

# EXHIBIT A (Site Geometry)

1 tree per 300 S.F. required landscape area  
@ required 1:300 spacing

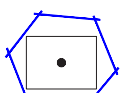
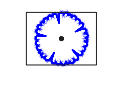
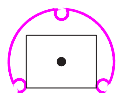

LANDSCAPE CALCULATION CHART - Wilke Lane MF			
REQUIRED LANDSCAPE AREA (MULTI-FAMILY) ZONE: CL5			Required
Total Site Area	704,035 sf		
<b>A. Total Required Landscape Area (40% of site)</b>			<b>281,614 sf</b>
<b>B. Total Linear Feet of Bufferyard</b>	1,294 lf		
<b>C. Total Trees Required</b>			<b>991 trees</b>
Landscape Area Trees	1 / 300 sf		939 trees
Bufferyard Trees	4 / 100 lf		52 trees
<b>D. Tree Diversity Requirements (50% Type C Trees)</b>			<b>495 trees</b>
Type A/B Trees			496 trees
<b>TREE AREA RESULTS</b>			<b>Total</b>
<b>A. Total Area of Tree Coverage (rectangular spacing)</b>			<b>297,300 sf</b>
Type A/B Trees (30' canopy)	496 x 300 sf		148,800 sf
Type C Trees (15' canopy)	495 x 300 sf		148,500 sf
<b>B. Tree Coverage Percentage of Required Landscape Area</b>			<b>106%</b>
<small>*Total Area of Tree Coverage divided by Total Required Landscape Area</small>			

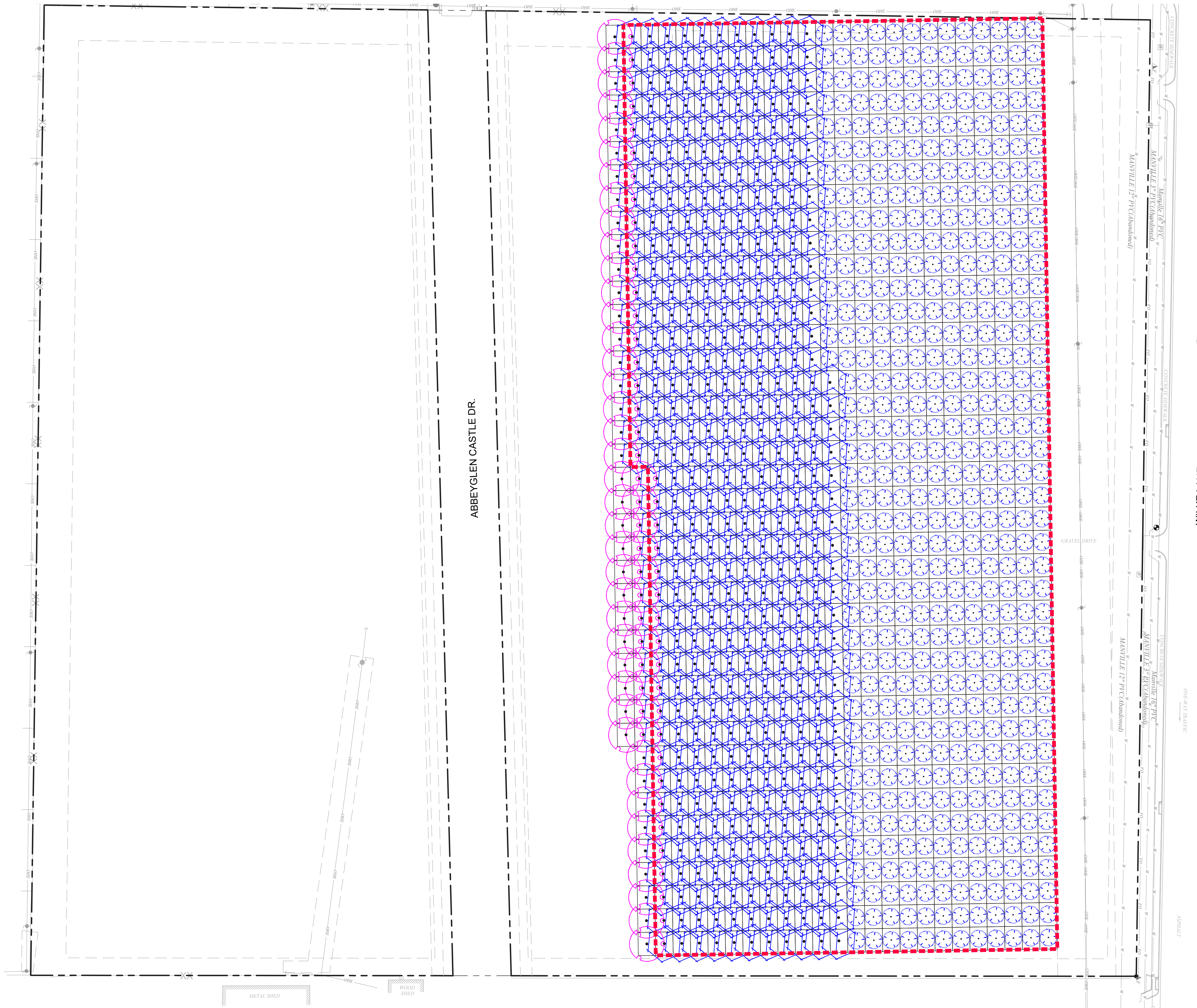
This exhibit demonstrates the total required amount of trees to be planted on site per the standard City of Pflugerville code for a multi-family development. The exhibit is shown without any other site features including, but not limited to, buildings, drive aisles, parking, sidewalks, and detention ponds. The total site area (704,035 sf) does not include the Abbeyglen Castle Dr. R.O.W. or the existing utility easement. The required amount of landscape area (40% of the overall site) was taken from this calculation.

The maximum number of Type C trees (50% of required trees) are proposed to be planted on site to maximize usable space.

The proposed tree placement is shown using rectangular spacing at 300 square feet for all trees. This amount of space does not meet the City of Pflugerville's recommended tree spacing for Type A/B trees, which will result in unsustainable health for the proposed trees. However, the total required trees does not fit within the 40% landscape area of the site (106%). This spacing is necessary to meet the total amount of trees required.

Mitigation requirements were not included in this exhibit. All trees shown are base code requirements.

TREES	QTY	TYPE / COVERAGE AREA	CAL
	444	TYPE A/B TREE 30' D. CANOPY 15' x 20' (300 SF)	3" CAL
	495	TYPE C TREE 15' D. CANOPY 15' x 20' (300 SF)	3" CAL
	52	BUFFERYARD TREE 30' D. CANOPY 15' x 20' (300 SF)	3" CAL
		40% REQUIRED LANDSCAPE AREA	



Base code minimum shown for graphical purposes only.

Referenced in [City of Pflugerville UDC](#): Section 3.4.2 of APPENDIX A: TREE TECHNICAL MANUAL: STANDARDS AND SPECIFICATIONS, adopted 11/13/2018

**3.4.2. Planting distances/spacing requirements:**

a. Minimum distance between newly planted trees (Recommended):

Tree Spacing			
Tree Size	Small	Medium	Large
Small	20 feet	25 feet	20 feet
Medium	25 feet	30 feet	30 feet
Large	20 feet	30 feet	40 feet

b. Minimum distance from any underground utility, water meter boxes, and fire hydrant: 5 feet

c. Minimum distance from trees to curb, sidewalk, or driveway: 4 feet

d. Planting strips shall be a minimum of 8.5 feet wide.

e. Minimum distance from buildings and similar structures (Recommended):

Large size tree: 30 feet;

Medium size tree: 20 feet; and,

Small size tree: 10 feet.

f. Recommended minimum distance from overhead utility lines. Trees cannot be planted under utility lines. In order to avoid future interference of limbs, planting may take place as follows:

Large trees: 30 feet from line;

Medium trees: 20 feet from line; and

Small trees: 10 feet from line.

g. From curb line of an intersection: 30 feet, which is subject to visibility triangles.

h. Minimum distance from stop or yield signs: 20 feet.

i. Distance from directional traffic sign: 10 feet.

j. Distance from street lights: 25 feet for large or medium tree, 15 feet for small tree.

Variations from the requirements listed above shall be approved by the City Forester.

[Ord. # 1367-18-11-13, Add Tree Technical Manual as Subchapter 12 Appendix A, 11/13/2018]

**City of Pflugerville Subchapter 11, Section 11**

Referenced in [City of Pflugerville UDC](#): Section 11.11.2 Tree Spacing from Utilities and Impervious Cover and Section 11.11.3 Approved Tree List, adopted 2/25/2015

**11.11.1 Tree Diversity**

A. If 30 or more new trees are required, there shall be no more than 20% of any tree species, and no more than 40% of any tree genus planted on a site.

