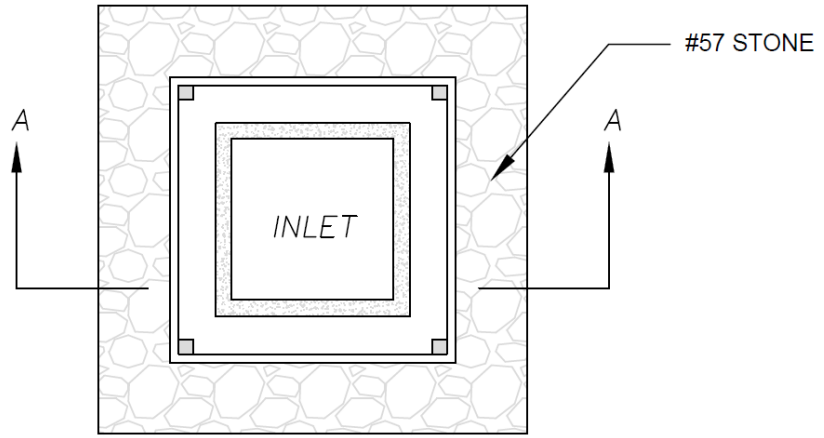
CROSS SECTION

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

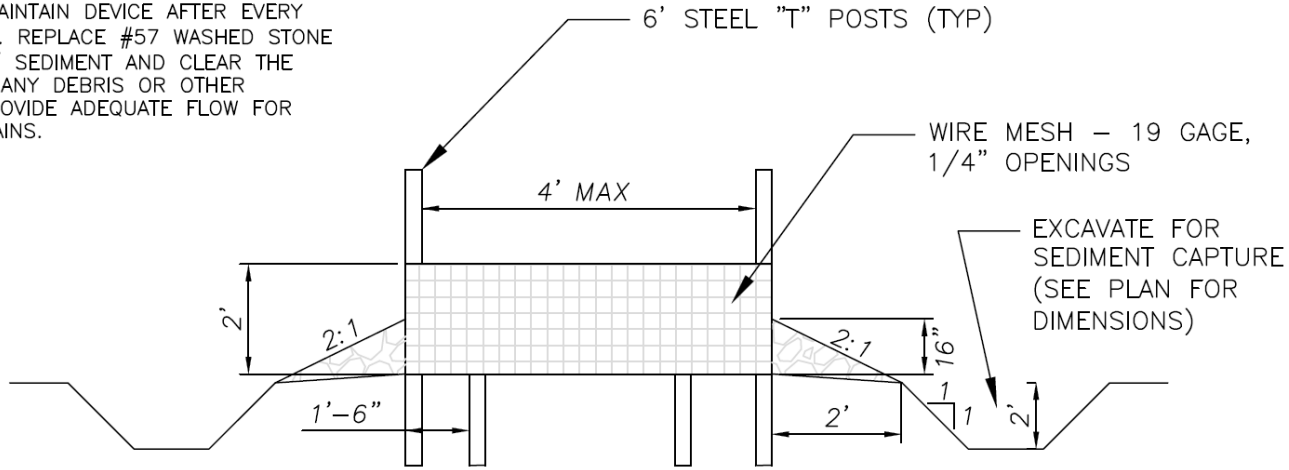
CONSTRUCTION ENTRANCE DETAIL

E3



PLAN

NOTES:
1. FRAMES AND GRATES TO REMAIN OFF INLET STRUCTURES WHILE INLET PROTECTION IS IN PLACE.
2. INSPECT AND MAINTAIN DEVICE AFTER EVERY RAINFALL EVENT. REPLACE #57 WASHED STONE IF IT CLOGS W/ SEDIMENT AND CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS.



SECTION A–A

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

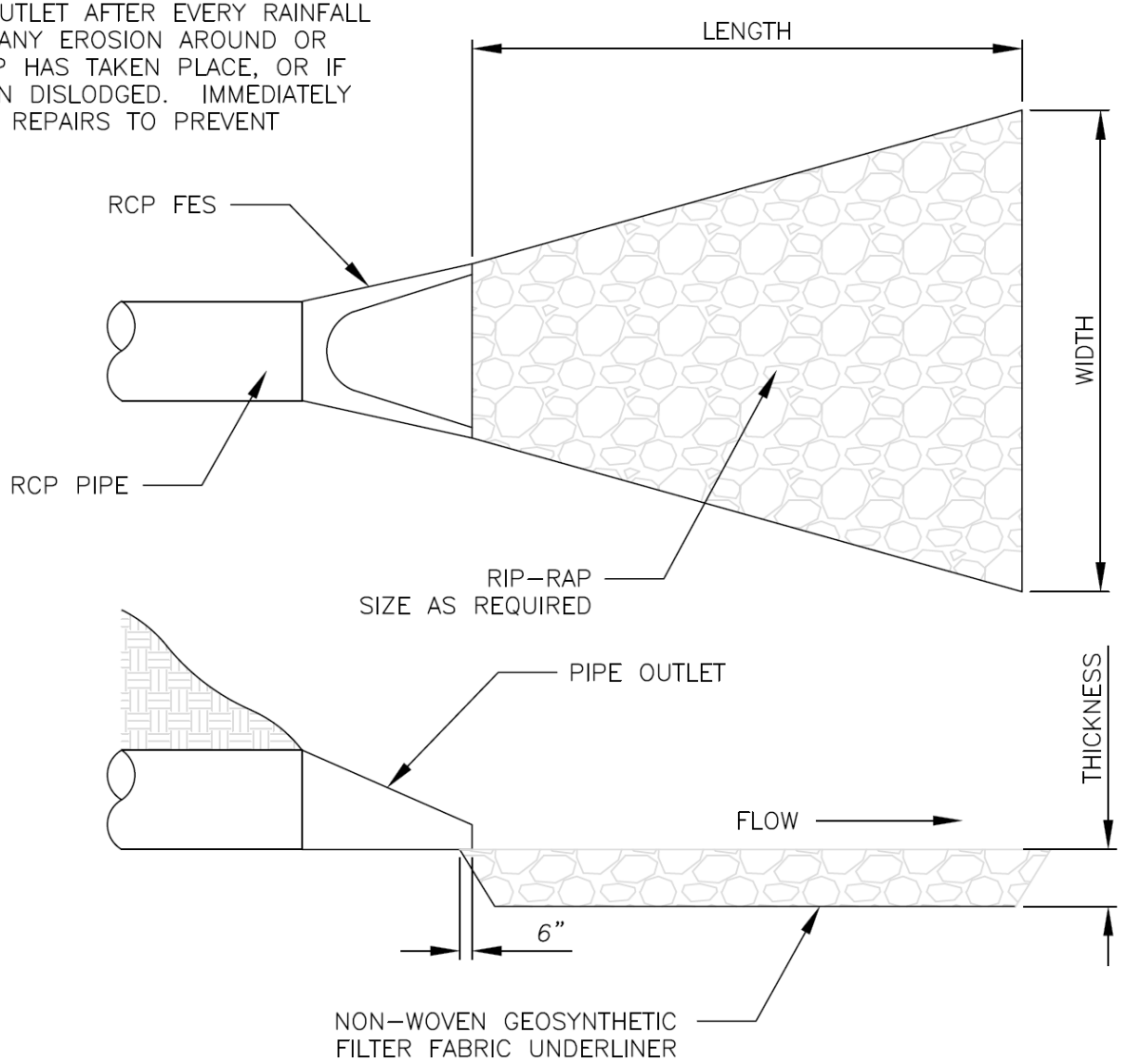
INLET PROTECTION DETAIL

E4

NOTES AND MAINTENANCE:

1. MINIMUM LENGTH, WIDTH AND STONE DIAMETER TO BE DETERMINED BY DESIGN CRITERIA.

2. INSPECT RIPRAP OUTLET AFTER EVERY RAINFALL EVENT TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE, OR IF STONES HAVE BEEN DISLODGED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.

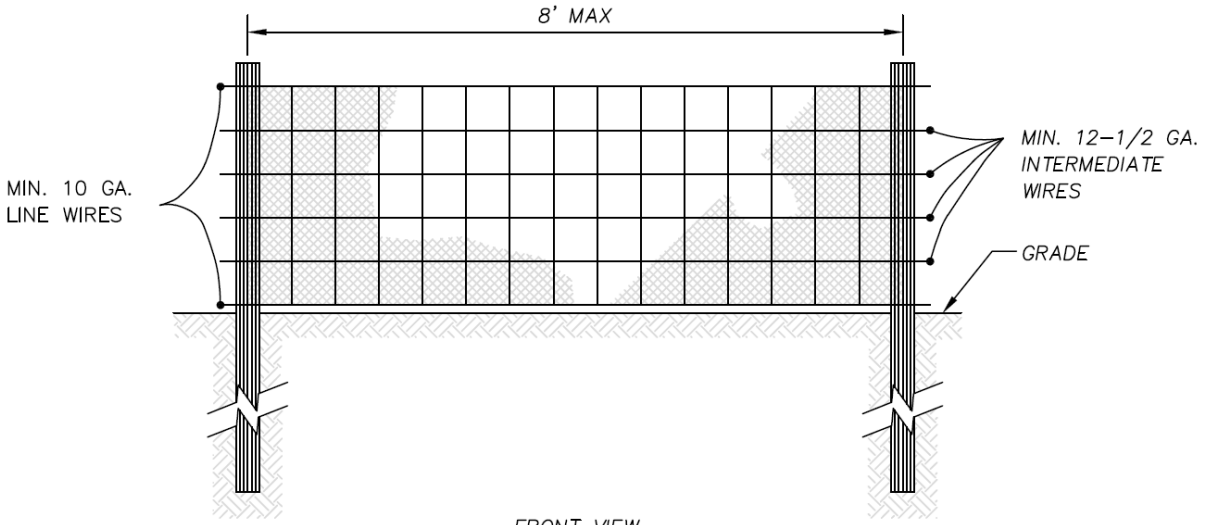


NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

RIP–RAP VELOCITY DISSAPATOR

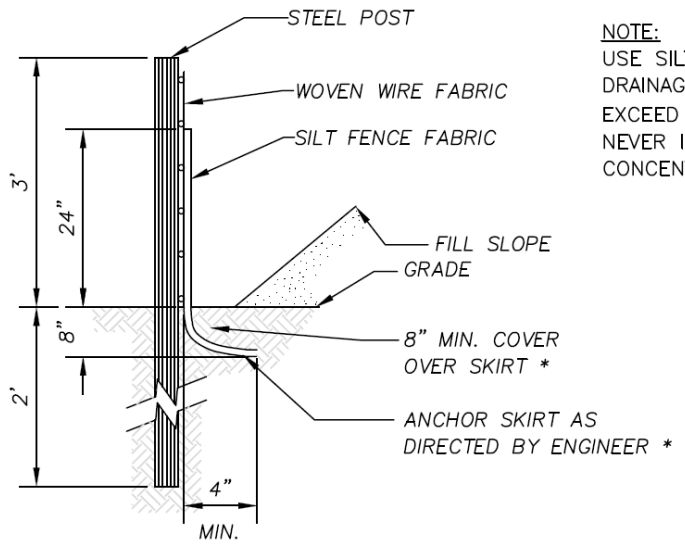
E5



FRONT VIEW

NOTES & MAINTENANCE:

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
5. REMOVE SEDIMENT DEEPER THAN 12".
6. FOR REPAIR OF SILT FENCE FAILURES, USE No. 57 WASHED STONE. FOR ANCHOR WHEN SILT FENCE IS PROTECTING CATCH BASIN.



SIDE VIEW

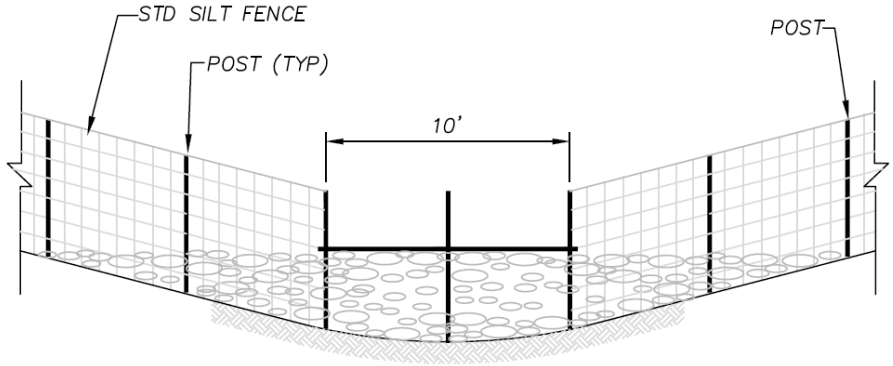
NOTE:
USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

TEMPORARY SILT FENCE DETAIL

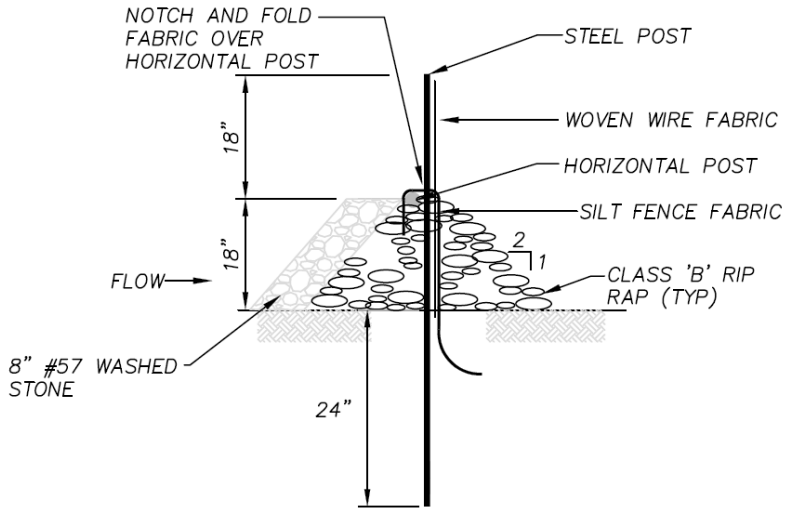
E6



ELEVATION

NOTES & MAINTENANCE

1. INSTALL SILT FENCE PER STD. SILT FENCE DETAIL.
2. INSPECT REINFORCED SILT FENCE OUTLETS AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO ENSURE STONE FILTER IS FUNCTIONING PROPERLY.
4. LOCATE REINFORCED OUTLET AT LOW POINTS OF SILT FENCE.
5. REMOVE RIP RAP STONE CAREFULLY AND ENSURE SILT FENCE IS NOT TORN. REPLACE ANY TORN SECTIONS.



