



Landscaping & Tree Preservation Checklist

General Information: Standard site plan information, such as property boundaries, zoning, surrounding zoning, proposed use(s), jurisdiction, as well as all standard legend information, such as parking requirements, setbacks, impervious surface calculations, density, parcel information, etc., shall either be included on the Landscaping and Tree Preservation plan or on an accompanying site plan.

Part 1 – Tree Preservation

Any development project or building permit requiring a land disturbing permit (erosion control permit), either issued through the Winston-Salem/Forsyth County Inspections Office or the North Carolina Department of Environment and Natural Resources (NCDENR), unless otherwise exempted by the Unified Development Ordinance (UDO), must comply with the Tree Preservation requirements of UDO Section B.3-4.2 and B.3-4.2.1.

Note: *If existing trees are preserved to comply with the requirements of UDO Section b.3-4.2.1, the landscape plan and accompanying documentation submitted to our office for review must be prepared and sealed by an architect, engineer, landscape architect, surveyor or other qualified professional licensed to practice in the State of North Carolina.*

The following information must be addressed/shown on the plan(s):

- Provide calculations for the projects required square footage/acreage of Tree Save Area (TSA), based on the appropriate calculation method and type/size/zoning of the project.

New Development

Square footage of total site area
- Square footage in proposed ROWs
- Square footage in existing utility easements
- Square footage existing water bodies/SW ponds
= Square footage for TSA base
x the % TSA required (10% or 12%, based on project)
= **Square footage of TSA required**

Additions to Existing Buildings/Dev. Sites

Square footage of limits of disturbance
- Square footage in proposed ROWs
- Square footage in existing utility easements
- Square footage existing water bodies/SW ponds
= Square footage for TSA base
x the % TSA required (10% or 12%, based on project)
= **Square footage of TSA required**

- Disclose the method or combination of methods used to satisfy the TSA requirements for the project (*e.g., Individual Trees, Stand of Trees, Planted Trees or some combination of these three methods*).

- Show the location of existing and proposed landscaping used to satisfy the TSA requirements, as well as the calculations demonstrating that the amount of TSA saved/planted on the project site =’s the amount of TSA required.

Where Existing Trees are used to satisfy the TSA Requirement:

- For the Individual Tree method, show tree(s) and their associated critical root zone (CRZ) and provide information about species, height, diameter at breast height (DBH) for each tree used for TSA, including calculations of square footage of TSA for each.
- For the Stand of Trees method, show the location of the trees and their associated CRZ, including calculations of square footage of TSA for each. Additionally, notes for each stand must be provided offering a general description of the character, species mixture, health and age of trees located in the stand.
- Any existing trees preserved through the methods above must provide tree protection fencing at the edge of the CRZ. Show the locations of the tree protection fencing; such fencing must be located on the edge or outside of the CRZ to receive credit towards the TSA requirement. Provide the following information:
 - Tree protection fencing detail and installation guidelines

***NOTE:** Tree protection fencing must be located in the field prior to the release of the land disturbing permit and must be maintained throughout construction.*

Where Proposed Trees are used to satisfy the TSA Requirement:

- For Planted Trees, show the location and provide information about the species, height, location, and caliper as measured 6” above ground for each proposed tree used for TSA, including the calculations of TSA for each.

***NOTE:** Trees saved or planted to satisfy the requirements of the TSA may also be used to satisfy the requirements of the motor vehicle surface area (MVSA) and bufferayrds planting requirements of the UDO, if situated in a manner to comply with all of the associated requirements.*

Part 2 – Motor Vehicle Surface Area Plantings

Any new or expanded motor vehicle surface area (MVSA), unless otherwise exempted by the Unified Development Ordinance, must comply with the Motor Vehicle Surface Area Landscaping Standards of UDO Section B.3-4.3.

The following information must be addressed/shown on the plan(s):

Streetyard Requirements:

- All new or expanded MVSA's located within 100' of a street or vehicular right-of-way must install a streetyard. The standards are as follows:
 - Minimum width of 10' (see B.3-4.3 for allowed reductions/deviations).
 - Two (2) large variety trees (8' tall, 2" caliper measured 6" above ground at time of planting) per 100 linear feet (absolute minimum of 1 tree, regardless of length).
 - Large variety trees must be centered with spacing of 20' to 75' apart.
 - One of the following shall be used to satisfy the low-level screen requirements of the streetyard:
 - Natural shrubs (see B.3-4.10(D) for list), 18" minimum height at planting (minimum height of 36" after 3 years), spaced 18" tip-to-tip. Maximum of 30% may be deciduous; or
 - Fence or wall 36" in height or greater; wall shall be constructed of masonry, stone, wood or the same material as the principal building; or
 - Wall planters with a combined height of 24" for the wall and plantings at construction (36" after 3 years). The minimum width of the wall planter shall be 36" (7' when trees are also located in the planter); or
 - Earthen berm with a minimum height of 18", a minimum crown of two (2) feet and a side slope/width ratio of 2:1. The berm shall be planted with shrubs measuring 12" at planting, spaced 18" tip-to-tip. The combined berm and planting height must be 36" after 3 years.