B. If 30 or fewer new trees are required, tree diversity shall be provided in accordance with Table 11.11.1 below.

C. No more than 50 percent of the total number of new trees required on site may be Type C Trees per Table 11.11.3 with exception of Single Family Attached (3 or more) developments.

Number of New Trees Required	Minimum Number of Species Required
1-10	1
11-20	2
21-30	3

**11.11.2 Tree Spacing from Utilities and Impervious Cover**

In order to promote healthy trees and reduce infrastructure conflicts, trees shall be located away from impervious cover and utilities as provided below and measured from the base of the tree. In addition, the recommended spacing identified per tree type in Table 11.11.3 shall be maintained.

A. Utility: No tree shall be planted closer than five (5) feet to an underground utility or water line, and no medium or large tree (Type A or B) shall be closer than 15 linear feet from an overhead utility unless otherwise approved by the Planning Director.

B. Impervious Cover: No large or medium tree (Type A or B) shall be closer than four (4) feet to impervious cover, and no small tree (Type C) shall be closer than three (3) feet to impervious cover measured from the base of the tree.

**11.11.3 Approved Tree List**

Trees planted within the City of Pflugerville shall be selected from, and planted in accordance with Table 11.11.3. Alternatives may be selected in accordance with the General Planting Criteria for Trees in Section 11.4.

Common Name	Scientific Name	
	Family	Genus, Species
<b>Type A: Large Trees (mature height 40 feet or more, recommended planting bed 400 square feet, recommended 40 feet apart)</b>		
American Elm	Ulmaceae	<i>Ulmus Americana</i>
American Sycamore	Platanaceae	<i>Platanus occidentalis</i>
Bald Cypress	Taxodiaceae	<i>Taxodium distichum</i>
Bur Oak	Fagaceae	<i>Quercus macrocarpa</i>
Cedar Elm	Ulmaceae	<i>Ulmus crassifolia</i>
Chinquapin Oak	Fagaceae	<i>Quercus muehlenbergii</i>
Chittamwood (Gum Bumelia)	Sapotaceae	<i>Sideroxylon lanuginosum</i>
Deodar Cedar*	Pinaceae	<i>Cedrus deodara</i>
Eastern Black Walnut	Juglandaceae	<i>Juglans nigra</i>
Ginkgo Biloba**	Ginkgoaceae	<i>Ginkgo biloba</i>
Honey-locust (Thornless)	Fabaceae	<i>Gleditsia tricanthos var. inermis</i>
Live Oak*	Fagaceae	<i>Quercus virginiana (fusiformis)</i>
Mexican Sycamore	Platanaceae	<i>Platanus mexicana</i>
Mexican white (Monterrey) Oak*	Fagaceae	<i>Quercus polymorpha</i>
Montezuma Cypress	Taxodiaceae	<i>Taxodium mucronatum</i>
Pecan	Juglandaceae	<i>Carya illinoensis</i>
Pond Cypress	Taxodiaceae	<i>Taxodium ascendens</i>
Shumard Red Oak	Fagaceae	<i>Quercus shumardii</i>
Southern Catalpa	Bignoniaceae	<i>Catalpa bignonioides</i>
Texas (Spanish) Red Oak	Fagaceae	<i>Quercus buckleyi</i>
<b>Type B: Medium Trees (mature height 25-39 feet, recommended planting bed 300 square feet, recommended 30 feet apart)</b>		
Anacua	Boraginaceae	<i>Ehretia anacua</i>
Arizona Cypress**	Cupressaceae	<i>Cupressus arizonica</i>
Bigtooth Maple	Aceraceae	<i>Acer grandidentatum</i>
Carolina Cherry-laurel*	Rosaceae	<i>Prunus caroliniana</i>
Chinese Pistache	Anacardiaceae	<i>Pistacia chinensis</i>
Eastern Red Cedar**	Cupressaceae	<i>Juniperus virginiana</i>
Escarpment Black Cherry	Rosaceae	<i>Prunus serotina ssp. Eximia</i>
Golden Rain Tree	Sapindaceae	<i>Koelreuteria paniculata</i>
Huisache (Sweet acacia)	Fabaceae	<i>Acacia farnesiana</i>
Japanese Black Pine**	Pinaceae	<i>Pinus thunbergii</i>
Lacey Oak	Fagaceae	<i>Quercus laceyi</i>
Mesquite	Fabaceae	<i>Prosopis glandulosa spp.</i>
Texas (Little) Walnut	Juglandaceae	<i>Juglans microcarpa</i>
Texas Ash	Oleaceae	<i>Fraxinus texensis</i>
Western Soapberry	Sapindaceae	<i>Sapindus drummondii</i>
<b>Type C: Small Trees (Overhead Utility Compatible) (mature height 8-24 feet, recommended planting bed 150 square feet, recommended 15 feet apart)</b>		
American Smoke Tree	Anacardiaceae	<i>Cotinus obovatus</i>
Anacacho Orchid Tree	Fabaceae	<i>Bauhinia congesta</i>
Carolina Buckthorn	Rhamnaceae	<i>Rhamnus caroliniana</i>
Chilean Mesquite (Thornless)	Fabaceae	<i>Prosopis chilensis</i>
Chitalpa	Bignoniaceae	<i>Chilopsis x Catalpa</i>
Crape Myrtle	Lythraceae	<i>Lagerstromia indica</i>
Desert Willow	Bignoniaceae	<i>Chilopsis linearis</i>
Eve's Necklace	Leguminosae	<i>Sophora affinis</i>
Evergreen Sumac*	Anacardiaceae	<i>Rhus virens</i>
Flameleaf Sumac	Anacardiaceae	<i>Rhus copallina</i>
Goldenball Lead-tree	Fabaceae	<i>Leaucana retusa</i>
Loquat*	Rosaceae	<i>Eriobotrya japonica</i>
Mexican Bird of Paradise	Leguminosae	<i>Caesalpinia mexicana</i>
Mexican Buckeye	Sapindaceae	<i>Ungnadia speciosa</i>
Mexican Olive*	Boraginaceae	<i>Cordia bossieri</i>
Mexican Plum	Rosaceae	<i>Prunus mexicana</i>
Mexican Redbud	Fabaceae	<i>Cercis Canadensis var. mexicana</i>
Mountain Laurel*	Leguminosae	<i>Sophora secundiflora</i>
Possumhaw (Deciduous) Holly	Aquifoliaceae	<i>Ilex decidua</i>
Retama (Palo verde)	Fabaceae	<i>Parkinsonia aculeata</i>
Rough-Leaf Dogwood	Cornaceae	<i>Cornus drummondii</i>
Texas Madrone	Ericaceae	<i>Arbutus xalapensis</i>
Texas Persimmon	Ebenaceae	<i>Diospyros texana.</i>
Texas Pistacio*	Anacardiaceae	<i>Pistacia mexicana</i>
Texas Redbud	Leguminosae	<i>Cercis Canadensis var. texensis</i>
Vitex (Chaste tree)	Verbenaceae	<i>Vitex agnus-castus</i>
Wax Myrtle*	Myricaceae	<i>Myrica cerifera</i>
Yaupon Holly*	Aquifoliaceae	<i>Ilex vomitoria</i>
* - Evergreen		
** - Not to be planted within 20 feet of impervious surface		
∞ - May be reduced to 2" caliper at planting		
(OUC) - Overhead Utility Compatible		

TREE SIZE	SPACING PLANT MASSINGS	MIN. SPACING FROM WALL OF 1-STORY BUILDING	MIN. SPACING FROM CORNER OF 1-STORY BUILDING
Small trees (30' or less)	6-15'	8-10'	6-8'
Medium trees (30-70')	30-40'	15'	12'
Large trees (70' or more)	40-50'	20'	15'

### 1. Arbor Day Foundation Basic Spacing Guide

The above chart is a basic spacing guide from various distances and various tree heights. Tree City USA, of which the city of Pflugerville has been a member for 14 years, is an Arbor Day Foundation program in cooperation with the USDA Forest Service, Urban and Community Forestry, and the National Association of State Foresters.