SECTION

NOT TO SCALE
DATE: OCTOBER 2020

TOWN OF SOUTHERN PINES

REINFORCED SILT FENCE OUTLET

E7

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CHAPTER 9 FORMS

Forms

UTILITY CLOSEOUT DOCUMENTATION SUBMITTAL CHECKLIST

ENGINEERING SITE PLAN CLOSEOUT DOCUMENTATION SUBMITTAL CHECKLIST

Public Works Department
140 Memorial Park Court, Southern Pines, NC 28387
Phone: 910-692-1983 Fax: 910-692-1085

Utility Closeout Documentation Submittal Checklist

Submittal Date:_____
Submitted By: _____
Project: _____
ZP: _____

If this is a partial phase then it shall be noted as such. The requested items to be certified with exact lengths and locations shall be noted below (an overall map may be used):

_____

The Town of Southern Pines requires that the following information be provided prior to its acceptance of any public utility or item for a project before those system(s) may be put into service. By checking the items below the developer or his/her representative acknowledges that they have provided the follow documentation. If an item is not applicable mark as such:

1. ☐ Hold utility walkthrough with Town Inspector, Town Engineer, and Utility Superintendent and complete all punchlist items.
2. ☐ A copy of any required easements and/or plats
3. ☐ One (1) Mylar As-built drawing showing: Water lines and appurtenances, Sewer lines and appurtenances. As-Built conditions shall be surveyed by a PLS and certified by the design engineer.
4. ☐ As-built information shall be provided for all of the following:
   - Water lines and appurtenances (including valves, meters and BFP's)
   - Sewer lines and appurtenances (including cleanouts at the public right of way's or easements)
   - Public lift stations and force mains---include all independent test results as well as O&M manuals
   - Storm drain systems and appurtenances
   - All items including sidewalks, landscaping, street lights, etc. within 10' of the utility lines
5. ☐A CD/USB memory stick or email to the Town GIS department (email from: _____ _____dated:_____containing the GIS information in a comma delimited text file that contains survey points with the following data:
   - Point #
   - X (even if assumed)
   - Y (even if assumed)
   - Elevation (even if assumed)
   - Point description (MH, CB, DI, WM, HYD, GV, etc.)
   - Depth of manhole
   - Depth to pipe for manholes or other feature
   - Material type
   - Tie point (a point on a nearby street intersection, existing hydrant, existing manhole, property corner, etc.)

6. ☐ PDF file of As-built drawings & final construction drawings

7. ☐ DWG file of As-built drawing (Non-Civil 3D)

8. ☐ PDF file with all contact information (Engineer, Surveyor, Owner, Developer, etc.)

9. ☐ Provide Hydrant flow test documentation from a Registered Professional that states the fire flow meets design criteria as presented by original fire flow calculations. A table showing the design flow vs. actual flow shall be provided for each node.

10. ☐ Water line testing documentation

11. ☐ Sewer line testing documentation

12. ☐ Geotechnical reports for trench backfill.

13. ☐ Utility Electronic Location Testing Results.

14. ☐ Electronic copy of CCTV of all sewer lines

15. ☐ Engineer's Certification(s) water

16. ☐ Engineer's Certification(s) sewer

17. ☐ A copy of the official well and/or septic abandonment letter

18. ☐ Back flow preventer test result submitted to town and to the company below:
    BSI Online
    PH: 1-800-414-4990
    FAX: 1-888-414-4990
    EMAIL: bsionline@backflow.com

19. ☐ No New Food Service Establishments will be allowed to initiate operations until grease handling facilities are installed and approved by the Town Engineer. Written records are to be maintained and sent to Public Works. Contact the Town of Southern Pines Public Works to obtain Registration Form and Documentation. (1989 Code, § 50.59) (Ord. passed 3-13-1984; Am. Ord. 209, passed 2-12-1991; Am. Ord. passed 9-13-1994; Am. Ord. 1201, passed 4-11-2006; Am. Ord. 1507, passed 6-11-2013)

20. ☐ A digital copy (PDF) of all required acceptance package documents.

21. ☐ Written warranty letter (1yr) to the Town of Southern Pines for all public utilities.

Owner/Owner's Representative

Printed Name and Title and Company Name

Email address

Signature Date

Office use:

☐ Confirmation of all documents received.

Reviewer: _____

Public Works Department
Memorial Park Court, Southern Pines, NC 28387
Phone: 910-692-1983 Fax: 910-692-1085

Engineering Site Plan Closeout Documentation Submittal Checklist

Submittal Date:_____

Submitted By: _____

Project:_____

ZP :_____

If this is a partial phase, then it shall be noted as such. The requested items to be certified with exact lengths and locations shall be noted below (an overall map may be used):

_____

The Town of Southern Pines requires that the following information be provided prior to the approval of a Final Plat. By checking the items below the developer or his/her representative acknowledges that they have provided the follow documentation. If an item is not applicable mark as such:

1. ☐ Hold final walkthrough with Town Inspector, Town Engineer, Utility Superintendent, and Street Superintendent, and complete all punchlist items.
2. ☐ A copy of any required recorded easements and/or plats
3. ☐ One (1) Mylar As-built drawing showing: Water lines and appurtenances, Sewer lines and appurtenances, Storm drain lines and appurtenances, street trees, street lights and required landscaping.
4. ☐ As-built information shall be provided for all of the following:
    - Water lines and appurtenances (including valves, meters and BFP's)
    - Sewer lines and appurtenances (including cleanout's at the public right of way's or easements)
    - Public lift stations and force mains---include all independent test results as well as O&M manuals
    - Storm drain systems and appurtenances
    - Sidewalks
    - Street lights
    - Street signs
    - Street pavement markings
    - Identify pavement cross section on all streets—Curb& Gutter, ribbon etc.
    - Traffic islands on public streets
    - Gates blocking required Emergency Access
    - Other site-specific items as required

5. ☐ A CD/USB memory stick or email to the Town GIS department (email from:_____ _____dated:_____containing the GIS information in a comma delimited text file, shapefiles, or geodatabase that contains survey points with the following data:
    - Point #
    - X (even if assumed)
    - Y (even if assumed)
    - Elevation
    - Point description (MH, CB, DI, WM, HYD, GV, etc.)
    - Depth of manhole/junction box
    - Depth to pipe for manholes/junction box or other features
    - Material type
    - Tie point (a point on a nearby street intersection, existing hydrant, existing manhole, property corner, etc.)
6. ☐ PDF file of As-built drawings & final construction drawings
7. ☐ DWG file of As-built drawing (Non-Civil 3D)
8. ☐ PDF file with all contact information (Engineer, Surveyor, Owner, Developer, etc.)
9. ☐ Provide Hydrant flow test documentation from a Registered Professional that states the fire flow meets design criteria as presented by original fire flow calculations. A table showing the design flow vs. actual flow shall be provided for each node.
10. ☐ Documentation of asphalt paving inspections from a third party QMS Roadway Technician.
11. ☐ Documentation from a qualified professional stating the fire lanes have been independently tested and that the lanes meet TOSP requirements.
12. ☐ Electronic copy of CCTV inspection for all storm lines.
13. ☐ Engineer's Certification(s) Stormwater Conveyance
14. ☐ Engineer's Certification(s) Stormwater Control Measures
15. ☐ Engineer's Certification(s) Roadway
16. ☐ Back flow preventer test result submitted to town and to the company below:
    BSI Online
    PH: 1-800-414-4990
    FAX: 1-888-414-4990
    EMAIL: bsionline@backflow.com
17. ☐Surety (cash, letter of credit, or bond) for outstanding public improvements, if applicable. Surety information to be coordinated through Planning prior to request for final inspection. Surety provide for the following:_____

    _____
18. ☐A digital copy (PDF) of all required acceptance package documents.

19. ☐All Federal, State or local Government final approval letter(s) as applicable listed below:
    - Water Permit # _____
    - Sewer Permit # _____
    - Storm Water # _____
    - DOT Permit # _____
    - _____
    - _____

20. Written warranty letter (1yr) to the Town of Southern Pines for all public utilities, streets and street trees. List of warranties below:
    - _____
    - _____
    - _____
    - _____

_____
Owner/Owner's Representative

_____
Printed Name and Title and Company Name

_____
Email address

_____ _____
Signature Date

Office use:

☐ Confirmation of all documents received.

Reviewer: _____

Chapter 10 SystemVision New Homes Construction Standards

The following standards may be applied to single-family attached developments for up to 21 Lots (as one of the optional incentivized standards under the Minor-3 Subdivision). See Minor-2 & 3 Subdivision Application Checklist for details (page A-54).

1. Air Tightness

1.1. *Air tightness* shall be less than or equal to .20 CFM50 per square foot of conditioned envelope area.

1.2. All *air leakage* paths from the home to the crawl space and from the crawl space to outside shall be air sealed.
*For air sealing checklist details, see https://www.advancedenergy.org/system-vision.

2. Moisture Management and Indoor Air Quality

2.1. *Drainage:* Finished grade shall be sloped away from foundation walls or slab. Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches (152 mm) within the first 10 feet (3,048 mm) from the foundation walls. For exceptions, see the North Carolina Residential Building Code Section R401.3.

2.2. *Slabs:* A ground vapor/moisture barrier with a rating of no more than 0.1 perm shall be installed under the slab and have 100% coverage with overlapped seams.

2.3. *Crawl Spaces:* All crawl spaces shall be closed and have the following components:

2.3.1. A sump pump or drain to daylight with a backflow preventer shall be located at the lowest point of the crawl space.

2.3.2. All air leakage paths from the home to the crawl space and from the crawl space to outside shall be air sealed.

2.3.3. Vapor/Moisture Barrier

2.3.3.1. Walls: Vapor/moisture barrier shall be sealed, mechanically fastened and run up walls to within 3 inches of mudsill.

2.3.3.2. Floors: Vapor/moisture barrier shall be sealed at all seams and penetrations and to wall vapor/moisture barrier.

2.3.4. Drying Mechanism: A standalone dehumidifier or supply register with backflow preventer that provides 1 CFM/30SF of floor area.

2.3.5. For the duration of construction, crawl spaces shall have at least (1) a vapor/moisture barrier covering the ground and (2) a drying strategy (e.g., temporary crawl space vents or a dehumidifier).

2.4. *Metal drip edge* flashing shall be installed on all roof edges according to National Roofing Contractors Association or manufacturer specifications.

2.5. *Roof overhang depth* from the face of the wall to the face of the fascia must be a minimum of 12 inches.

2.6. Only if installed, *gutters* must have downspouts that terminate at least 5 feet away from the foundation and be independent of the foundation drain system.

2.7. At least one entry will have a *weather-protected overhang* of 3 feet in depth and a width of at least 18 inches from either side of the entry's rough opening.

3. Framing and Insulation

3.1. *Roof framing* shall allow for 10 inches of vertical space from the exterior of the top-plate to roof sheathing.

3.2. *Insulation* shall be installed to the Insulation Institute's or manufacturer's specifications, with no gaps, voids, compression or wind intrusion. Insulation and the continuous air barrier shall be installed in physical contact with each other.

3.3. *Attic accesses* shall be insulated to a minimum of R-30. Insulation must be securely fastened. This will require an insulated, air sealed and weather-stripped box to be constructed for attic pull-down stairs.

3.4. Insulation levels shall, at minimum, equal those in the following table.

Climate Zone	Slab	Walls	Ceiling	Floors	Crawl Space Walls
3	NA	R-19 or R-15 + 3 cont	R-38	R-19	R-5 cont
4	R-10	R-19 or R-15 + 3 cont	R-49	R-19	R-10 cont
5	R-10	R-21 or R-15 + 5 cont	R-49	R-30	R-15 cont

To locate climate zone, see https://up.codes/viewer/north_carolina/iecc-2009/chapter/3/climate-zones#3.
*Closed crawl spaces require either the subfloor or walls to be insulated.
**If using spray foam at the roof deck to create a sealed attic, use a minimum of 6 inches of either open or closed cell spray foam and covering the roof rafters.

3.5. In and around a crawl space, if insulation is installed at the foundation walls, insulated framed walls must be covered with a rigid air barrier and air sealed on all six sides, crawl space access shall be insulated with a minimum of R-5 rigid insulation securely fastened, and access shall be air sealed and weather-stripped to the outdoors.

4. Heating, Air Conditioning and Ventilation

4.1. *Equipment Minimum Performance Values:*

4.1.1. Furnaces: At least 90% efficient
4.1.2. AC: At least 15 SEER
4.1.3. Heat Pumps: At least 15 SEER and 8.8 HSPF

4.2. *All duct connections* shall be sealed with a UL-listed "bucket" mastic product.