Interior MVSA Planting Requirements:

- All new or expanded MVSA's shall install tree plantings as follows:
 - Each planting area must contain a large variety tree 8' tall, 2" caliper measured 6" above ground at time of planting unless exempted under the provisions of UDO Section B.3-4.2(J).
 - One (1) large variety tree must be planted for each 5,000 square feet of MVSA. Where large variety trees are exempted under UDO Section B.3-4.2(J), one (1) small or medium variety tree must be planted for each 2,500 square feet of MVSA.
 - No parking space shall be located more than 75' from a large variety tree (no more than 50' from a small or medium variety tree where large variety trees are exempted under UDO Section B.3-4.2(J)).

- Each large variety tree must have a 600 square foot planting area with a minimum clear radius of 7' from the tree center to the edge of curb/pavement. Each small or medium variety tree must have a 150 square foot area with a minimum clear radius of 7' from the tree center to the edge of curb/pavement.

NOTE: Trees planted or saved to satisfy the requirements of the MVSA Landscaping Standards may also be used to satisfy the requirements of the TSA and Bufferyard planting requirements of the UDO, if situated in a manner to comply with all associated requirement. Please note, however, that only large variety trees are credited towards the TSA requirements of UDO Section B.3-4.2.1.

Part 3 – Bufferyard Requirements

Every new use, change of use or expansion of a structure or land, unless otherwise exempted by the Unified Development Ordinance, shall comply with the bufferyard requirements of UDO Section B.3-5.

- Determination of whether a bufferyard is required, and the type of bufferyard required, shall be determined by examining the zoning of the subject and surrounding properties and by using the following table and zoning types:

BUFFERYARD TABLE

Zoning Type of Project	Zoning Type of Adjacent Property				
	SFR	MFR	LIC	HIC	IND
Single Family Residential (SFR)	*	*	*	*	*
Multifamily Residential (MFR)	II	*	*	I ⁺	I ⁺
Low Intensity Commercial (LIC)	II	I	*	*	*
High Intensity Commercial (HIC)	III	II	*	*	*
Industrial (IND)	IV	IV	I	*	*

* = No bufferyard requirement
 + = Type I bufferyard required if no bufferyard is provided on developed adjacent property designated as high intensity commercial (HIC) or industrial (IND) zoning types.

ZONING TYPES

Single Family Residential (SFR) Zoning: H, YR, AG, RSQ, all RS Districts, & stand-alone MH.

Multifamily Residential (MFR) Zoning: All RM Districts and MH where a MH development.

Low Intensity Commercial (LIC) Zoning: LO, PB, LB, IP, and C Districts.

High Intensity Commercial (HIC) Zoning: CPO, GO, NSB, HB, GB, CB, and MU-S Districts.

Industrial (IND) Zoning: Industrial zoning types include the LI, CPI, GI, and CI Districts. Additionally, the following uses are considered “industrial” for the purposes of determining bufferyards:

- (i) Banking and Financial Services, with Drive-Through Facilities;
- (ii) Car Wash;
- (iii) Convenience Store with Gasoline Sales;
- (iv) Implement Sales and Service;
- (v) Kennels;
- (vi) Outdoor Display Retail;
- (vii) Motor Vehicle Repair and Maintenance;
- (viii) Motor Vehicle Storage Yard;
- (ix) Outdoor Display Retail;
- (x) Recreational Vehicle Park;
- (xi) Recreation Services, Outdoor;
- (xii) Restaurants (With Drive-Through Service);
- (xiii) Storage and Salvage Yard; and,
- (xiv) Dirt Storage Sites.