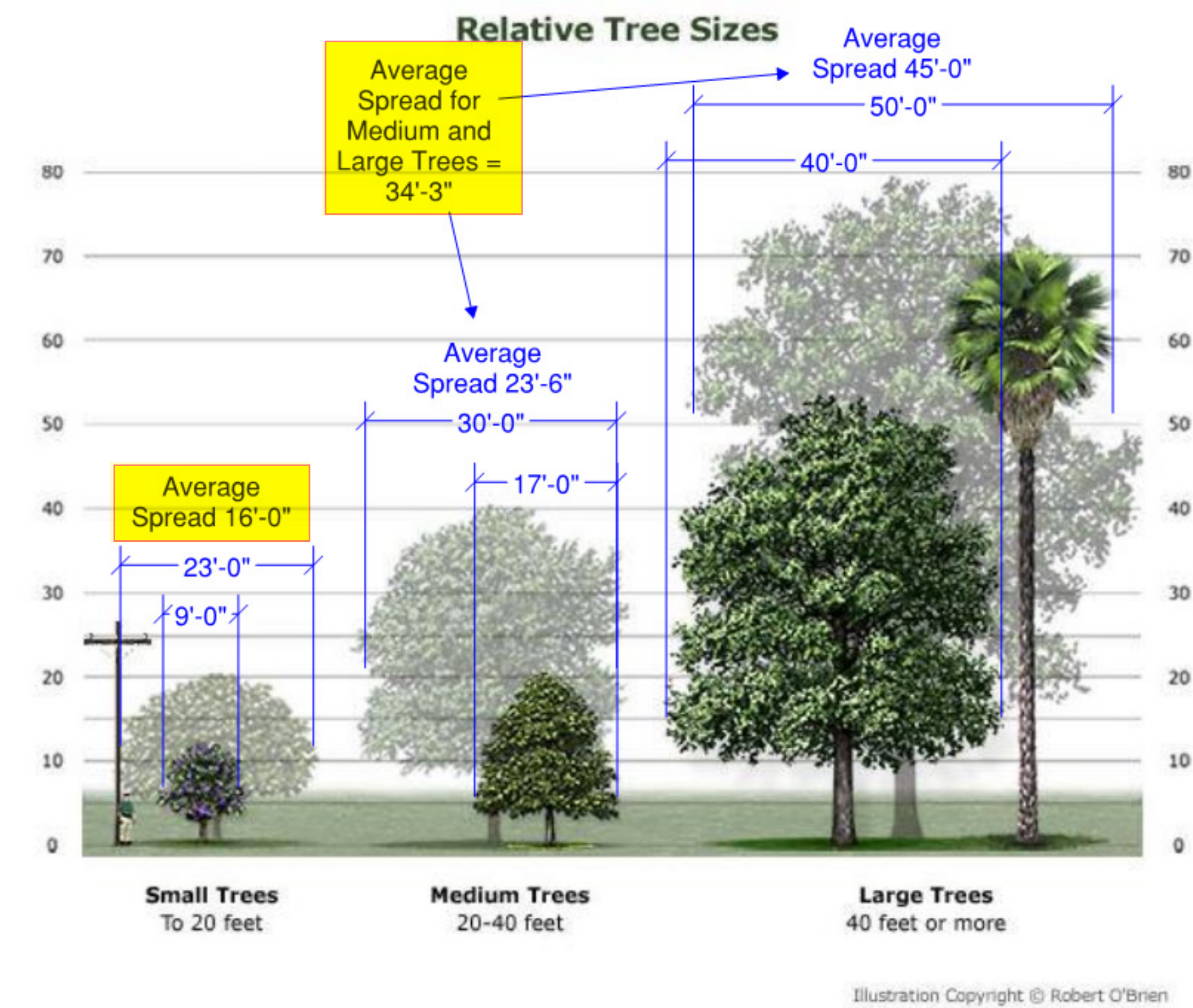
The above chart can be referenced at [arborday.org/trees/rightTreeAndPlace](http://arborday.org/trees/rightTreeAndPlace)

Common Name	Texas Native	Height	Spread	Light	D	Evergreen/Deciduous	Seasonal Interest	Color/Feature	Water	Wildlife	Comments and Maintenance
<b>Ash, Texas</b> <i>Fraxinus texensis</i>	E	40-50'	40-50'	Sun	D	Fall	Yellow-bronze foliage	VL	x		Fast-growing; native; only Ash appropriate for Austin area; provide good drainage; relatively long life; provides nesting and cover; birds eat flowers and fruit; susceptible to emerald ash borer; prune to shape or raise canopy if needed
<b>Cedar, Eastern Red</b> <i>Juniperus virginiana</i> var. <i>virginiana</i>	B	30-50'	15-25'	Sun	E	Year round	Evergreen leaves	L	x		Columnar, spreading shape; needs deep soil; good screen plant; native; provides cover and food for wildlife; Ashe Juniper, <i>J. ashei</i> , (mistakenly called Cedar) is a native alternative for shallow soils; does not need pruning
<b>Cherry, Black</b> <i>Prunus serotina</i> var. <i>exima</i>	B	25-50'+	35'	Sun	D	Spring	White flower; yellow fall foliage	L-M	x		Attractive shape; fall color; fragrant flowers; glossy leaves; fruit bearing; not for heavy clay soils; foliage can be fatal if consumed; provide moist location; attracts birds, butterflies and pollinators; prune for shape or to raise canopy
<b>Cypress, Arizona</b> <i>Cupressus arizonica</i>	T	25-50'	15-25'	Sun	E	Year round	Blue-silver foliage	VL	x		Suited to well-drained, limestone soils; attractive, peeling bark; some disease problems; native to Chisos Mountains; prune to shape, if needed
<b>Cypress, Bald</b> <i>Taxodium distichum</i>	B/E	60-100'	35-50'+	Sun/Part Shade	D	Fall	Copper foliage	H	x		For riparian/moist, deep soil or poor drainage conditions only; foliage dries up in dry, hot location; obtain plants of western seed source; does not need pruning
<b>Cypress, Montezuma</b> <i>Taxodium mucronatum</i>	T	60-100'	25-50'+	Sun/Part Shade	D	Fall	Bronze foliage	M	x		Similar to Bald Cypress but faster growth and more adapted to dry conditions; may freeze in severe winters; native to south Texas; does not need pruning
<b>Elm, Cedar</b> <i>Ulmus crassifolia</i>	B/E	50-75'	25-35'	Sun/Part Shade	D	Fall	Gold foliage	VL	x		Upright form, native; adapted to rocky soils; can withstand poor soils; provides seeds and nesting for wildlife; prune to shape or raise canopy if needed
<b>Honey Mesquite</b> <i>Prosopis glandulosa</i> var. <i>glandulosa</i>	B/E	25'-40'	25-30'	Sun	D	Spring-Fall	Creamy white flowers	VL	x		2-3" long blooms; bright green foliage and weeping shape; very slow growing; thorns; excellent nectar source; Thornsless Mesquite is <i>Prosopis chilensis</i> ; prune to shape or raise canopy if needed
<b>Maple, Bigtooth</b> <i>Acer grandidentatum</i>	E	20-50'	20-30'	Sun/Part Shade	D	Fall	Red, gold foliage	M	x		Best maple for alkaline soils; outstanding fall color; prune to shape or raise canopy if needed
<b>Oak, Bur</b> <i>Quercus macrocarpa</i>	B/E	50-70'+	30-50'+	Sun	D	Spring	Large acorns	M	x		Large, majestic tree, very adaptable; provide plenty of space and deep soil; moderate growth rate; important source of food for wildlife; prune to shape or raise canopy if needed
<b>Oak, Chinquapin</b> <i>Quercus muhlenbergii</i>	B/E	50-70'+	30-40'	Sun	D	Fall	Yellow and rust foliage	L	x		Stately form; provide deep soil; moderate growth rate; provides food for many birds and mammals; prune to shape or raise canopy if needed
<b>Oak, Lacey</b> <i>Quercus laevis</i>	E	30-50'+	25'	Sun/Part Shade	D	Spring-fall	Blue-green foliage	VL	x		Ideal for small urban yards; slow growth rate; will grow on shallow, limestone soils; resistant to oak wilt; susceptible to oak phyloxera insects; prune to shape or raise canopy if needed
<b>Oak, Mexican White</b> <i>Quercus polymorpha</i>	T	45-60'+	30-40'	Sun	SE	Spring	New foliage peach	VL	x		Handsome tree; provide deep soil; sheds leaves in spring when new leaves emerge; small population native to West Texas; resistant to oak wilt/susceptible to oak phyloxera insects; prune to shape or raise canopy if needed
<b>Oak, Southern Live</b> <i>Quercus virginiana</i>	B/E	40-60'+	50'+	Sun/Part Shade	E	Year round	Evergreen leaves	L-VL	x		Oak wilt susceptible; provide large open space; evergreen but sheds leaves in spring as new leaves emerge; if planting in shallow soil, use Escarpment Live Oak, <i>Q. fusiformis</i> , which is more drought tolerant; prune only during hottest and coldest months; paint all wounds immediately to help prevent spread of oak wilt
<b>Oak, Texas Red</b> <i>Quercus texana</i>	E	60-75'+	15-30'	Sun	D	Fall	Red foliage in fall	L	x		Well adapted to rocky soils; susceptible to oak wilt; provides food and cover for wildlife; Shumard Oak, <i>Q. shumardii</i> is a taller alternative, but only for deep, well-drained soil; prune to shape or raise canopy
<b>Palmetto, Texas</b> <i>Sabal texana</i> or <i>S. mexicana</i>	T	45'	15'	Sun/Part Shade	E	Spring	Small white flowers	L	x		Not a true tree; found in moist, wet locations and/or those areas with occasional flooding; provides food for birds and other wildlife; prune only to remove dead fronds
<b>Pecan</b> <i>Carya illinoensis</i>	B	60-75'+	60-75'+	Sun	D	Fall	Nut	H	x		For riparian/moist, deep soil conditions only; tall impressive tree; nut-producing; susceptible to disease and insects; many cultivars available
<b>Sycamore, Mexican</b> <i>Platanus mexicana</i>		60'	40'	Sun/Part Shade	D	Fall	Yellow-orange	H	x		For riparian/moist, deep soil conditions only; fast-growing; resistant to bacterial leaf scorch; may not be cold tolerant; prune to shape or raise canopy if needed