4.3. *Total duct leakage*, measured in cubic feet per minute at 25 Pascals, shall not exceed 3% of the conditioned square footage. Building cavities shall not be used as ducts.

4.4. *Mechanical systems* shall be sized to within 6,000 Btuh (or closest available size) of the whole-home ACCA Manual J total load. ACCA Manual J room-by-room load calculations, including all inputs and outputs, shall be submitted for each plan to verify sizing. A physical copy of the load calculation with the AHRI certificate shall be attached to the AHU or submitted to the rater prior to the final inspection.

4.5. *Heat pumps* shall have an outdoor thermostat installed to prevent supplementary heater operation when the heat pump is capable of meeting load. The lockout shall be set no lower than 35F and no higher than 40F.

4.6. The *measured airflow* for each room shall be within +\- 20% or 25 CFM of the ACCA Manual J calculation. This will require supply dampers to be installed for bedrooms and bathrooms.

4.7. *Total system airflow* shall be set between 300 and 400 CFM per ton in cooling or to total system airflow as specified by the manufacturer.

4.8. *Whole-House Ventilation:* There shall be a filtered whole-house mechanical fresh air ventilation system capable of meeting the current version of ASHRAE 62.2 that complies with one of the following options:

> **Option 1:** *Supply Ventilation:* Air handler cannot have a PSC motor. System shall be designed to operate intermittently and automatically based on a timer and restrict outdoor air intake when not in use (e.g., motorized damper). Ventilation at a minimum shall occur 10% of every 24 hours and at a maximum 50% of every 24 hours. If additional ventilation is needed, Advanced Energy will adjust the guarantee to account for additional energy usage.
>
> **Option 2:** Design and install an approved *balanced ventilation* strategy including ERVs or HRVs.

4.9. *Spot Ventilation:* All ventilation ducts shall terminate beyond the exterior skin of the building.

> 4.9.1. All bathrooms shall have a fan vented to the outside that exhausts 50 CFM intermittently. (Requires a minimum fanrating of 70 CFM.)
>
> 4.9.2. All kitchens shall have a fan vented to the outside that exhausts 100 CFM. (Requires a minimum fan rating of 120 CFM.)

4.10. *All ventilation ducts*, excluding kitchen exhaust ducts, shall be insulated.

5. Pressure Balancing

5.1. All rooms within the conditioned space, except baths and laundry, shall not exceed +/- 3 Pascals pressure differential with respect to the main body when interior doors are closed and AHU is operating. Returns, transfer grilles or jump ducts shall be used to balance each room in addition to door undercuts.

6. Plumbing

6.1. Water heaters shall have a UEF as indicated in the table:

Water Heater Type	UEF Value
Electric Tank	.93
Gas Tank	.60
Gas Tankless	.61
Heat Pump	Any

6.2. From the water heater, the first 3 feet of hot and cold pipes shall be insulated to ≥ R-4.

6.3. Toilets shall be 1.3 GPF or less (including dual-flush models). Showerheads shall be 2.25 GPM or less. Kitchen faucets shall be 2.2 GPM or less. Bath faucets shall be 1.5 GPM or less.

7. Appliances & Lighting

7.1. Dishwashers and refrigerators, if provided by the builder, shall be ENERGY STAR® certified.

7.2. Home shall not have any incandescent lights. All exterior lighting shall use LEDs.

8. Aging in Place/Visitability

8.1. One house entry door, one bedroom entry and one bathroom entry must be a minimum of 32 inches clear. A visitable route from an exterior entrance through interior hallways must provide access to these interior entries, and this route must be a minimum of 36 inches clear throughout.

8.2. One bathroom shall have continuous blocking in walls using a minimum of 2x6 with the bottom located 31 inches above the floor around both toilet and shower to allow for future grab-bar installation.

9. Combustion Safety and Radon Mitigation

9.1. Any combustion appliance inside the conditioned space or closed crawl space, other than gas ranges, shall be direct (sealed) vent or power (fan) vented. Vent-free gas logs and wood fireplaces are not allowed.

9.2. One hard-wired CO detector shall be installed per 1,000 square feet of living space (minimum one per floor) in homes with any combustion appliance located within the conditioned space or that have an attached garage.

9.3. Radon-ready house/passive mitigation: Install a 3-to-4-inch diameter PVC pipe T-fitting from below the crawl space liner or slab. Connect it to a pipe that runs vertically through the house and exhausts to the exterior a minimum of 12 inches above the roof and 10 feet from openings into conditioned spaces. Install a power supply accessible to the upper top 50% of the pipe in case there is a need to convert to an active radon system.

Acronyms and Abbreviations

AC Air conditioners

ACCA Air Conditioning Contractors of America

AHRI Air-Conditioning, Heating, & Refrigeration Institute

AHU	Air handling unit
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
Btuh	British thermal units per hour
CFM	Cubic feet per minute
CFM50	Cubic feet per minute at 50 Pascals
CFM/30SF	Cubic feet per minute per 30 square feet
CO	Carbon monoxide
cont	Continuous insulation
ERV	Energy recovery ventilator
F	Degrees in Fahrenheit
GPF	Gallons per flush
GPM	Gallons per minute
HRV	Heat recovery ventilator
HSPF	Heating Seasonal Performance Factor
IECC	International Energy Conservation Code
LED	Light-emitting diode
mm	Millimeters
NA	Not applicable
Perm	Unit of measure for the water vapor permeability of a material
PSC	Permanent split capacitor
PVC	Polyvinyl chloride
SEER	Seasonal Energy Efficiency Ratio
UA	Sum of U-factor times assembly area. May be used to determine code compliance for insulation when using an alternate compliance path
UEF	Uniform Energy Factor
UL	Underwriters Laboratories

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APPENDIX C: RESERVED

RESERVED FOR FUTURE USE

APPENDIX D: TRAFFIC CALMING

What is Traffic Calming? The Institute of Transportation Engineers' (ITE) publication *Traffic Calming: State of the Practice* defines traffic calming as "the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users." Traffic calming includes physical and visual measures, as well as enforcement and educational activities. The immediate purpose of traffic calming is to reduce the speed and volume of traffic to acceptable levels ("acceptable" for the functional class of a street and the nature of bordering activity). Intermediate goals are to reduce accidents and to provide safer environments for pedestrians and children. Urban redevelopment and the reduction of noise, pollution, and crime are long-term goals.

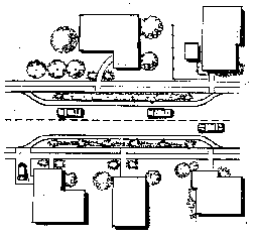
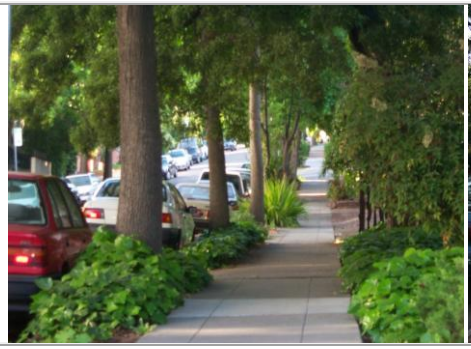
Traffic calming design shall comply with applicable state requirements and be consistent with best practices as established by the ITE (see http://www.ite.org/traffic/tcstate.asp).

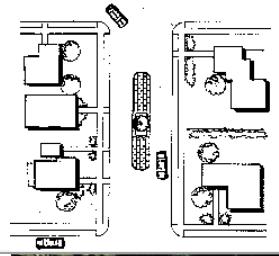
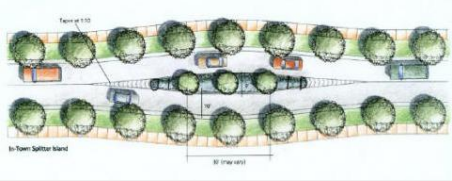
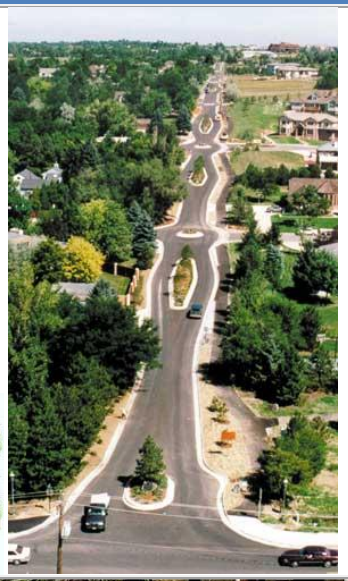
Traffic calming locations shall comply with the following table.

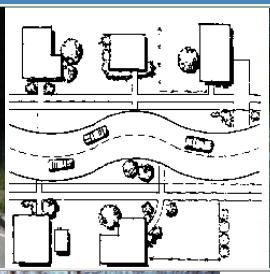
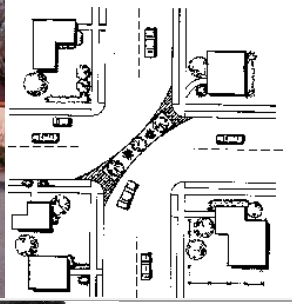
Traffic Calming Devices and Applications

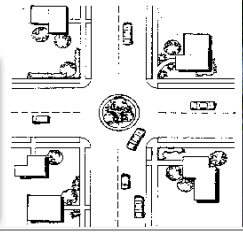
Traffic Calming Device	Typical Use	Minor and Local	Subcollector	Collector	Principal Arterials
Bike lanes	Bicycle Safety			•	•
Bulb-outs	Pedestrian Safety	•	•	•	•
On-street parking (parallel and angle)	Conditions Along Streets	•	•	•	
Center islands or short medians	Managing Traffic and Pedestrian Safety		•	•	•
Textured or Raised Crosswalks or Intersections	Pedestrian Safety Managing Traffic		•	•	
Chicanes	Managing Traffic	•			
Diverters and forced turn lanes	Managing Traffic	•			
Roundabouts	Managing Traffic		•	•	•
Rotaries	Managing Traffic	•			

Traffic Calming Techniques for Southern Pines

Devices and Techniques	Descriptions	Images
Bike Lanes	A portion of a roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.	
Bulb-outs/ Neck-downs/ Chokers	Curb extensions at intersections that reduce curb-to-curb roadway travel lane widths.	  
On-Street Parking	Provision of parallel or angled parking to separate traffic lanes from sidewallks	 

Devices and Techniques	Descriptions	Images
Center Islands	Raised islands located along the centerline of a roadway that narrow the width at that location.	  
Textured or raised Crosswalks or Intersections	Elevated tables at intersections or changes in surface colors/materials to improve pedestrian stafety	

Devices and Techniques	Descriptions	Images
Chicanes/ Lateral Shifts	Curb extensions that alternate from one side of the roadway to the other, forming s-shaped curves.	  
Diverters	Barriers placed diagonally across an intersection, blocking certain movements.	 
Forced Turn Lanes / Median Barriers	Raised islands located on approaches to an intersection that block certain movements. Raised islands located along the centerline of a roadway and continuing through an intersection to block cross traffic.	 

Devices and Techniques	Descriptions	Images
Police Enforcement	Involve employing the services of law enforcement agencies to impose the local safe vehicle laws, including those for posted speeds and traffic signal/signs.	 
Roundabouts	Barriers placed in the middle of an intersection, directing all traffic in the same direction.	 
Rotaries	Barriers placed in the middle of an intersection, directing all traffic in the same direction. Usually smaller than roundabouts.	  

APPENDIX E: VEHICLE ACCOMMODATION AREA SURFACES

E-1. Paved Surfaces:

Vehicle accommodation areas paved with asphalt shall be constructed in the same manner as street surfaces (Appendix C, Sections C-6 through C-9). If concrete is used as the paving material, vehicle accommodation areas shall be similarly constructed except that six inches of concrete shall be used instead of two inches of asphalt and stone base. The public works director may allow other paving materials to be used so long as the equivalent level of stability is achieved.

E-2. Unpaved Surfaces:

Vehicle accommodation areas without paving shall be constructed in the same manner as paved areas except that crushed stone of the following types may be used in lieu of asphalt, concrete or other paving material: Size 13 Crushed Stone

APPENDIX F: SCREENING AND TREES

F-1. Guide for Protecting Existing Trees:

Section 4.4.5 of the UDO provides for the retention and protection of large trees when land is developed. In order to better ensure the survival of existing trees, the developer shall heed the following guidelines:

(a) Protect trees with fencing and armoring during the entire construction period. The fences should enclose an area ten feet square with the tree at the center.

(b) Do not excavate beneath the crown of the tree.

(c) Do not compact the soil around existing trees with any equipment. Do not pile direct or store material or park equipment beneath the crown of the tree.

(d) Keep fires or other sources of extreme heat well clear of existing trees.

(e) Repair damaged roots and branches immediately. Exposed roots should be covered with topsoil. Whenever roots are destroyed, a proportional amount of branches must be pruned so that the tree doesn't transpire more water than it takes in. Injured trees must be thoroughly watered during the ensuing growing year.

(f) All existing trees, which will be surrounded by paving, should be pruned to prevent dehydration. The method of pruning will depend upon the tree species.

(g) No paving or other impermeable ground cover should be placed within the drip line of trees to be retained.

F-2. Standards for Street and Parking Lot Trees:

Trees planted in compliance with the requirements of Section 4.3 of the UDO should have most or all of the following qualities. The trees recommended in Section E10 represent the best combinations of these characteristics.