Utilize the Applicable Bufferyard Table to Design the Bufferyard:

Type I Bufferyard Design Options

Min. Width	Min. Plant Material per One Hundred (100) Linear Feet
10 feet	2 deciduous trees; 8 primary evergreen plants; 10 supplemental evergreen shrubs
20 feet	2 deciduous trees; 8 primary evergreen plants
30 feet	2 deciduous trees; 5 primary evergreen plants
50 feet	2 deciduous trees; 3 primary evergreen plants

Type II Bufferyard Design Options

Min. Width	Min. Plant Material per One Hundred (100) Linear Feet
15 feet	2 deciduous trees; 8 primary evergreen plants; 20 supplemental evergreen shrubs
20 feet	2 deciduous trees; 8 primary evergreen plants; 10 supplemental evergreen shrubs
30 feet	2 deciduous trees; 8 primary evergreen plants
100 feet	2 deciduous trees; 4 primary evergreen plants

Type III Bufferyard Design Options

Min. Width	Min. Plant Material per One Hundred (100) Linear Feet
15 feet	2 deciduous trees; 18 primary evergreen plants; 20 supplemental evergreen shrubs
20 feet	2 deciduous trees; 18 primary evergreen plants
30 feet	3 deciduous trees; 13 primary evergreen plants
40 feet	3 deciduous trees; 10 primary evergreen plants

Type IV Bufferyard Design Options

Min. Width	Min. Plant Material per One Hundred (100) Linear Feet
15 feet	2 deciduous trees; 18 primary evergreen plants; 20 supplemental evergreen shrubs
30 feet	2 deciduous trees; 18 primary evergreen plants; 10 supplementary evergreen shrubs
40 feet	3 deciduous trees; 18 primary evergreen plants
50 feet	3 deciduous trees; 14 primary evergreen plants
100 feet	3 deciduous trees; 10 primary evergreen plants
200 feet	3 deciduous trees; 5 primary evergreen plants

NOTE: Fences, walls and/or berms may be used in lieu of 50% of the required evergreen plantings, subject to the design limitations set forth in UDO Section B.3-5.2(B).

- The required bufferyard shall be located along the outer perimeter of the zoning lot or parcel, extending to the zoning lot or parcel boundary unless otherwise exempted in UDO Section B.3-5.3(A).
- All Bufferyards shall be designed to meet the following standards:
 - All required deciduous trees shall be large variety, measuring at least 8’ in height, 2” caliper as measured 6” above grade at planting unless exempted by UDO Section B.3-4.2(J). Spacing of these large variety trees shall be between 30’ and 60’ on center.
 - Primary evergreen plants shall be 6’ in height at planting with a minimum height at maturity of ten (10) feet. The primary evergreen plants shall be evenly distributed with a minimum distance of seven (7) feet and a maximum distance of fifteen (15) feet, on-center.

- Supplemental evergreen shrubs shall be 18” at planting with a minimum height after 3 years of 36”. The supplemental evergreen shrubs shall be evenly distributed along the length of the bufferyard and may be staggered where quantities permit.

NOTE: Trees saved or planted to satisfy the Bufferyard requirements may also be used to satisfy the TSA and MVSA planting requirements of the UDO, if situated in a manner to comply with all associated requirements.

Part 4 – Common Recreation Area Landscaping

- All required common recreation areas shall be attractively landscaped. At a minimum, one (1) large variety tree per 2,500 square feet of common recreation area shall be provided. Required landscaping must be distributed in and around the common recreation area facilities.
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Part 5 – Outdoor Storage Area Screening

Any outdoor storage area with a dimension of fifteen (15) feet or greater and/or any dumpster with a linear dimension of five (5) feet or greater not screened by an intervening building any public or private street must be screened using the following fencing and planting standards (or a combination of the standards, if preferred):

- An opaque fence or wall measuring at least six (6) feet in height and constructed of masonry, stone, or wooden material, or of the same material of the principal building.
 - Primary evergreen plants with a minimum height of six (6) feet at installation and planted in a double-row, staggered configuration with on-center spacing of five (5) feet.
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Part 6 – Utility Service Area Screening

Any utility service area having either vertical or horizontal dimensions exceeding five (5) feet, are located within 100 feet of any street or vehicular rights-of-way and are not screened by an intervening building shall be screened using the following fencing and planting standards (or a combination of the standards, if preferred):

- An opaque fence or wall measuring of a height and width equal to or greater than the utility structures being screened and constructed of masonry, stone, or wooden material, or of the same material of the principal building.

- Plantings shall be a combination of evergreen and deciduous plants measuring 18” at installation and spaced 18” tip-to-tip with a mature height and width sufficient to screen the utility service structure being screened.