### 2. Grow Green Guide for Native and Adapted Landscape Plants of Central Texas

"The Grow Green plant guide was created to help select native and adapted plants for the Austin area that are naturally drought tolerant, resistant to pests and diseases, and provide habitat and food sources for local wildlife." The above trees listed are various examples of native and adapted trees typically planted in Central Texas.

The above chart can be referenced on page 7 and 9 of the Grow Green plant guide at [growgreen.org](http://growgreen.org)



### 3. Texas Tree Planting Guide

The above graphic and chart shows relative tree size and recommended growing space according to Texas A&M Forestry Services.

The above graphic and chart can be referenced at [texastreeplanting.tamu.edu](http://texastreeplanting.tamu.edu)

**When planting trees in rows, allow for the following growing space:**  
**Small Trees = 3 x 20 feet**  
**Medium Trees = 4 x 30 feet**  
**Large Trees = 4 x 45 feet**

NAME	TYPE	GROWTH	HEIGHT	SPREAD	NEW TREES	WATER*	BENEFITS	CONCERNS	COMMENTS
American Smoke Tree	Deciduous	Slow	25'	20'	Yes	L-M	Color, Wildlife	None	High drought, heat and cold tolerance.
Anacacho Orchid	Deciduous	Moderate	15'	10'	Yes	VL	Attractive, Aromatic Flowers	None	Very attractive small tree that will flower in full or part sun.
Anaqua	Evergreen	Slow	30'	45'	No	M	Attractive, Snowy Blooms	Susceptible to Freeze Damage	Deep shade; spring blooms look like the tree is covered with snow. Also called Sand Paper Tree.
Bald Cypress	Deciduous	Moderate	50'	25-50'	No	L	Wildlife, Fall Color	Surface Roots	Well adapted to many soil combinations and moisture. Handles wet areas well.
Bigtooth Maple	Deciduous	Moderate	25-50'	25-35'	No	VL	Fall Color	None	Native to Hill Country; good for well-drained limestone soils. Excellent fall color. Hard to find.
Bur Oak	Deciduous	Rapid	50'	50'+	No	VL	Unique Leaves and Acorns	None	Excellent tree, not utilized enough. Plant with plenty of room!
Carolina Buckhorn	Deciduous	Slow	15'	15'	Yes	L	Wildlife, Fall Color, Fruit	None	Attractive fall color and fruit.
Carolina Cherry Laurel	Evergreen	Moderate	25-30'	25'	No	M	Wildlife, Flower	None	Makes a good screening hedge. Requires good drainage.
Cedar Elm	Deciduous	Slow	25-50'	25-35'	No	VL	Wildlife, Fall Color	Pollen Drop	Well adapted shade tree for Austin. Some problems with aphids & powdery mildew.
Chinquapin Oak	Deciduous	Moderate	50'	25-50'	No	L	Wildlife	None	Good for limestone soils. Attractive light-colored bark.
Desert Willow	Deciduous	Rapid	25'	25'	Yes	VL	Wildlife, Flower	None	Shiny flowers through summer. Needs good drainage.
Escarpment Black Cherry	Deciduous	Moderate	25-50'	25'	No	L	Wildlife, Aromatic Wood	None	Attractive, upright tree with showy fall color in interesting bark. Not for heavy, clay soils.
Escarpment Live Oak	Evergreen	Moderate	25-50'	30'+	No	L	Wildlife	Susceptible to Oak Wilt	Limit use to areas with low soils. Allow plenty of room. Oak Wilt disease a problem.
Eve's Necklace	Deciduous	Moderate	25'	25'	Yes	VL	Flower, Fruit	None	Attractive flower in spring and fruit through fall and winter. Tolerates light, wet soils.
Gum Bastard	Evergreen	Moderate	45'	30'	No	L-M	Wildlife, Fragrant Flowers	Sucker Growth, Small Thorns	Blue to black berries, edible; ripen in fall. Highly adaptable to soil types, drought resistant.
Lacey Oak	Deciduous	Slow	30-30'	25'	No	VL	Texture, Color	None	Native oak unusual for its bluish foliage. Resistant to Oak Wilt disease.
Mesquite	Deciduous	Slow	25-35'	25-35'	No	L	Wildlife, Flower	Thorns	Extremely drought tolerant with desirable light, flared shade. Thornsless varieties available.
Mexican Buckeye	Deciduous	Moderate	15-20'	15-20'	Yes	L	Wildlife, Bark Texture/Color	None	Good as a multi-stemmed specimen.
Mexican Plum	Deciduous	Slow	25-35'	25-35'	Yes	L	Wildlife, Fall Color/Bark	None	Bright white flowers and edible fruit. May need protection from winter winds.
Pecan	Deciduous	Slow	50'	50'+	No	L	Fruit, Wildlife, Fall Color	None	State Tree of Texas. Plant with plenty of room! Grows slowly until well established.
Possumhaw Holly	Deciduous	Moderate	15-20'	15-20'	No	L-M	Wildlife, Fall Color	None	Striking native plant. Bright red berries in late fall and winter.
Texas Ash	Deciduous	Rapid	50'	30'	No	VL	Wildlife, Fall Color	None	A very attractive alternative to Arizona Ash. Darker leaf color & denser, more upright growth pattern.
Texas Mountain Laurel	Evergreen	Slow	15-20'	12-15'	Yes	VL	Wildlife, Flower	Phytotoxic Seeds	Excellent drought tolerant tree. Outstanding fragrant spring blooms. Needs good drainage.
Texas Persimmon	Deciduous	Slow	25'	25'	Yes	VL	Color, Wildlife, Bark Texture	None	Drought-tolerant native with attractive exfoliating bark. Small, edible black fruit.
Texas Pistache	Evergreen	Moderate	20-30'	30'	No	L	Attractive to Birds, Deer Resistant	None	Glossy foliage, small, white flower clusters, maintains shrub-like shape.
Texas Redbud	Deciduous	Moderate	15-20'	15-20'	Yes	L	Flower, Fall Color	None	Several hybrids available. "Texensis" best for our area. Eastern variety does poorly.
Texas Red Oak	Deciduous	Moderate	25-50'	25'	No	L	Wildlife, Bark, Fall Color/Acorns	Susceptible to Oak Wilt	Several red oaks available. "Texensis" best for our area. Known as Quercus shumardii var. arizonae.
Western Soapberry	Deciduous	Moderate	25-30'	25-30'	No	L	Fall Color	Sucker Growth	Large amber berries fall through winter.
Yaupon Holly	Evergreen	Moderate	25'	25'	Yes	L-M	Wildlife, Fruit	None	Females hold bright red berries through winter. Very hardy. Bushy unless pruned.

### 4. Native Tree Growing Guide for Central Texas

This guide was produced by the City of Austin for tree planting and care recommendations. The above trees listed are various examples of native and adapted trees typically planted in Central Texas.