(a) Hardiness:

(1) Resistance to extreme temperatures.

(2) Drought resistance.

(3) Resistance to storm damage.

(4) Resistance to air pollution.

(5) Ability to survive physical damage from human activity.

(b) Life Cycle:

(1) Moderate to rapid rate of growth.

(2) Long life.

(c) Foliage and Branching:

(1) Tendency to branch high above the ground.

(2) Wide spread habit.

(3) Relatively dense foliage for maximum shading.

(d) Maintenance:

(1) Resistance to pests.

(2) Resistance to plant diseases.

(3) Little or no pruning requirements.

(4) No significant litter problems.

F-3. Formula for Calculating 20% shading of Paved Vehicle Accommodation Areas:

Following is an elementary formula for determining the number of shade trees required in and around paved parking lots in order to presumptively satisfy the shading requirements of Section 4.4.2 of the UDO.

(1) Calculate square footage of the vehicle accommodation area. Include parking spaces, driveways, loading areas, sidewalks and other circulation areas. Do not include building area and any area which will remain completely undeveloped:

_____ Sq. Ft.

(2) **Multiply:** **X .20**

(3) Area to be shaded: _____ Sq. Ft.

Add:

(4) Areas shaded by existing trees to be

Retained in and around the vehicle

Accommodation area: * _____ Sq. Ft.

(5) Area shaded by required screening

Trees, if any:* _____ Sq. Ft.

(6) Area shaded by required street

Trees, if any:* _____ Sq. Ft.

(7) **Subtotal:** _____ Sq. Ft.

(If line 7 is greater than line 3, then the shading requirement has been met. If not, go on to line 8).

(8) Enter the difference between line 7 and line 3: _____ Sq. Ft.

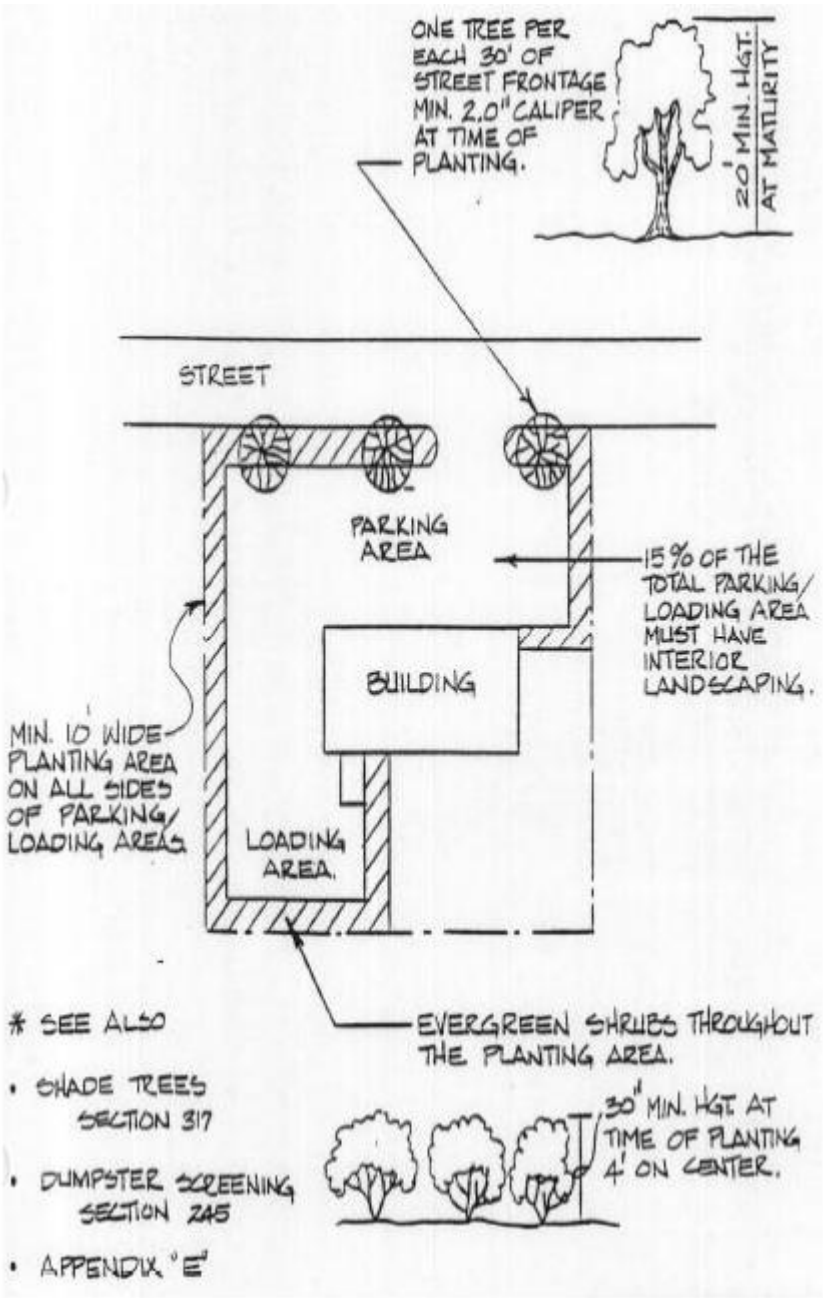
(9) **Divide line 8 by: / 707**

(10) **Total number of shade trees required**

Within the vehicle accommodation area: _____ Trees

* Existing trees retained in compliance with Section 4.4.5 will be credited according to their actual crown radius. Shaded area may be calculated as follows: 3.14 X (crown radius)2 = shaded area. Trees planted within the vehicle accommodation area are credited with shading 707 sq. ft. (Based on a crown radius of 15 ft.). New or existing trees on the perimeter of the parking lot are credited for having only half a crown over the vehicle accommodation areas (e.g., new perimeter trees will be crediting for shading 354 sq. ft.). Generally all trees planted in compliance with the screening requirements of Section 4.3.5 and the street tree requirements of Section 4.3.3 will be considered perimeter trees.

PARKING LOT LANDSCAPING



F-5. Guide for Planting Trees:

The trees recommended in Section F-10 have minimal maintenance requirements. However, all trees must receive a certain degree of care, especially during and immediately after planting. In order to protect an investment in new trees, the developer and his or her agents should follow these guidelines when planting:

(a) Plant trees with a minimum caliper of two inches measured six inches above the ground and a root ball no smaller than two feet in diameter.

(b) The best time for planting is early spring and early fall. Trees planted in the summer run the risk of dehydration.

(c) Plant all trees at least three-and-a-half feet from the end of head-in parking spaces in order to prevent damage from car overhangs.

(d) Dig the tree pit twice the diameter of the root ball and no deeper than needed to allow the plant's crown to sit an inch or so above the surrounding soil level.

(e) Especially in areas where construction activity has compacted the soil, the bottom of the pit should be scarified or loosened with a pick ax or shovel.

(f) After the put is dug, observe sub-surface drainage conditions. Where poor drainage exists, the tree pit should be dug at least an additional twelve inches and the soil amended to allow roots to grow properly.

(g) Back fill should include a proper mix of soil and fertilizer. All roots must be completely covered. Back fill should be thoroughly watered as it is placed around the roots.

(h) Immediately after it is planted, the tree should be supported with stakes and guy wires to firmly hold it in place as its root system begins to develop. Remove stakes and ties after one year.

(i) Spread at least three inches of mulch over the entire excavation in order to retain moisture and keep down weeds. An additional three-inch saucer of mulch should be provided to form a basin around the trunk of the tree. This saucer helps catch and retain moisture.

(j) The lower trunks of new trees should be wrapped with burlap or paper to prevent evaporation and sunscald. The wrapping should remain on the tree for at least a year.

(k) Conscientious post-planting care, especially watering, pruning and fertilizing, is a must for street and parking lot trees. Branches of new trees may be reduced by as much as a third to prevent excessive evaporation.

F-9. Guide for Planting Shrubs:

Shrubs planted for screening purposes should be given a proper culture and sufficient room in which to grow. Shrubs should at a minimum, be in three-gallon containers and a minimum of 30 inches in height. They should be planted no more than 18 inches apart in a diamond or staggered pattern. Many of the guidelines for tree planting listed in Section E-5 also apply to shrubs. However, because specific requirements vary considerably between shrub trees, this Appendix does not attempt to generalize the needs of all shrubs. For detailed planting information or individual species, refer to: Landscape Plants of the Southeast by R. Gordon Halfacre and Ann R. Shawcroft.

F-10. Lists of Recommended Trees and Shrubs:

The following lists indicate plantings, which will meet the screening and shading requirements of Article XIX of the Land Development Ordinance. The lists are by no means comprehensive and are intended merely to suggest the types of flora, which would be appropriate for screening and shading purposes. Plants were selected for inclusion on these lists according to four principal criteria: general suitability for the piedmont section of North Carolina, ease of maintenance, tolerance of city conditions and availability from area nurseries. When selecting new plantings for a particular site, a developer should first consider the types of plants, which are thriving on or near that site. Accordingly, native North Carolina species should often be favored. However, if an introduced species has proven highly effective for screening or shading in piedmont towns, it too may be a proper selection.

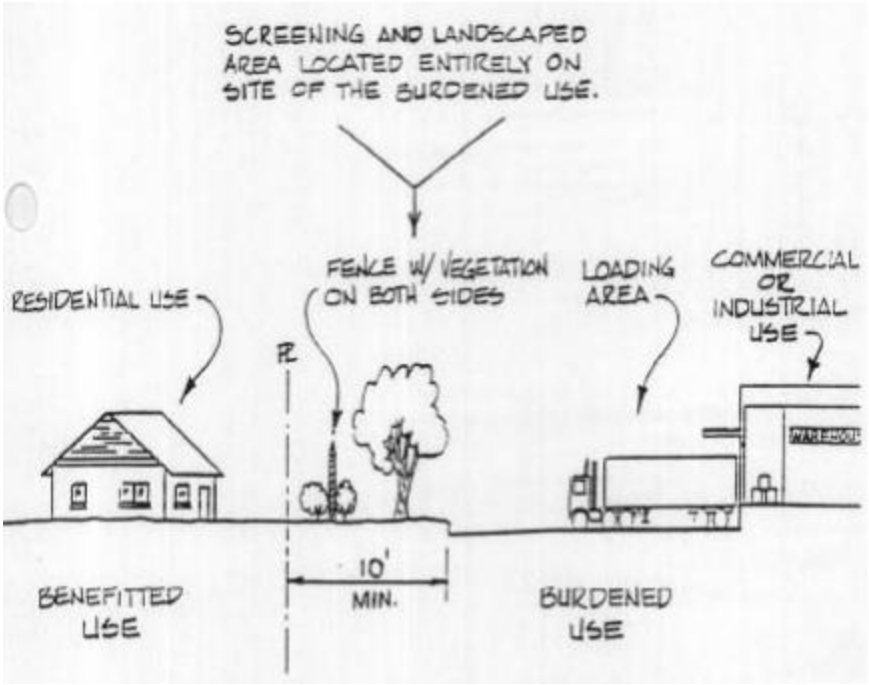
SMALL TREES	**LARGE TREES**
1) Carpinus caroliniana (American Hornbeam) 2) Cercis canadensis (Eastern Redbud) 3) Cornus sericea (American Dogwood) 4) Cornus Kousa (Kousa Dogwood) 5) Cornus florida (Flowering Dogwood) 6) Cornus Hybrid (Hybrid Dogwood) 7) Halesia Carolina (Mountain Silverbell) 8) Ilex cornuta (Chinese Holly) 9) Ilex 'Emily Bruner' (Emily Bruner Holly) 10) Ilex 'Nellie R Stevens' (Nellie R Stevens Holly) 11) Ilex Amelanchier (Service Berry) 12) Ilex decidua (Possumhaw Holly; watertolerant) 13) Juniperus scopulorum (Redcedar; droughttolerant) 14) Lagerstroemia indica (Crepe Myrtle) 15) Acer buergerianum (Trident Maple) 16) Acer griseum (Paperbark Maple) 17) Magnolia grandiflora (Little Gem Magnolia) 18) Magnolia figo (Banana Shrub) 19) Myrica cerifera (Wax Myrtle) 20) Cotinus coggygria (Smoke Tree) 21) Cephalanthus occidentalis (Buttonbush; water-tolerant) 22) Gordonia lasianthus (Loblolly Bay; watertolerant)	1) Pinus palustris (Longleaf Pine) 2) Magnolia grandiflora (Southern Magnolia) 3) Tsuga canadensis (Canadian Hemlock) 4) Thuja occidentalis (American Arborvitae) 5) Thuja 'Green Giant' (Green Giant Arborvitae) 6) Hesperocyparis arizonica (Arizona Cypress) 7) Ilex 'Savannah' (Savannah Holly) 8) Ilex 'East Palatka' (East Palatka Holly) 9) Ilex opaca Holly (American Holly) 10) Gleditsia triacanthos 'Inermis' (Thornless Honey Locust) 11) Ulmus parvifolia (Lacebark Elm) 12) Ulmus Americana (American Elm) *New Hybrids Only 13) Quercus alba (White Oak) 14) Quercus falcata (Southern Red Oak) 15) Quercus phellos (Willow Oak) 16) Quercus texana (Nuttall Oak) 17) Quercus virginiana (Live Oak) 18) Quercus coccinea (Red Oak) 19) Quercus shumardii (Shumard Oak) 20) Taxodium distichum (Balled Cypress) 21) Metasequoia glyptostroboides (Dawn Redwood) 22) Cedrus deodara (Deodar Cedar) 23) Tilia cordata (Littleleaf Linden) 24) Taxodium distichum (Baldcypress; watertolerant) 25) Gymnocladus dioicus (Kentucky Coffeetree; dought-tolerant)