NOTE: Screening for utility service areas in the public street right-of-way shall be installed by the utility or part who installed the service. Where screening for public utility service areas is to be provided by private property owners, such screening shall only be installed after consultation with the utility and may not interfere with the operation, function or maintenance of the utility.

Part 7 – Plant Materials List

The suggested plant materials list includes common trees and shrubs suitable for use in the Forsyth County area. Due to individual site, soil, moisture, and microclimate conditions, professional expertise should be sought to determine the appropriate plant materials for any particular development project. Other appropriate plants not included in this list may also be used with the approval of the Director of Inspections or designee.

Large Variety Trees (mature height: thirty-five (35) feet or greater):

European Black Alder	<i>Alnus glutinosa (Pyramidalis)</i>
Bald Cypress	<i>Taxodium distichum (Monarch of Illinois/ Shawnee Brave)</i>
Sugar Hackberry	<i>Celtis laevigata</i>
Chalkbark Maple	<i>Acer Leucoderme</i>
Freeman Maple	<i>Acer x freemanii (Armstrong, Autumn Blaze, Celebration, Scarlet Sentinel)</i>
Green Mtn. Sugar Maple	<i>Acer saccharum “Green Mountain”</i>
Hedge Maple	<i>Acer campestre</i>
Southern Sugar Maple	<i>Acer Barbatum</i>
Trident Maple	<i>Acer buergeranum</i>
Bur Oak	<i>Quercus macrocarpa</i>
Sawtooth Oak	<i>Quercus acutissima</i>
Shingle Oak	<i>Quercus imbricaria</i>
Swamp White Oak	<i>Quercus bicolor</i>
Northern Red Oak	<i>Quercus rubra</i>
Nuttall Oak	<i>Quercus nutalli</i>
Overcup Oak	<i>Quercus lyrata</i>
Green Ash	<i>Fraxinus pennsylvanica (Marshall Seedless, Newport, Patmore, Summit, Lakeview)</i>
Kentucky Coffeetree	<i>Gymnocladus dioicus</i>
Japanese Pagodatree	<i>Sophora japonica (Princeton Upright, Regent)</i>
Silver Linden	<i>Tilia tomentosa (Green Mountain, Sterling)</i>
Hybrid Elm	<i>Ulmus spp. (Homestead, Pioneer, Urban)</i>
Willow Oak	<i>Quercus phellos</i>
Sugar Maple	<i>Acer saccharum</i>

Red Maple	<i>Acer Rubrum</i> (Autumn Flame, Bowhall, Karpick, Northwood, October Glory, Red Skin, Red Sunset)
Scarlet Oak	<i>Quercus coccinea</i>
Southern Magnolia	<i>Magnolia grandiflora</i>
London Plane-tree	<i>Platanus acerifolia</i> (Bloodgood, Colombia, Liberty)
River Birch	<i>Betula nigra</i> (Heritage, DuraHeat)
Japanese Zelkova	<i>Zelkova serrata</i> (Green Vase, Village Green)
Tulip Poplar	<i>Liriodendron tulipifera</i>
Black Gum	<i>Nyssa sylvatica</i>
Littleleaf Linden	<i>Tilia cordata</i> (Glenleven, Greenspire)
White Oak	<i>Quercus alba</i>
Japanese Scholartree	<i>Sophora japonicum</i>
Ginkgo	<i>Ginkgo biloba</i> (Lakeview, Princeton Sentry)
English Oak	<i>Quercus robur</i> (Fastigiata)
Japanese Katsuratree	<i>Cercidiphyllum japonicum</i>
Schumard Oak	<i>Quercus schumardi</i>
Chinese Elm	<i>Ulnus parviflora</i> (Lacebark, Athena, Allee)

Medium Variety Trees (mature height: twenty-five (25) to thirty-five (35) feet):

Sourwood	<i>Oxydendrum arboreum</i>
Thornless Honeylocust	<i>Gleditsia triacanthos "Inermis"</i>
Eastern Redbud	<i>Cercis canadensis</i>
Yoshino Cherry	<i>Prunus yedoensis</i>
Golden-Rain-Tree	<i>Koelreuteria paniculata</i>
Saucer Magnolia	<i>Magnolia soulangeana</i>
Weeping Cherry	<i>Prunus subhirtilla pendula</i>
Kwansan Cherry	<i>Prunus serrucata "Kwansan"</i>
Yellowwood	<i>Cladastris lutea</i>
Ironwood	<i>Carpinus carolineana</i>
Pistache	<i>Pistachia chinensis</i>
Redmond Linden	<i>Tilia americana "Redmond"</i>
American Holly	<i>Ilex opaca</i> (East Palatka, Foster's #2, Nellie R. Stevens)
Eastern Red Cedar	<i>Juniperus virginiana</i> (Emerald Sentinel, Princeton Sentry, Pendula)
Little Gem Magnolia	<i>Magnolia "Little gem"</i>
Fall Blooming Cherry	<i>Prunus autumnalis</i>
Fruitless Sweetgum	<i>Liquidambar styraciflua "Rotundaloba"</i>
European Hornbeam	<i>Carpinus betulus</i> (Fastigiata).
Hophornbeam	<i>Ostrya virginiana</i>