The above chart can be referenced at [austintexas.gov](http://austintexas.gov)

# Tree Spacing Standards

Supporting references for proper tree spacing

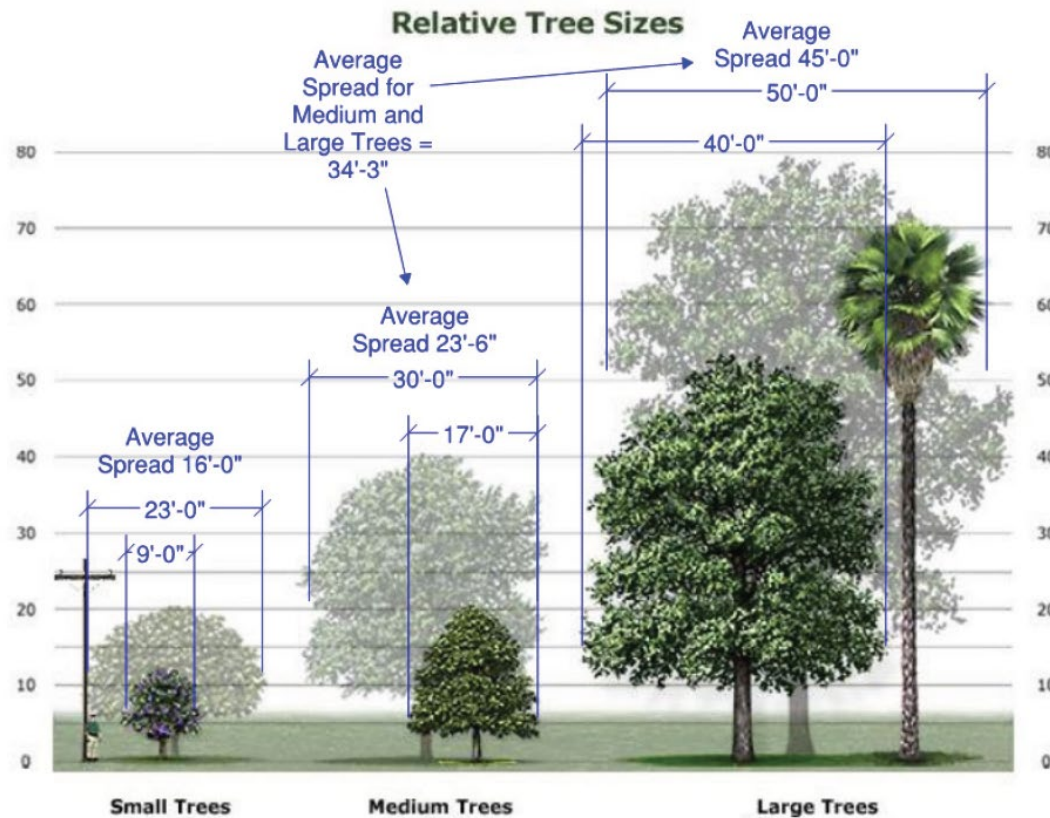
TREES	Common Name	Scientific Name	Height	Remarks	Shade Area
Small: Fifteen (15) to twenty-five (25) Feet; Medium: Twenty (25) to Forty (40) Feet; Large: Forty (40) Feet and Higher (60'+)					
	Anacacho, Orchid tree*	Bauhinia congosta	S-M	Semi-Evergreen, tree-shrub, white flower clusters	275
	Anaqua*, Sandpaper tree	Ehretia anacua	M-L	Evergreen broadleaf; white flower clusters	875
	Arizona Cypress	Cupressus arizonica	M-L	Evergreen conifer; gray green foliage; pyramidal shape	875
	Texas Ash*, Green Ash	Fraxinus sp.	M-L	Deciduous; fast growing	875
	Ashe Juniper*	Juniperus ashei	S-M	Evergreen conifer; green foliage, females fruit	275
	Bald Cypress**	Taxodium distichum	L	Deciduous conifer; fine textured foliage; fall color	875
	Big Tooth Maple**	Acer grandidentatum	M	Deciduous; full to partial sun; Medium water, fall color: no	550
	Black Willow*	Salix nigra	M-L	Deciduous; riparian species	875
	Bur Oak*	Quercus macrocarpa	L	Deciduous; large acorns and leaves, good shade tree	1200
	Carolina Buckhorn*	Rhamnus caroliniana	S-M	Semi-Evergreen; sun-shade; glossy leaves, reddish fruit	275
	Cedar Elm*	Ulmus crassifolia	M-L	Deciduous; narrow canopy, good shade tree for R.O.Ws	875
	Chinquapin Oak*	Quercus muhlenbergii	M-L	Deciduous; round-topped tree; bold foliage	875
	Condalia, Brazil Tree, Bluewood Condalia*	Condalia hookeri, C. viridis	S-M	Evergreen; delicate foliage; very drought tolerant; sun-shade, good shade tree	275
	Cottonwood*	Populus deltoides	L+	Deciduous; large leaves, females fluffy seeds, not recommended for parking lots	1200
	Crabapple, Texas*	Mollis texana	S-M	Deciduous, full to partial sun, spring flowering tree	275
	Desert Willow*	Chilopsis linearis	S	Deciduous; pink tubular flowers; yellow foliage, very drought tolerant	275
	Deodar Cedar	Cedrus deodara	L	Evergreen; spreading, pyramidal shape	1200
	Ebony, Texas*	Pithecolobium flexicaule	S	Evergreen; sun; white flowers	875
	Escarpment Black Cherry*	Prunus serotina var. eximia	M-L	Deciduous; sun to shade; fall foliage	875
	Eve's Necklace*	Sophora affinis	M-L	Deciduous; sun-shade; white to pink flowers	875
	Goldenball Lead Tree*	Leucaena retusa	S-M	Deciduous; delicate foliage; fragrant yellow flowers	275
	Hackberry*	Celtis spp.	M-L	Deciduous; prolific, wildlife favorite	875
	Honey Locust	Gleditsia triacanthos	M	Deciduous; thornless varieties available	550
	Huisache*	Acacia farnesiana	M	Deciduous; delicate foliage; fragrant yellow flowers	550
	Italian Stone pine	Pinus pinea	L	Drought tolerant, needs room to grow	875
	Kidneywood*	Eysenhardtia polystachya	S	Deciduous; delicate tree-shrub; fragrant white flowers	n/a
	Lacy Oak*	Quercus laevis	M	Deciduous; sun-partial shade; hill county native, good shade tree	550
	Live Oak*	Quercus virginiana	M-L	Evergreen-like; good shade tree	875
	Mesquite*	Prosopis glandulosa	S-M	Deciduous; lacy-spreading form	550
	Monterrey Oak	Quercus polymorpha	S-M	Evergreen-like; good shade tree	875
	Montezuma cypress**	Taxodium mucronatum	L	Semi-evergreen; full sun; low water	875
	Mexican Buckeye*	Ungnadia speciosa	S	Deciduous; pink-red spring flowers	275
	Pecan*	Carya illinoensis	L+	Deciduous; needs lots of space; sensitive to root impact	1200
	Persimmon, Texas*	Diospyros texana	S-M	Deciduous; sun-shade, smooth bark; females has black pulpy fruit	275
	Plum, Mexican*	Prunus mexicana	S	Deciduous; sun to shade; white flowers, fruit	n/a
	Possum Haw*	Ilex decidua	S-M	Deciduous; sun-shade; female has red fruit	275
	Retama, Paloverde*	Parkinsonia texana	S-M	Deciduous; fast growing, yellow flowers	275
	Red Oak, Shumard*	Shumard Quercus shumardii	L	Deciduous; fall color, good shade tree	1200
	Red Oak, Texas*	Quercus texana	M	Deciduous; fall color, good shade tree	550
	Redbud, Texas, Oklahoma, Mexican*	Cercis canadensis var texana	S-M	Deciduous; sun-shade, red/pink or white flowers	275
	Rusty Blackhaw*	Viburnum rufidulum	S	Deciduous; fall color, white flower clusters	n/a
	Silk-tassle*	Garrya ovata	S	Evergreen; sun-shade	n/a
	Spiny Hackberry*	Celtis pallida	S+	Evergreen; greenish white flowers, yellow orange fruit	n/a
	Sycamore, Mexican	Platanus mexicana	L+	Deciduous; large leaves, good shade tree	1200
	Sycamore, Texas*	Platanus glabrata	L+	Deciduous; large leaves, good shade tree	1200a
	Texas Mountain Laurel*	Sophora secundiflora	S	Evergreen, part shade to full sun; fragrant purple flowers	275
	Texas Pistache*	Pistacia texana	S	Semi-Evergreen; full sun to part-shade; red fruit	n/a
	Wafer Ash, Hop tree*	Ptelea trifoliata	S	Semi-Evergreen; sun-shade; light green foliage	n/a
	Western Soapberry*	Sapindus drummondii	M-L	Deciduous; full to partial sun; good shade tree, cluster large yellow flowers	875
	Wild Olive*	Cordia boissierii	S-M	Semi-Evergreen; large white flowers, hardy to 14°F	275
	Yaupon Holly*	Ilex vomitoria	S-M	Evergreen; sun-shade; female has red fruit	275

### 5. City of San Antonio Recommended Plant List with Shade Area Recommendations

The above chart shows the recommended shade area for mature trees by the City of San Antonio. The above trees listed are various examples of native and adapted trees typically planted in Central Texas.