	26) Celtis occidentalis (American Hackberry; drought-tolerant)
SMALL SHRUBS	**LARGE SHRUBS**
1. Callicarpa Americana (American Beautyberry) 2. Linnaea x grandiflora (Glossy Abelia) 3. Vaccinium (Bilberries, Blueberries, Cranberries, Hucklenerries) 4. Ilex cornuta 'Needlepoint' (Needlepoint Holly) 5. Ilex crenata 'Compacta' (Compact Japanese Holly) 6. Rhaphiolepis indica (Indian Hawthorn) 7. Pieris japonica (Japanese Pieris) 8. Azaleas and Rhododendrons	1. Clethra alnifolia (Sweet Pepperbush) 2. Viburnums 3. Ilex coriacea (Tall Inkberry Holly) 4. Ilex cornuta 'Burfordii' (Burford Holly) 5. Magnolia stellate (Star Magnolia) 6. Magnolia virginiana (Sweet Bay Magnolia) 7. Osmanthus fragrans (Fragrant Tea Olive) 8. Osmanthus x fortune (Fortune's Tea Olive) 9. Illicium (Star Anise) 10. Camellia sasanqua (Sasanqua Camellia) 11. Weigela florida (Weigela) 12. Cotinus coggygria (Common Smoketree) 13. Forsythia (Golden Bells) 14. Hamamelis virginiana (Common Witchhazel) 15. Exochorda racemose (Common Pearlbush) 16. Philadelphus inodorus (Mock Orange) 17. Philadelphus inodorus (Winter Honeysuckle) 18. Florida Leucothoe (Fetterbush)
GROUND COVERS, WILDFLOWERS, AND NATIVE GRASSES	
1. Aristida stricta (Carolina Wiregrass) 2. Watsonia (Bugleflower, water-tolerant) 3. Hosta (Plantain Lily, water-tolerant) 4. Eragrostis spectabilis (Purple Lovegrass) 5. Andropogon (Elliot's, Bushy, and Broomsedge Bluestem) 6. Schizachyrium scoparium (Little Bluestem) 7. Eleocharis (Spikerush) 8. Muhlenbergia capillaris (Muhly Grass) 9. Muhlenbergia sericea (Purple Muhly) 10. Panicum virgatum (Carthage Switchgrass) 11. Spartina (Gulf, Smooth, and Sand Cordgrass) 12. Amphicarpum amphicarpon (Blue Maidencane) 13. Chrysopogon zizanioides (Vetiver) 14. Juncus effuses (Soft Rush, water-tolerant) 15. Cyperus (Flatsedge) 16. Schoenoplectus lacustris (Lakeshore Bulrush) 17. Sorghastrum (Yellow and Nodding Indiangrass) 18. Ctenium aromaticum (Toothache Grass) 19. Helianthus simulans (Narrow-Leaved	

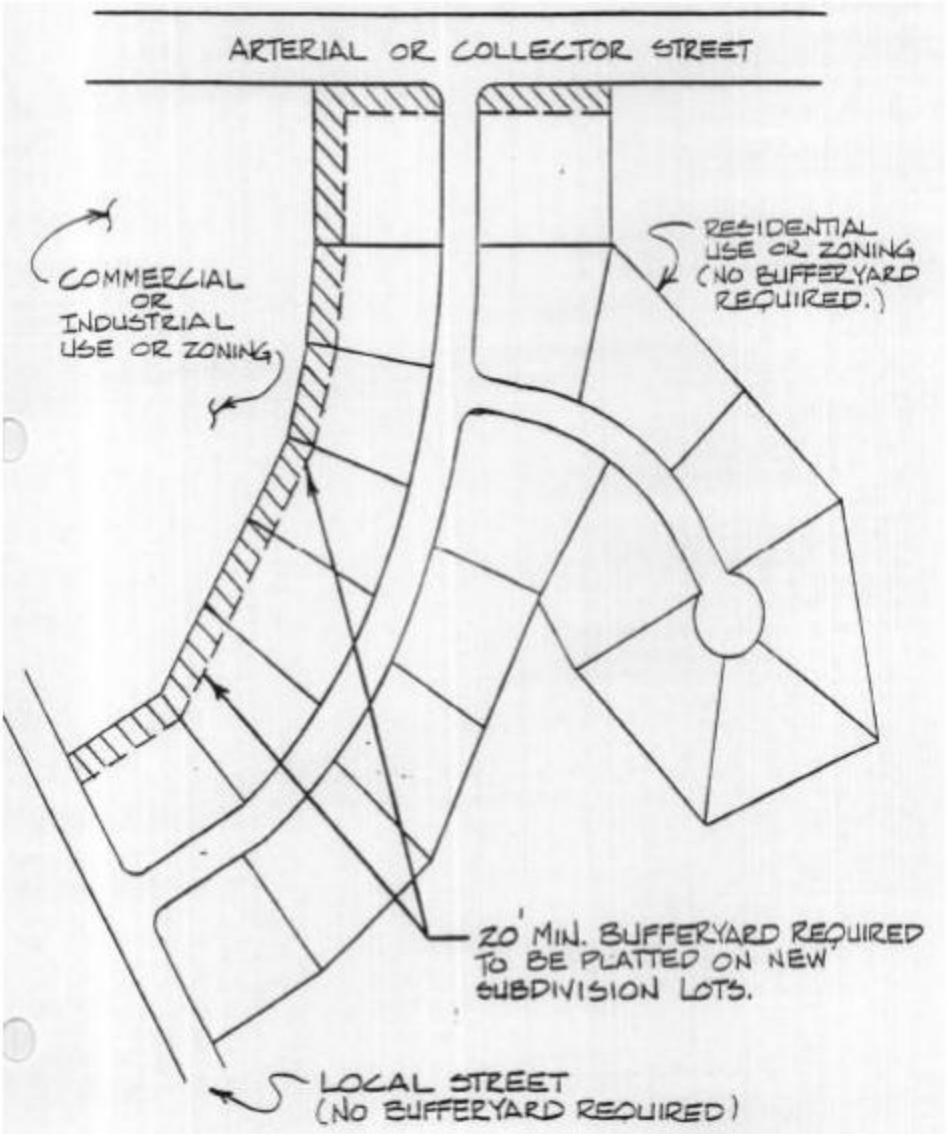
Sunflower) 20. Coreopsis (Plains, Lance-Leaved, Large Flower, Goldenmane Coreopsis) 21. Bidens aristosa (Bur Marigold) 22. Cosmos sulphureus (Sulpher Cosmos) 23. Chamaecrista fasciculata (Common Partridge and Sensitive Pea) 24. Monarda didyma (Bee Balm) 25. Rudbeckia fulgida (Black-Eyed Susan)	