Small Variety Trees (mature height: less than twenty-five (25) feet):

Japanese Maple	<i>Acer palmatum</i>
Japanese Dogwood	<i>Cornus kousa</i>
Flowering Dogwood	<i>Cornus florida</i>
Smoketree	<i>Cotinus coggyria</i> (Daydream, Royal Purple)

Crape Myrtle	<i>Lagerstroemia indica</i> (Dallas Red, Lipan, Natchez, Sioux, Tonto, Yuma)
Crabapple (var.)	<i>Malus hybrida</i> (var.)
Amur Maple	<i>Acer ginnala</i>
Wax Myrtle	<i>Myrica Cerifer</i>
Star Magnolia	<i>Magnolia stellata</i>
Japanese Tree Lilac	<i>Syringa reticulata</i>
Green Hawthorn	<i>Crataegus viridis</i>
Carolina Cherrylaurel	<i>Prunus caroliniana</i>
Choke Cherry	<i>Prunus virginiana</i>
Sargent Cherry	<i>Prunus sargentii</i> (Columnaris, Hillier Spire)

Streetyard and Interior Shrubs (mature height: approximately thirty-six (36) inches):

Supplemental Evergreen Shrubs:

Warty Barberry	<i>Berberis verruculosa</i>
Dwarf Burford Holly	<i>Ilex cornuta "Burfordii" nana</i>
Japanese Holly (var.)	<i>Ilex crenata</i> (var.)
Azalea (var.)	<i>Azalea sp.</i>
Mugo Pine	<i>Pinus mugo</i>
Juniper (var.)	<i>Juniperus sp.</i>
Euonymous (var.)	<i>Euonymous sp.</i>
Leatherleaf Viburnum	<i>Viburnum rhytidophyllum</i>

Deciduous Shrubs:

Forsythia	<i>Forsythia sp.</i>
Dwarf Burning Bush	<i>Euonymous alatus "Compacta"</i>
Thunberg Spirea	<i>Spirea thunbergi</i>
Viburnum (var.)	<i>Viburnum sp.</i>
Oakleaf Hydrangea	<i>Hydrangea quercifolia</i>
Japanese Flowering Quince	<i>Chaenomeles japonic</i>
Potentilla	<i>Potentilla fruticosa</i>
Ornamental Grass Varieties	
Oregonholly Grape	<i>Mahonia bealei</i>
Nandina	<i>Nandina domestica</i>
Dwarf Nandina	<i>Nandina domestica nana</i>

Primary Evergreen Shrubs/Outdoor Storage Area Screening Plants (six (6) feet):

American Holly	<i>Ilex opaca</i>
Burfora Holly	<i>Ilex cornuta "Burfordii"</i>
Nellie Stevens Holly	<i>Ilex cornata "Nellie Stevens"</i>
Wax Myrtle	<i>Myrica cerifera</i>
Hetz Juniper	<i>Juniperus hetzi</i>
Arborvitae	<i>Thuja occidentalis</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>
Japanese Black Pine	<i>Pinus thunbergiana</i>

Groundcovers (planting areas, berms, wall planters):

Lily-Turf	<i>Liriope muscarii</i>
Hybrid Daylily	<i>Hemerocallis hybrida</i>
Aaronsbeard	<i>Hypericum calycinum</i>
Rockspray Cotoneaster	<i>Cotoneaster horizontalis</i>

The following trees shall not be credited for the requirements of Section B.3-4.2.1:

Bradford Pear	<i>Pyrus calleryana</i> “Bradford”
Silver Maple	<i>Acer saccharinum</i>
Hybrid Poplars	<i>Populus spp.</i>
Tree of Heaven	<i>Ailanthus altissima</i>
Mimosa	<i>Albizia julibrissin</i>
Royal Paulownia	<i>Paulownia Tomentosa</i>
Pine (var.)	<i>Pinus sp.</i>