Referenced in [City of San Antonio.UDC](http://CityofSanAntonio.UDC): APPENDIX E: SAN ANTONIO RECOMMENDED PLANT LIST - ALL SUITED TO XERISCAPE PLANTING METHODS, adopted 12/17/2015

# Canopy Detail



- Approximate average canopy spread area for Medium and Large trees on City's Approved Tree List (UDC Subchapter 11.11.3) is **921 SF**.
- Adhering to 1:300 baseline code requires planting 3 trees approximately 10 feet apart in the area recommended for a single tree.
- This directly conflicts with city's own UDC Subchapter 12 Appendix A (Sec. 3.4.2) which requires the **minimum** recommended distance between newly planted medium and large trees is 30-40 feet.

# EXHIBIT B (Site Geometry)

1 tree per 300 S.F. required landscape area  
@ recommended spacing (per code sec. 3.4.2)

LANDSCAPE CALCULATION CHART - Wilke Lane MF			
REQUIRED LANDSCAPE AREA (MULTI-FAMILY) ZONE: CL5			Required
Total Site Area		704,035 sf	
A.	Total Required Landscape Area (40% of site)		281,614 sf
B.	Total Linear Feet of Bufferyard	1,294 lf	
C.	Total Trees Required		991 trees
	Landscape Area Trees	1 / 300 sf	939 trees
	Bufferyard Trees	4 / 100 lf	52 trees
D.	Tree Diversity Requirements (50% Type C Trees)		495 trees
	Type A/B Trees		496 trees
TREE AREA RESULTS			
A.	Total Area of Tree Coverage (rectangular spacing)		557,775 sf
	Type A/B Trees (30' canopy)	496 x 900 sf	446,400 sf
	Type C Trees (15' canopy)	495 x 225 sf	111,375 sf
B.	Tree Coverage Percentage of Required Landscape Area		198%
	*Total Area of Tree Coverage divided by Total Required Landscape Area		
	Maximum Landscape Area per Required Landscape Area Tree	198% x 300 sf	594 sf
	*Bufferyard Trees provided in addition per 4/100lf requirement		
C.	Total Area Remaining on Site		146,260 sf
	*To be used for buildings, drive aisles, parking, sidewalks, detention ponds, and other amenities		3.36 acres

This exhibit demonstrates the total required amount of trees to be planted on site per the standard City of Pflugerville code for a multi-family development. The exhibit is shown without any other site features including, but not limited to, buildings, drive aisles, parking, sidewalks, and detention ponds. The total site area (704,035 sf) does not include the Abbeyglen Castle Dr. R.O.W. or the existing utility easement. The required amount of landscape area (40% of the overall site) was taken from this calculation.

The maximum number of Type C trees (50% of required trees) are proposed to be planted on site to maximize usable space.

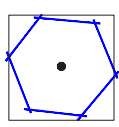
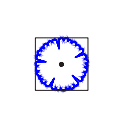
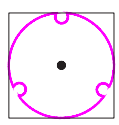

The proposed tree placement is shown using rectangular spacing of a mature tree at 30 foot diameter for Type A/B trees, and 15 foot diameter for Type C trees, which is consistent with the spacing as recommended by Section 3.4.2 in the City of Pflugerville code. Any amount of space less than this would result in unsustainable health for the proposed trees.

The overall space the required amount of trees takes up on site exceeds the total amount of required landscape area by nearly double (198%). It is geometrically impossible at the recommended spacing to fit the required amount of trees within the required 40% landscape area.

Using the proposed spacing as a guideline, the maximum amount of trees that can be planted on site within the required landscape area is just under 1 tree per 600 square feet (594).

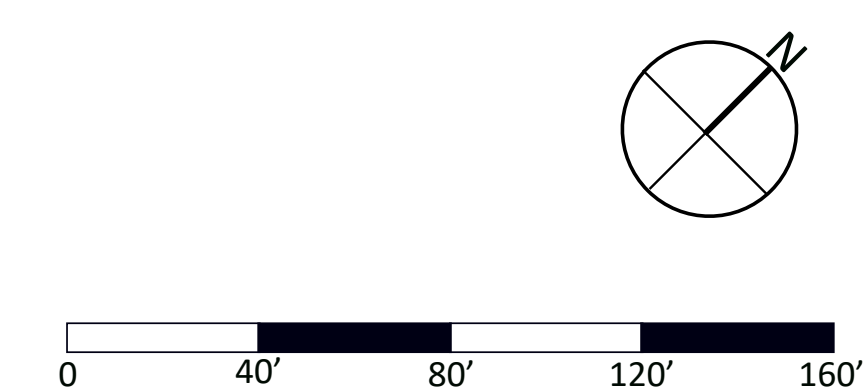
Mitigation requirements were not included in this exhibit. All trees shown are base code requirements.

Meeting all the landscape requirements leaves only 3.36 acres of usable space for other site features and amenities. This amount of space makes the development of this site unachievable.

TREES	QTY	TYPE / COVERAGE AREA	CAL
	444	TYPE A/B TREE 30' D. CANOPY 30' x 30' (900 SF)	3" CAL
	495	TYPE C TREE 15' D. CANOPY 15' x 15' (225 SF)	3" CAL
	52	BUFFERYARD TREE 30' D. CANOPY 30' x 30' (900 SF)	3" CAL
		40% REQUIRED LANDSCAPE AREA	



Base code minimum shown for graphical purposes only.



# EXHIBIT C (Site Geometry)

1 tree per 600 S.F. required landscape area  
@ recommended spacing (per code sec. 3.4.2)



LANDSCAPE CALCULATION CHART - Wilke Lane MF			
REQUIRED LANDSCAPE AREA (MULTI-FAMILY) ZONE: CL5		Required	
Total Site Area	704,035 sf		
<b>A. Total Required Landscape Area (40% of site)</b>		<b>281,614 sf</b>	
<b>B. Total Linear Feet of Bufferyard</b>	1,294 lf		
<b>C. Total Trees Required</b>		<b>521 trees</b>	
Landscape Area Trees (3" Cal.)	1 / 600 sf	469 trees	
Landscape Area Inches		1,408 in	
Bufferyard Trees (3" Cal.)	4 / 100 lf	52 trees	
Bufferyard Inches		156 in	
<b>D. Tree Diversity Requirements (50% Type C Trees)</b>		<b>260 trees</b>	
Type A/B Trees		261 trees	
<b>TREE AREA RESULTS</b>			
<b>A. Total Area of Tree Coverage (rectangular spacing)</b>		<b>293,400 sf</b>	
Type A/B Trees (30' canopy)	261 x 900 sf	234,900 sf	
Type C Trees (15' canopy)	260 x 225 sf	58,500 sf	
<b>B. Tree Coverage Percentage of Required Landscape Area</b>		<b>104%</b>	
*Total Area of Tree Coverage divided by Total Required Landscape Area			
<b>Maximum Landscape Area per Required Landscape Area Tree</b>	104% x 600 sf	<b>625 sf</b>	
*Bufferyard Trees provided in addition per 4/100lf requirement			
<b>C. Total Area Remaining on Site</b>		<b>410,635 sf</b>	
*To be used for buildings, drive aisles, parking, sidewalks, detention ponds, and other amenities			
		<b>9.43 acres</b>	

This exhibit demonstrates the total required amount of trees to be planted on site per the standard City of Pflugerville code for a multi-family development, with the exception of a 1:600 ratio of trees required per required landscape area instead of 1:300. The exhibit is shown without any other site features including, but not limited to, buildings, drive aisles, parking, sidewalks, and detention ponds. The total site area (704,035 sf) does not include the Abbeyglen Castle Dr. R.O.W. or the existing utility easement. The required amount of landscape area (40% of the overall site) was taken from this calculation.

The maximum number of Type C trees (50% of required trees) are proposed to be planted on site to maximize usable space.

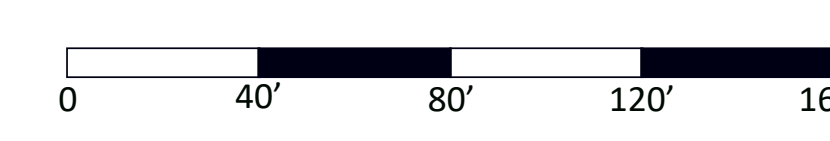
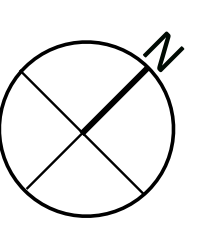
The proposed tree placement is shown using rectangular spacing of a mature tree at 30 foot diameter for Type A/B trees, and 15 foot diameter for Type C trees, which is consistent with the spacing as recommended by Section 3.4.2 in the City of Pflugerville code. Any amount of space less than this would result in unsustainable health for the proposed trees.