APPENDIX G: GRAPHICS ILLUSTRATING MAJOR BUFFERING AND LANDSCAPING REQUIREMENTS

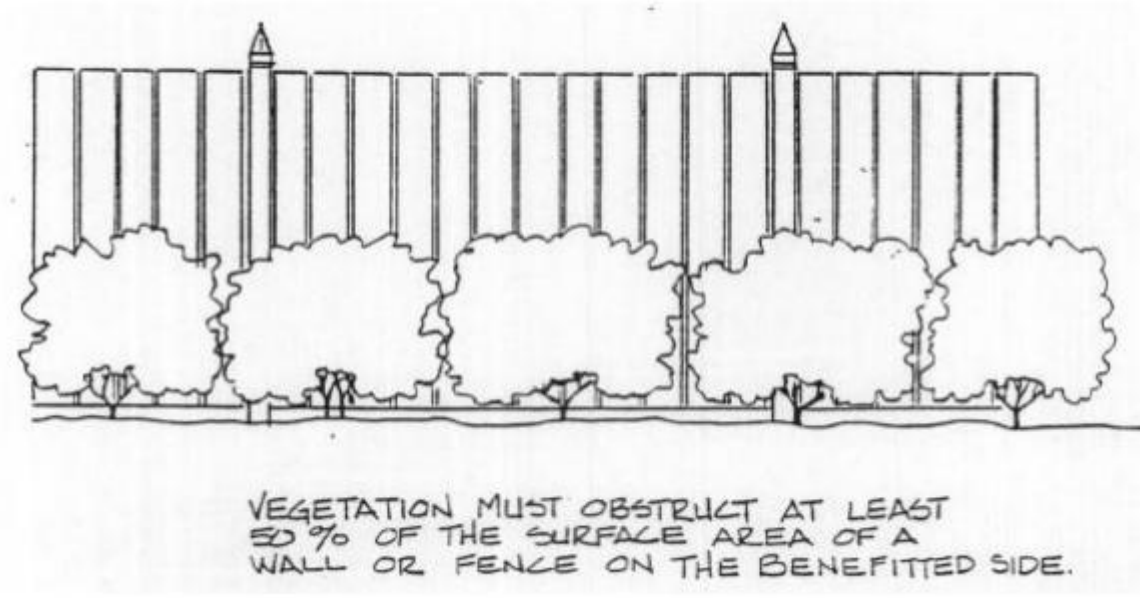
TYPICAL SCREENING SITUATION



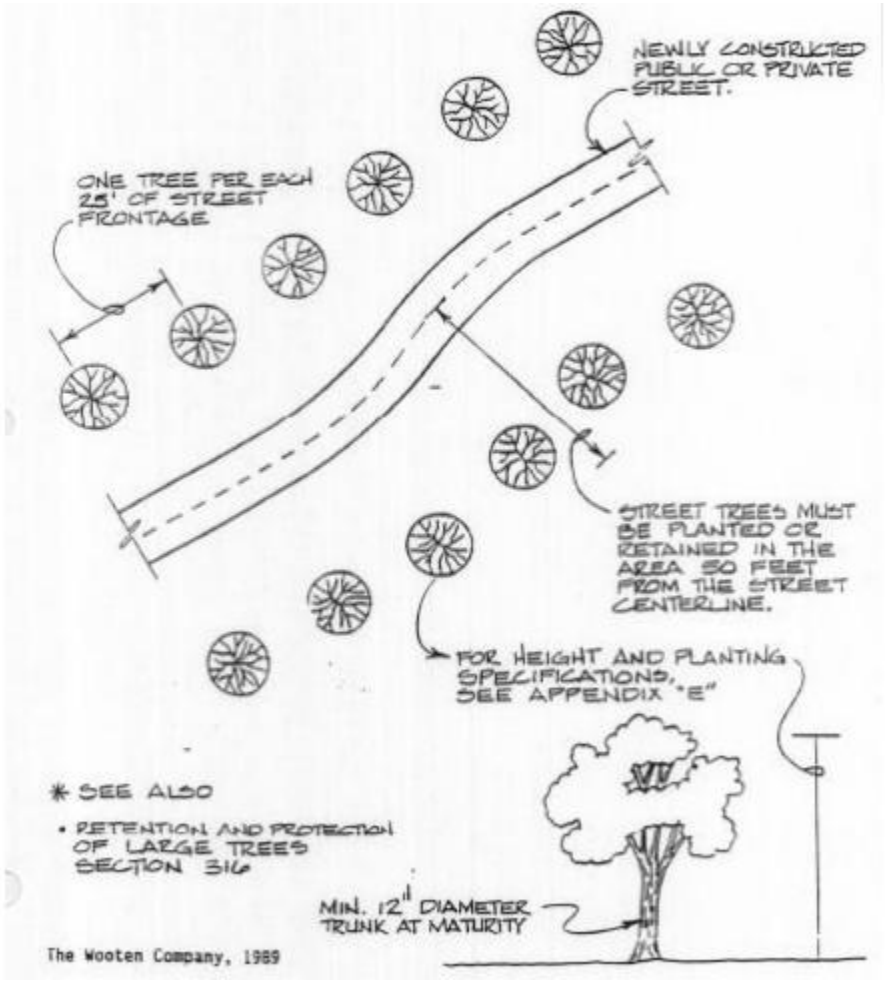
SUBDIVISION BUFFERYARDS



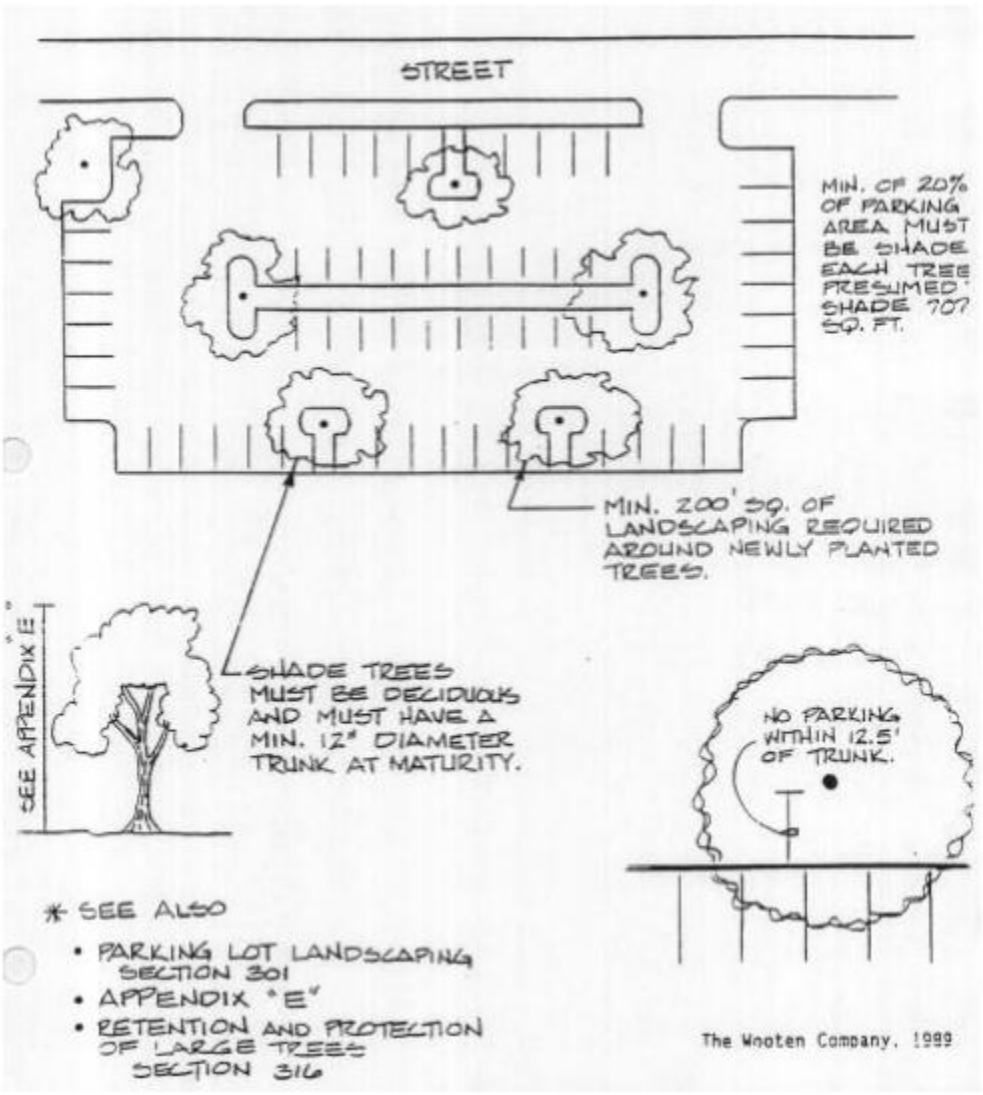
SCREENING WITH FENCES AND WALLS



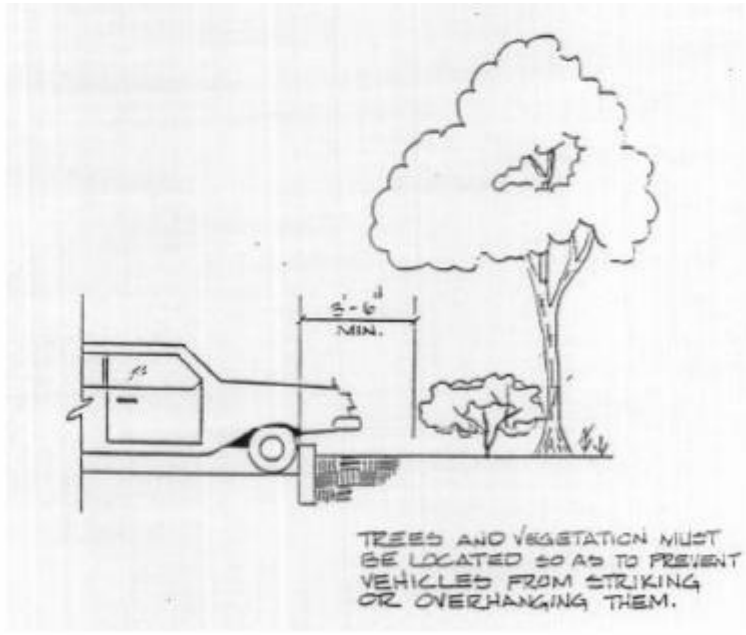
STREET TREES



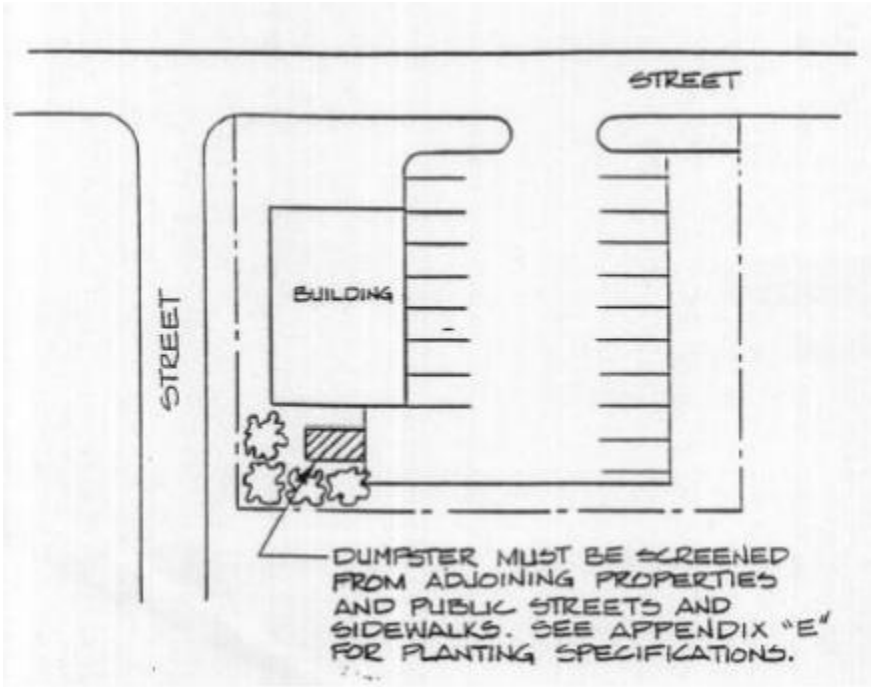
SHADE TREES


STREET
MIN. OF 20% OF PARKING AREA MUST BE SHADE EACH TREE PRESUMED SHADE 707 SQ. FT.
MIN. 200' SQ. OF LANDSCAPING REQUIRED AROUND NEWLY PLANTED TREES.
SEE APPENDIX "E"
SHADE TREES MUST BE DECIDUOUS AND MUST HAVE A MIN. 12" DIAMETER TRUNK AT MATURITY.
NO PARKING WITHIN 12.5' OF TRUNK.
* SEE ALSO
• PARKING LOT LANDSCAPING SECTION 301
• APPENDIX "E"
• RETENTION AND PROTECTION OF LARGE TREES SECTION 316
The Wooten Company, 1999

PROTECTION OF TREES AND VEGETATION FROM VEHICLE OVERHANG



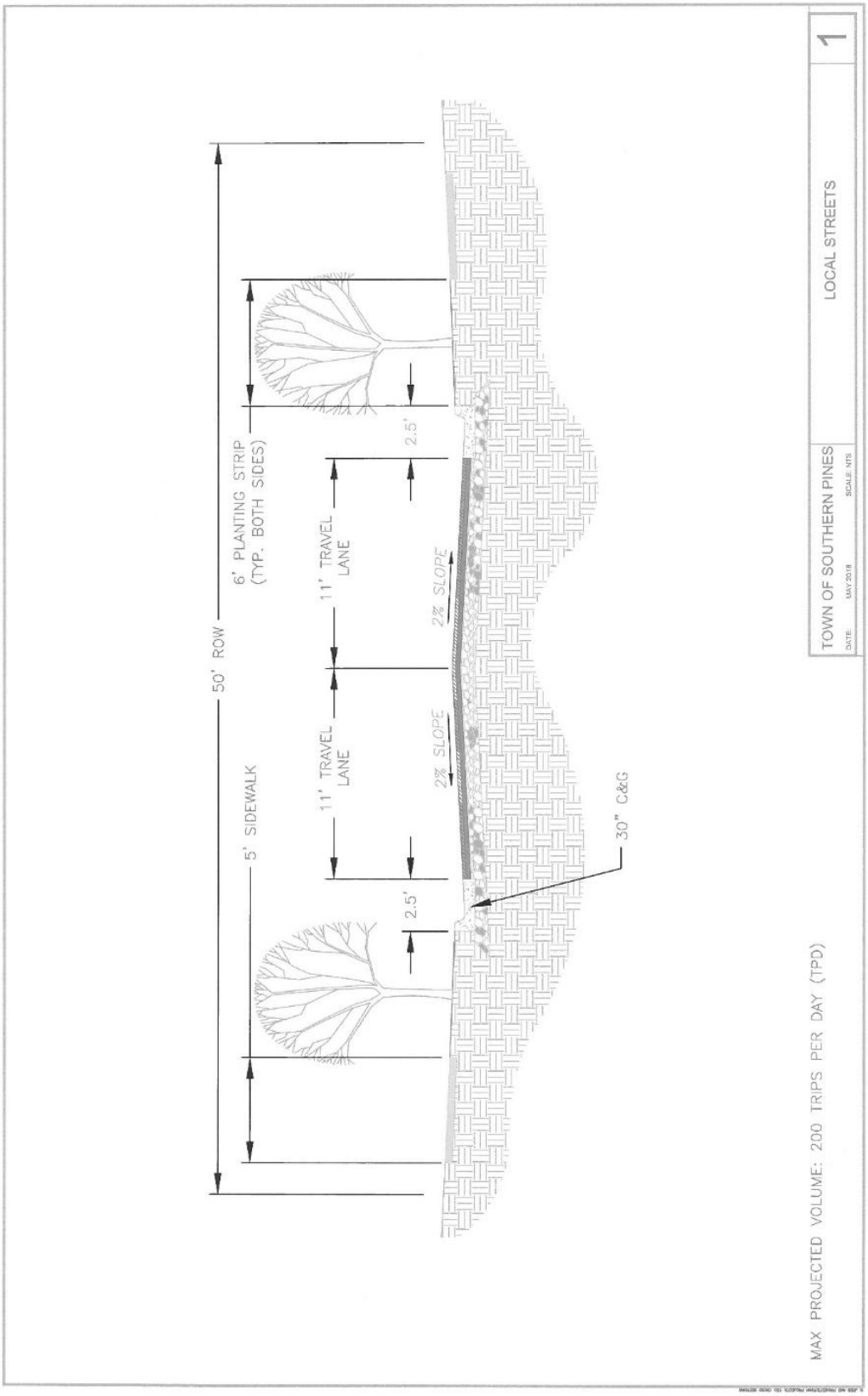
DUMPSTER SCREENING

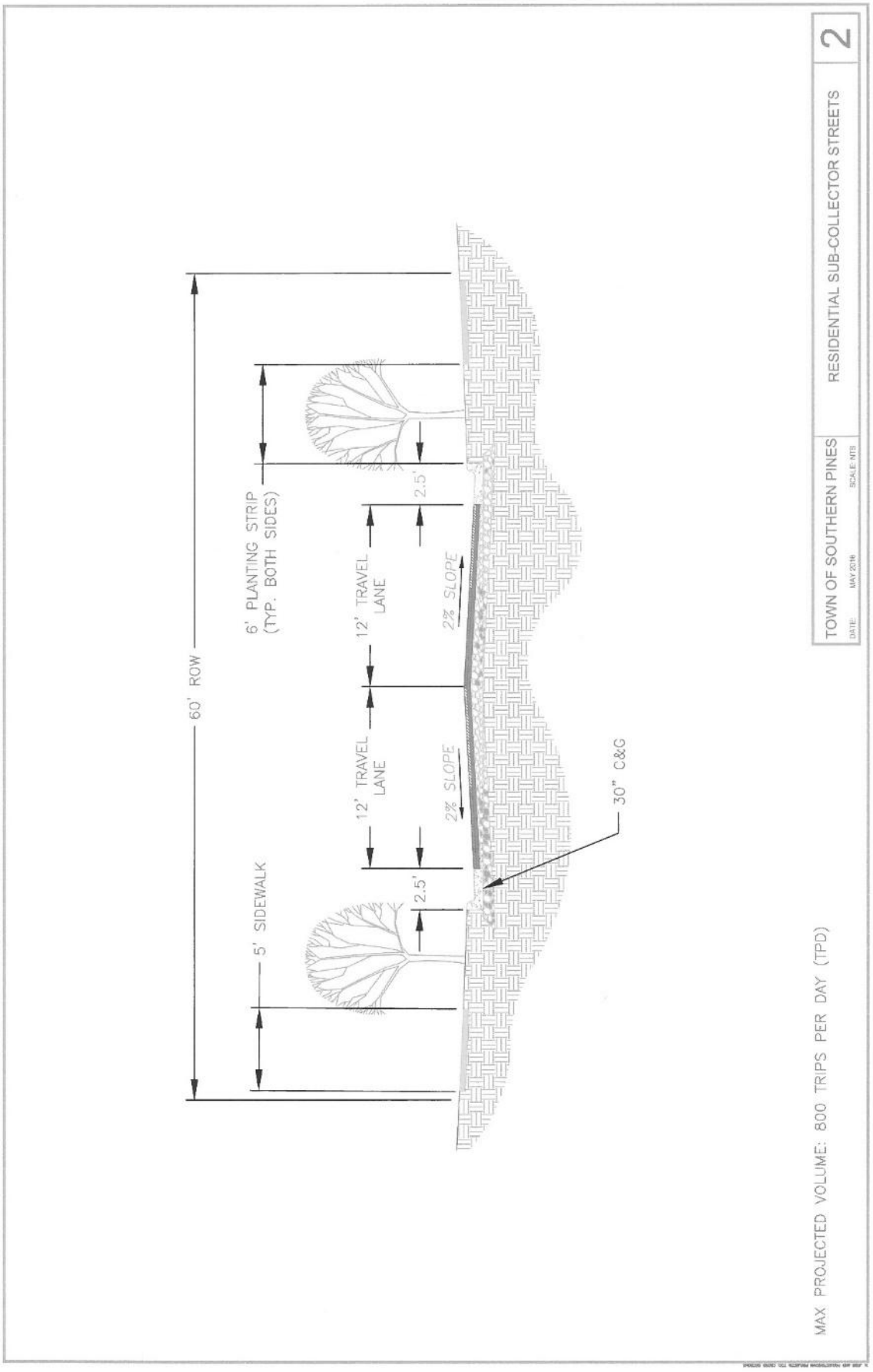


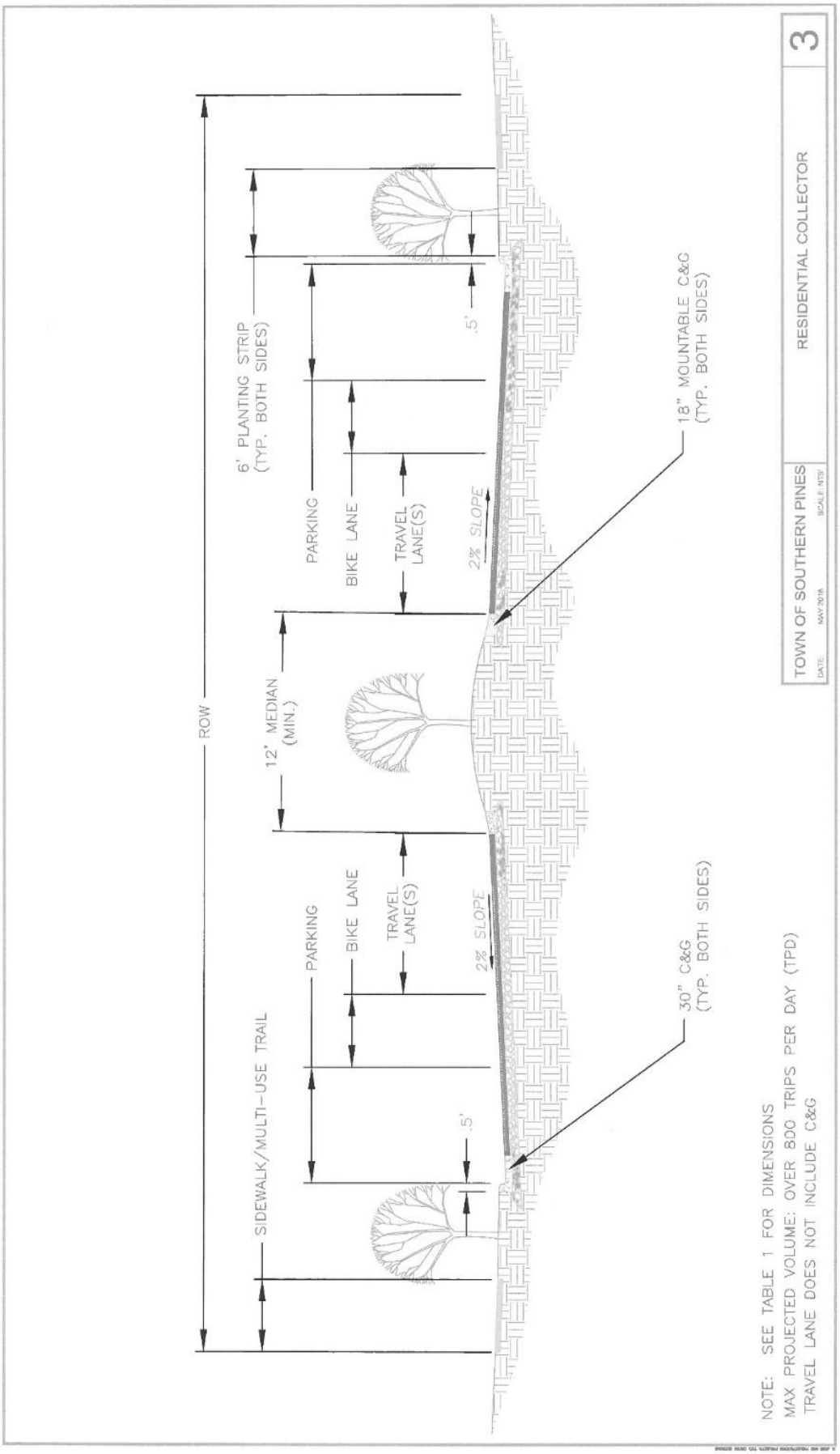
APPENDIX H: FEE SCHEDULE

The current fee schedule is available from the Planning Department.

APPENDIX I: STREET CROSS-SECTIONS



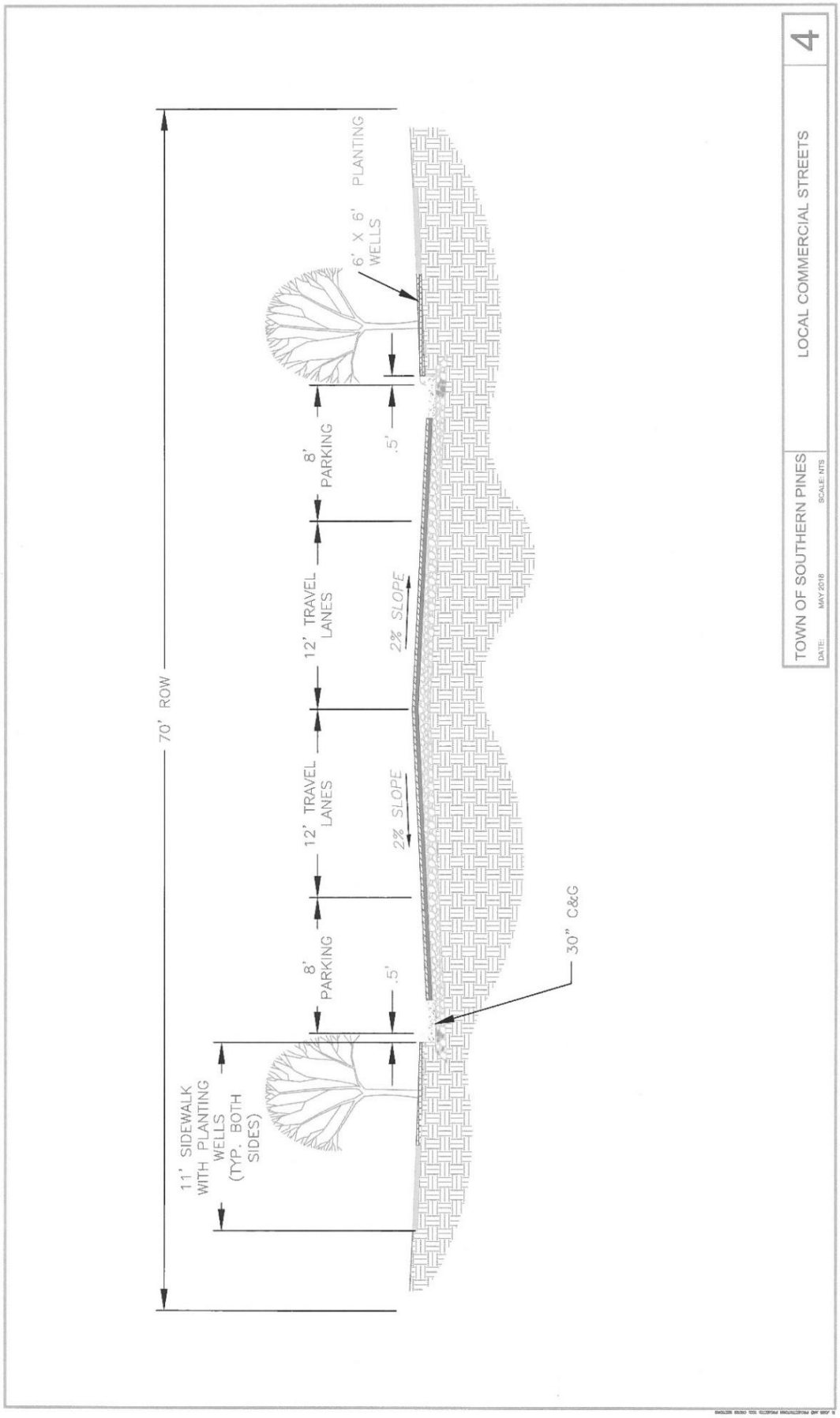

60' ROW
6' PLANTING STRIP
(TYP. BOTH SIDES)
5' SIDEWALK
12' TRAVEL
LANE
12' TRAVEL
LANE
2.5'
2.5'
2% SLOPE
2% SLOPE
30" C&G
TOWN OF SOUTHERN PINES
DATE: MAY 2016
SCALE: NTS
RESIDENTIAL SUB-COLLECTOR STREETS
2
MAX PROJECTED VOLUME: 800 TRIPS PER DAY (TPD)

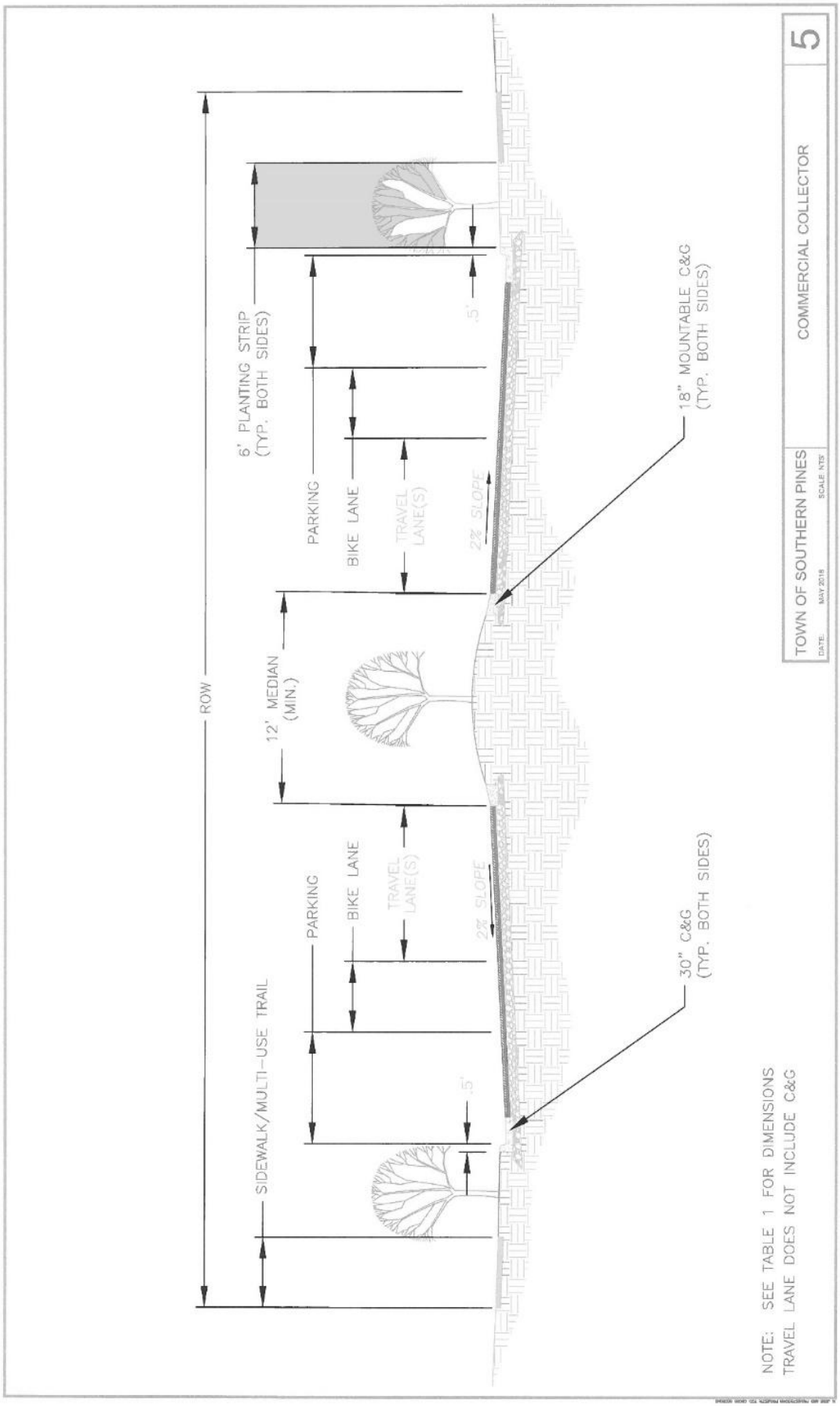

ROW
SIDEWALK/MULTI-USE TRAIL
6' PLANTING STRIP (TYP. BOTH SIDES)
.5'
PARKING
BIKE LANE
TRAVEL LANE(S)
2% SLOPE
12' MEDIAN (MIN.)
18" MOUNTABLE C&G (TYP. BOTH SIDES)
30" C&G (TYP. BOTH SIDES)
NOTE: SEE TABLE 1 FOR DIMENSIONS
MAX PROJECTED VOLUME: OVER 800 TRIPS PER DAY (TPD)
TRAVEL LANE DOES NOT INCLUDE C&G
TOWN OF SOUTHERN PINES
DATE: MAY 2018
SCALE: NTS'
RESIDENTIAL COLLECTOR
3