The overall space the required amount of trees takes up on site is close to the total amount of required landscape area (104%). It is geometrically possible at the proposed spacing to fit the proposed amount of trees within the required amount of landscape area.

Mitigation requirements were not included in this exhibit. All trees shown are base code requirements.

Meeting all the landscape requirements leaves 9.43 acres of usable space for other site features and amenities. This amount of space makes the development tight, but still achievable.

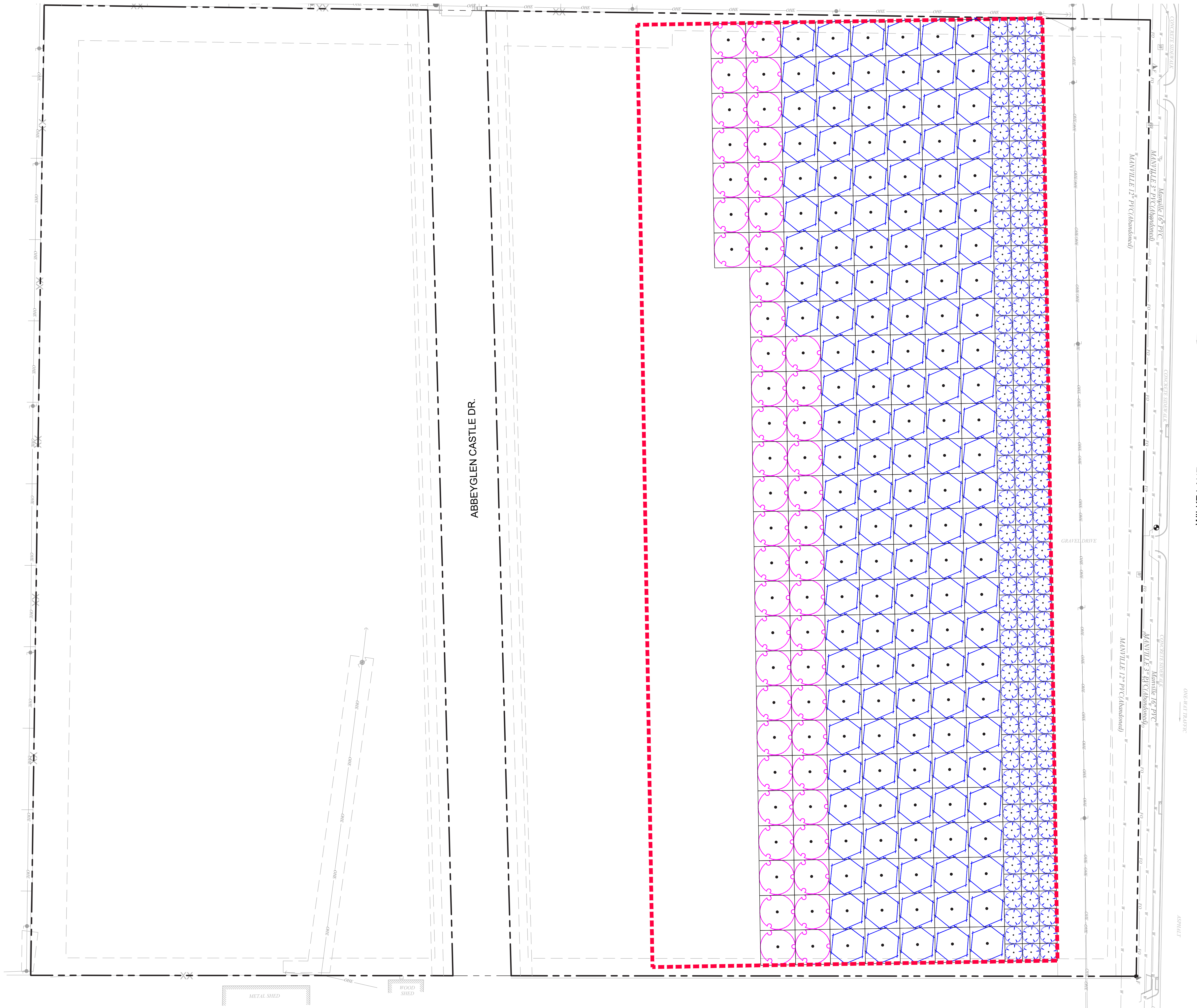
TREES	QTY	TYPE / COVERAGE AREA	CAL
	209	TYPE A/B TREE 30' D. CANOPY 30' x 30' (900 SF)	3" CAL
	260	TYPE C TREE 15' D. CANOPY 15' x 15' (225 SF)	3" CAL
	52	BUFFERYARD TREE 30' D. CANOPY 30' x 30' (900 SF)	3" CAL
		40% REQUIRED LANDSCAPE AREA	



Shown for graphical purposes only.

# EXHIBIT D (Site Geometry)

1 tree per 600 S.F. with administrative reductions



LANDSCAPE CALCULATION CHART - Wilke Lane MF			
REQUIRED LANDSCAPE AREA (MULTI-FAMILY) ZONE: CL5			Required
Total Site Area		704,035 sf	
<b>A. Total Required Landscape Area (40% of site)</b>			<b>281,614 sf</b>
20% Maximum Alternative Compliance Reduction			225,291 sf
<b>B. Total Linear Foot of Bufferyard</b>		1,294 lf	
<b>C. Total Trees Required (based on required inches)</b>			<b>358 trees</b>
Landscape Area Trees (3" Cal.)	1 / 600 sf		375 trees
Landscape Area Inches			1,125 in
20% Reduction of trees to be paid for by fee in lieu			900 in
Bufferyard Trees (3" Cal.)	4 / 100 lf		52 trees
Bufferyard Inches			156 in
<b>D. Tree Diversity Requirements (50% Type C Trees)</b>			<b>162 trees</b>
Type A/B Trees			196 trees
<b>TREE AREA RESULTS</b>			<b>Total</b>
<b>A. Total Area of Tree Coverage (rectangular spacing)</b>			<b>212,850 sf</b>
Type A/B Trees (30' canopy)	196 x 900 sf		176,400 sf
Type C Trees (15' canopy)	162 x 225 sf		36,450 sf
<b>B. Tree Coverage Percentage of Required Landscape Area</b>			<b>76%</b>
<small>*Total Area of Tree Coverage divided by Total Required Landscape Area</small>			

This exhibit demonstrates the total required amount of trees to be planted on site per the standard City of Pflugerville code for a multi-family development, with the exception of a 1:600 ratio of trees required per required landscape area instead of 1:300. In addition, other administratively approved variances/alternative compliance actions were taken including a 20% required landscape area reduction, a 20% reduction of trees to be paid for by fee in lieu, and measuring the number of trees required by inches instead of total tree quantity. The exhibit is shown without any other site features including, but not limited to, buildings, drive aisles, parking, sidewalks, and detention ponds. The total site area (704,035 sf) does not include the Abbeyglen Castle Dr. R.O.W. or the existing utility easement. The required amount of landscape area (40% of the overall site) was taken from this calculation.

The number of Type C trees proposed to be planted on site are close to the maximum (50% of required trees) to maximize usable space, while also keeping site specific design in mind.

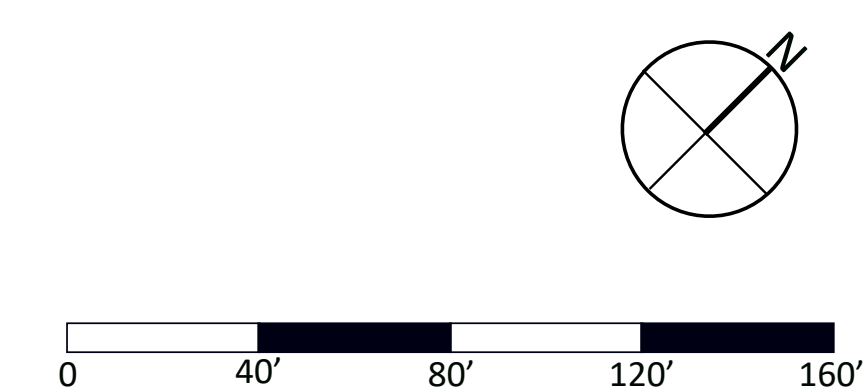
The proposed tree placement is shown using rectangular spacing of a mature tree at 30 foot diameter for Type A/B trees, and 15 foot diameter for Type C trees, which is consistent with the spacing as recommended by Section 3.4.2 in the City of Pflugerville code. Any amount of space less than this would result in unsustainable health for the proposed trees.