OPTION	ROW WIDTH (FT)	TRAVEL LANE(S) (FT)	BIKE LANE (FT)	PARKING LANE (FT)	SIDEWALK (SW) MULTI-USE (MU) (FT)
W/O ON-STREET (2 LANE)	80	12	5	0	(SW) =5 (MU) =0
WITH ON-STREET (2 LANE)	100	12	5	8	(SW) =5 (MU) =0
W/O ON-STREET (2 LANE) W/O BIKE	80	14	0	0	(SW) =5 (MU) =10
WITH ON-STREET (2 LANE) W/O BIKE	100	14	0	8	(SW) =5 (MU) =10
W/O ON-STREET (4 LANE)	100	12	5	0	(SW) =5 (MU) =0
WITH ON-STREET (4 LANE)	110	12	5	8	(SW) =5 (MU) =0
W/O ON-STREET (4 LANE) W/O BIKE	110	12 MEDIAN SIDE 14 CURB SIDE	0	0	(SW) =5 (MU) =10
WITH ON-STREET (4 LANE) W/O BIKE	110	12 MEDIAN SIDE 14 CURB SIDE	0	8	(SW) =5 (MU) =10

MAX PROJECTED VOLUME: OVER 800 TRIPS PER DAY (TPD)

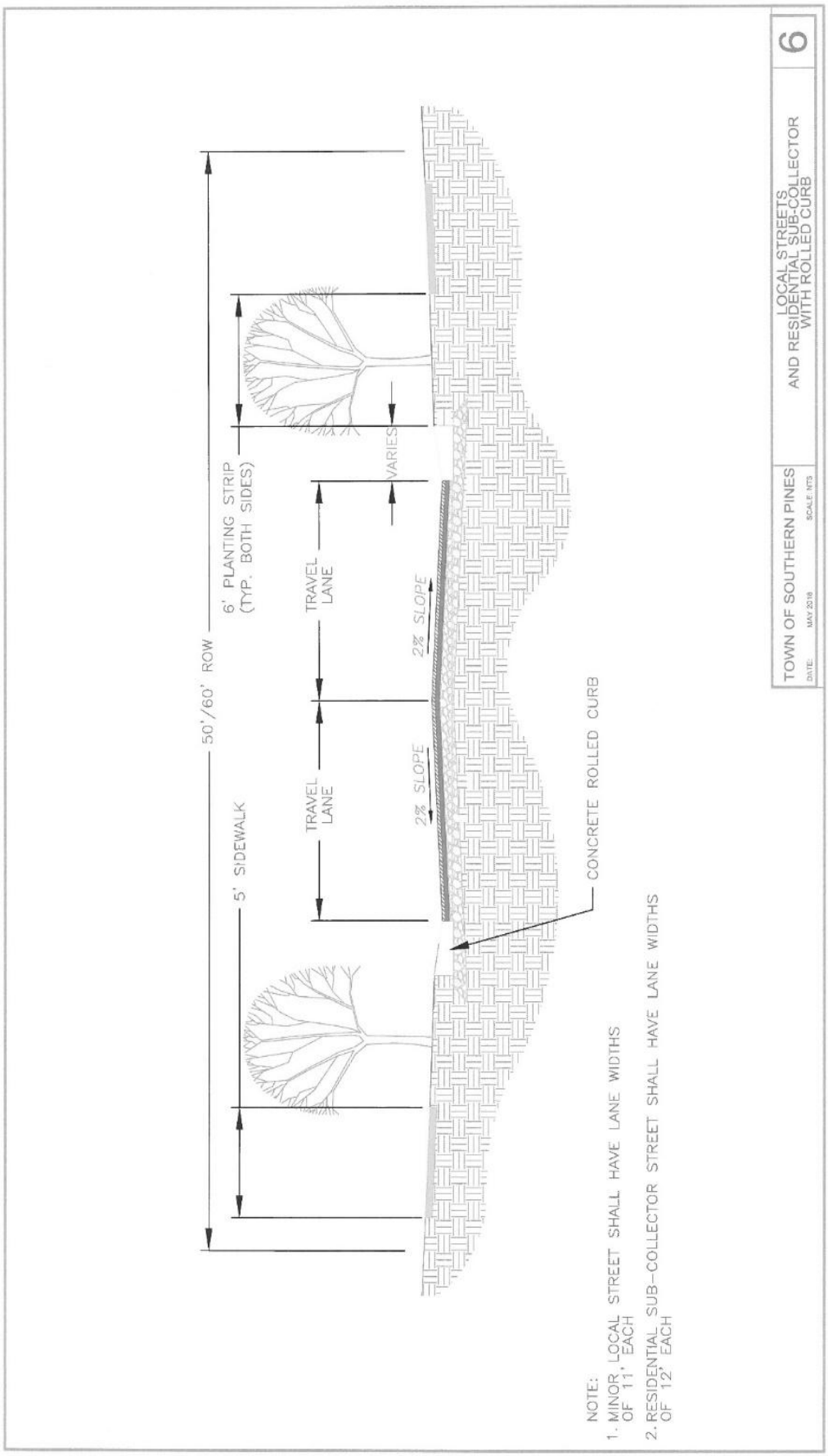
TOWN OF SOUTHERN PINES	RESIDENTIAL COLLECTOR	3A
DATE: MAY 2018 SCALE: NTS		

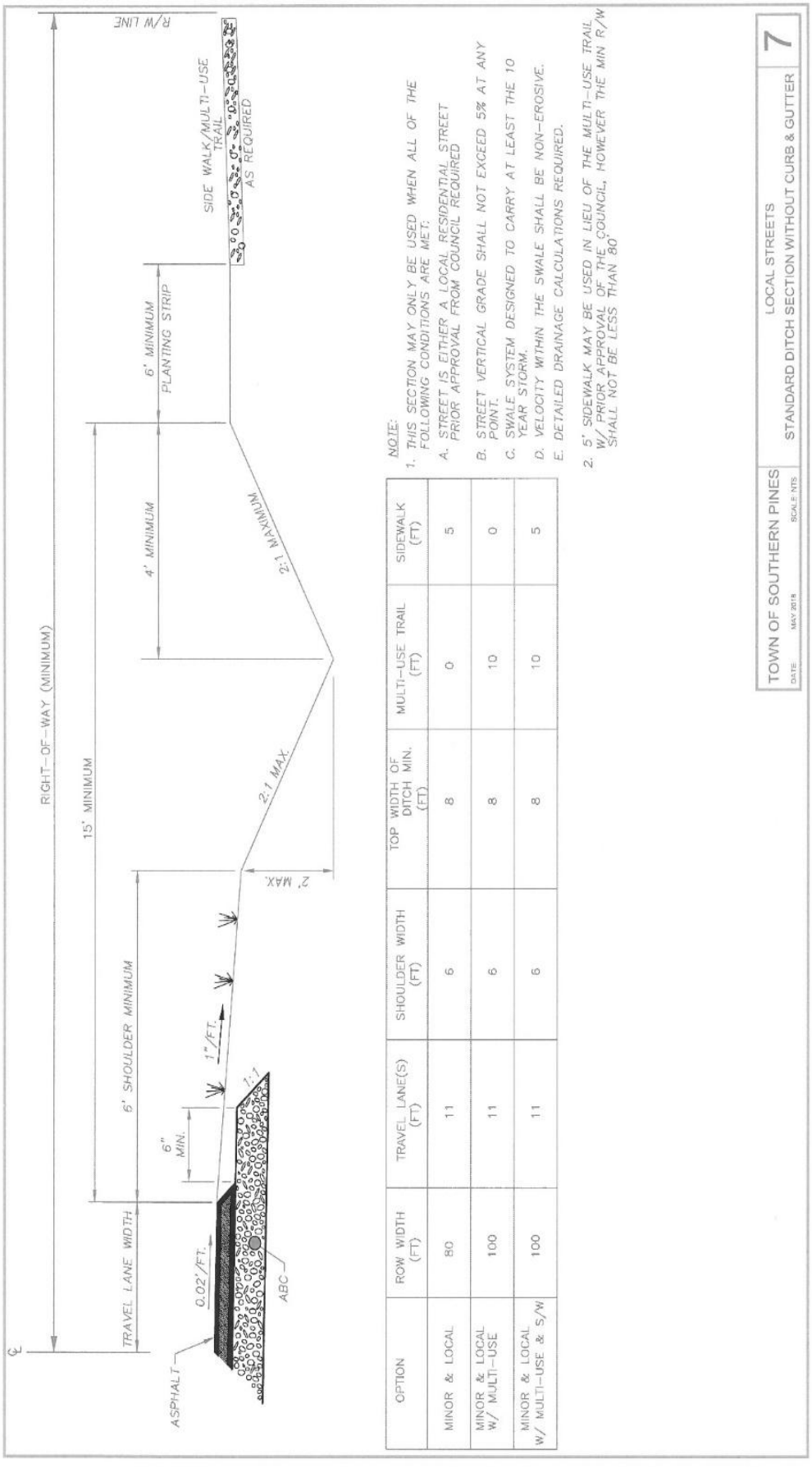

4
LOCAL COMMERCIAL STREETS
TOWN OF SOUTHERN PINES
DATE: MAY 2018
SCALE: NTS
70' ROW
11' SIDEWALK WITH PLANTING WELLS (TYP. BOTH SIDES)
8' PARKING
12' TRAVEL LANES
12' TRAVEL LANES
8' PARKING
.5'
.5'
2% SLOPE
2% SLOPE
6' X 6' PLANTING WELLS
30" C&G


ROW
6' PLANTING STRIP (TYP. BOTH SIDES)
PARKING
BIKE LANE
TRAVEL LANE(S)
2% SLOPE
.5'
18" MOUNTABLE C&G (TYP. BOTH SIDES)
12' MEDIAN (MIN.)
SIDEWALK/MULTI-USE TRAIL
PARKING
BIKE LANE
TRAVEL LANE(S)
2% SLOPE
.5'
30" C&G (TYP. BOTH SIDES)
NOTE: SEE TABLE 1 FOR DIMENSIONS
TRAVEL LANE DOES NOT INCLUDE C&G
TOWN OF SOUTHERN PINES
DATE: MAY 2018
SCALE: NTS'
COMMERCIAL COLLECTOR
5

OPTION	ROW WIDTH (FT)	TRAVEL LANE(S) (FT)	BIKE LANE (FT)	PARKING LANE (FT)	SIDEWALK (SW) MULTI-USE (MU) (FT)
W/O ON-STREET (2 LANE)	80	12	5	0	(SW) =5 (MU) =0
WITH ON-STREET (2 LANE)	100	12	5	8	(SW) =5 (MU) =0
W/O ON-STREET (2 LANE) W/O BIKE	80	14	0	0	(SW) =5 (MU) =10
WITH ON-STREET (2 LANE) W/O BIKE	100	14	0	8	(SW) =5 (MU) =10
W/O ON-STREET (4 LANE)	100	12	5	0	(SW) =5 (MU) =0
WITH ON-STREET (4 LANE)	110	12	5	8	(SW) =5 (MU) =0
W/O ON-STREET (4 LANE) W/O BIKE	110	12 MEDIAN SIDE 14 CURB SIDE	0	0	(SW) =5 (MU) =10
WITH ON-STREET (4 LANE) W/O BIKE	110	12 MEDIAN SIDE 14 CURB SIDE		8	(SW) =5 (MU) =10

TOWN OF SOUTHERN PINES	COMMERCIAL COLLECTOR TABLE 1	5A
DATE: MAY 2018 SCALE: NTS		


50'/60' ROW
6' PLANTING STRIP
(TYP. BOTH SIDES)
5' SIDEWALK
VARIES
TRAVEL LANE
TRAVEL LANE
2% SLOPE
2% SLOPE
CONCRETE ROLLED CURB
NOTE:
1. MINOR LOCAL STREET SHALL HAVE LANE WIDTHS OF 11' EACH
2. RESIDENTIAL SUB-COLLECTOR STREET SHALL HAVE LANE WIDTHS OF 12' EACH
TOWN OF SOUTHERN PINES
DATE: MAY 2019
SCALE: NTS
LOCAL STREETS
AND RESIDENTIAL SUB-COLLECTOR
WITH ROLLED CURB
6



OPTION	ROW WIDTH (FT)	TRAVEL LANE(S) (FT)	SHOULDER WIDTH (FT)	TOP WIDTH OF DITCH MIN. (FT)	MULTI-USE TRAIL (FT)	SIDEWALK (FT)
MINOR & LOCAL	80	11	6	8	0	5
MINOR & LOCAL W/ MULTI-USE	100	11	6	8	10	0
MINOR & LOCAL W/ MULTI-USE & S/W	100	11	6	8	10	5

NOTE:
1. THIS SECTION MAY ONLY BE USED WHEN ALL OF THE FOLLOWING CONDITIONS ARE MET:
   A. STREET IS EITHER A LOCAL RESIDENTIAL STREET PRIOR APPROVAL FROM COUNCIL REQUIRED
   B. STREET VERTICAL GRADE SHALL NOT EXCEED 5% AT ANY POINT.
   C. SWALE SYSTEM DESIGNED TO CARRY AT LEAST THE 10 YEAR STORM.
   D. VELOCITY WITHIN THE SWALE SHALL BE NON-EROSIVE.
   E. DETAILED DRAINAGE CALCULATIONS REQUIRED.
2. 5' SIDEWALK MAY BE USED IN LIEU OF THE MULTI-USE TRAIL W/ PRIOR APPROVAL OF THE COUNCIL, HOWEVER THE MIN R/W SHALL NOT BE LESS THAN 80'

TOWN OF SOUTHERN PINES
DATE: MAY 2018 SCALE: NTS

LOCAL STREETS
STANDARD DITCH SECTION WITHOUT CURB & GUTTER

7