The overall space the required amount of trees takes up on site is below the total amount of required landscape area (76%) and creates a reasonable amount of additional landscape area to design within for site amenities as currently proposed. Therefore, it is geometrically possible at the proposed spacing to fit the proposed amount of trees within the required amount of landscape area after using all of the alternative compliance options.

Mitigation requirements were not included in this exhibit. All trees shown are base code requirements.

LEGEND			
TREES	QTY	TYPE / COVERAGE AREA	CAL
	144	TYPE A/B TREE 30' D. CANOPY 30' x 30' (900 SF)	4" CAL *
	162	TYPE C TREE 15' D. CANOPY 15' x 15' (225 SF)	2" CAL
	52	BUFFERYARD TREE 30' D. CANOPY 30' x 30' (900 SF)	3" CAL
		40% REQUIRED LANDSCAPE AREA	

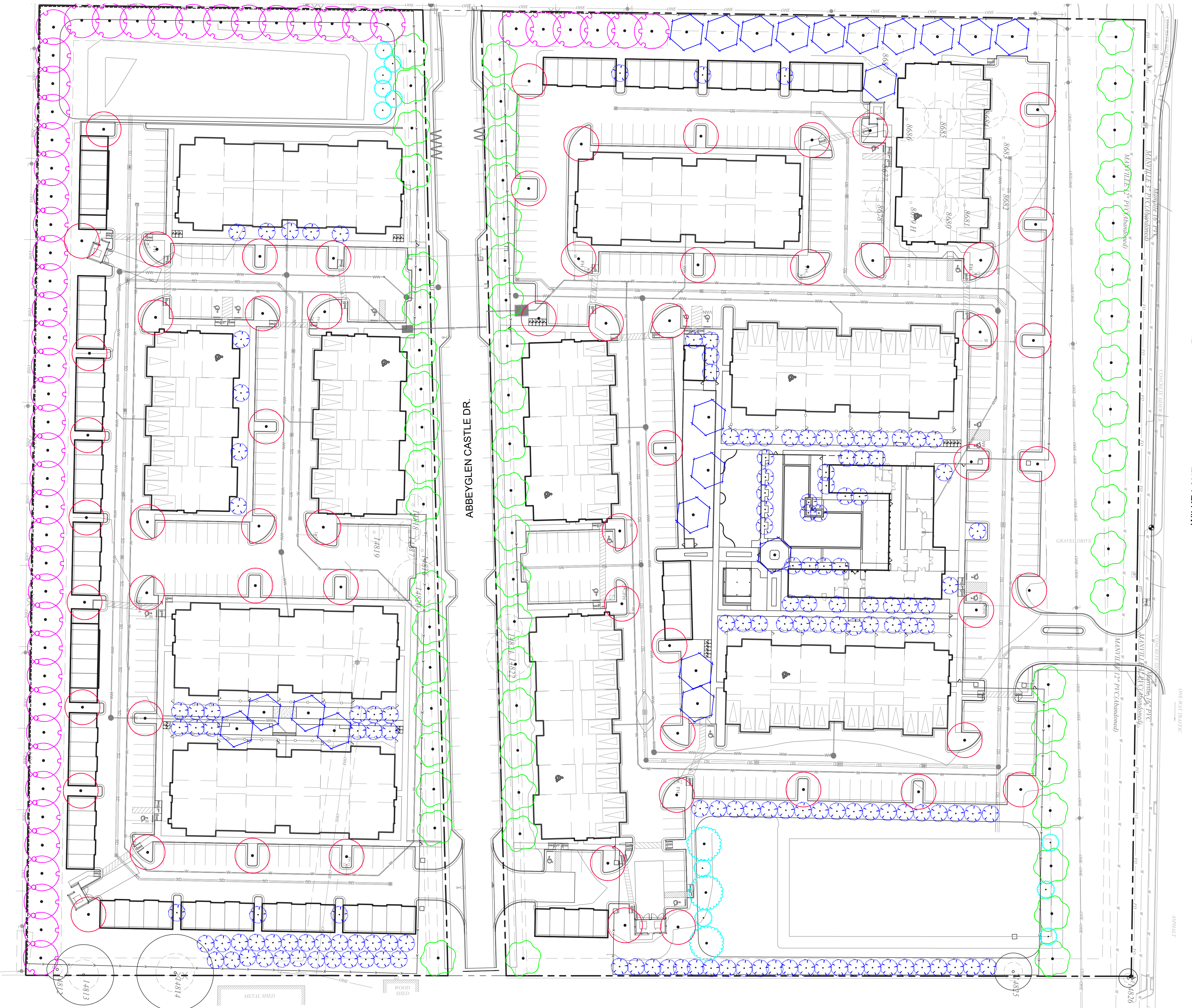
\*Note: Type A/B Trees were upsized from 3" caliper minimum to 4" caliper.



Shown for graphical purposes only.

# EXHIBIT E (Proposed Site Plan)

1 tree per 600 S.F. required landscape area



LANDSCAPE CALCULATION CHART - Wilke Lane MF				Required	Provided
<b>1 REQUIRED LANDSCAPE AREA (MULTI-FAMILY) ZONE: CL5</b>					
Total Site Area		704,035 sf			
<b>A. Total Required Landscape Area (40% of site)</b>		281,614 sf	300,737 sf	40%	43%
% of total site area		40%	43%		
% deficiency for required landscape area*		-3%			
<b>Alternative Compliance Landscape Area (20% reduction)</b>		225,291 sf	300,737 sf		
*Alternative compliance to reduce minimum tree requirements					
<b>2 LANDSCAPED AREA AND MINIMUM REQUIREMENTS</b>				Required	Provided
<b>A. Trees (3" cal min.)</b>					
1 Tree per 600 sf of required landscape area		1x / 600 sf	375	306	
3 Inches per 600 sf of required landscape area		3x / 600 sf	1,125 in	900 in*	
20% reduction of trees to be paid for with fee in lieu		20% / 1,125 in	225 in	\$ 33,750.00	
Remaining Inches that don't fit on site			- in		
*4" caliper type A/B trees and 2" caliper type C trees proposed					
<b>3 STREETSCAPE YARD REQUIREMENTS</b>				Required	Provided
Total Linear Feet of Streetyard		2,367 lf			
Total Linear Feet of Streetyard with overhead utilities		0 lf			
<b>A. Type A or B Trees</b>					
1 Tree per 40 lf of street frontage		1x / 40 lf	59	59	
<b>B. Type C Trees (when overhead utilities are present)</b>					
1 Tree per 40 lf of street frontage		1x / 20 lf	-	0	
<b>6 SCREENING</b>				Required	Provided
<b>C. Screening of Storm Water Detention</b>			YES	YES	
Total Linear Feet of Detention Facility		325 lf			
1 Type A or B Tree per 30 lf of detention facility		1x / 30 lf	11	11	
1 Type C Tree per 30 lf of detention facility		1x / 30 lf	11	11	
<b>7 BUFFERYARD</b>				Required	Provided
Total Linear Feet of Bufferyard		1,294 lf			
<b>A. Type A or B Trees</b>					
4 Trees per 100 lf of site development boundary		4x / 100 lf	52	52	
<b>8 TREE DIVERSITY REQUIREMENTS</b>				Maximum	Provided
<b>A. Total Trees Required (based on required inches)</b>		358 trees		358	
No more than 50% of new trees required on site may be Type C Trees		50% / 358	179	162	
<b>10 MITIGATION</b>				Required	Provided
<b>A. Total Removed Inches</b>		273 in			
<b>B. Mitigation Inches Required</b>		458 in		0 in	
Remaining mitigation to be paid with fee				\$ 68,700.00	

This exhibit takes all the trees shown on Exhibit D (Site Geometry of 1 tree per 600 sf with administrative reductions) and places them on the developed site plan. After taking into account all site amenities including, but not limited to, buildings, drive aisles, parking, sidewalks, and detention ponds, the proposed trees comfortably fit on site without resulting in unsustainable spacing. This exhibit clearly demonstrates that after increasing the required amount of trees in the landscape area from a ratio of 1:300 to 1:600, and considering all possible alternative compliance measures, the development of this site is achievable, and overall meets the intent of the landscape code as written. In addition, the proposed plan meets and exceeds all other landscape requirements aside from the landscape area ratio as noted previously.

TREES	QTY	COMMON / BOTANICAL NAME	CAL
	52	BUFFERYARD TREE TYPE A/B	3" CAL
	21	LANDSCAPE AREA TREE TYPE A/B	4" CAL
	151	LANDSCAPE AREA TREE TYPE C	2" CAL
	61	PARKING LOT TREE TYPE A/B	4" CAL
	3	SCREENING TREE TYPE A/B	4" CAL
	11	SCREENING TREE TYPE C	2" CAL
	59	STREETYARD TREE TYPE A/B	4" CAL

