



Town of Buena Vista Planting Guide

April 12, 2016

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On February 14, 2012 the Board of Trustees passed Ordinance 5, Series 2012 amending Section 16-255, Landscape requirements, for the Town of Buena Vista. The ordinance adopted new landscape standards in regards to the number of trees and shrubs required for new development within the Town. All landscape requirements can be found in the municipal code or by contacting the Planning Department at (719) 395-8643.

This document is regulatory in nature based on language from the Buena Vista Municipal Code, Sections 11-82, 11-84, 11-85, 16-239(b)(2)h, 16-255 (d)(2)b, 17-37(8)a, 17-56(a)(2), 17-57(b)(14)a, 17-57(b)(15). This guide represents best practices for the survival of plantings located in the Town.

These planting techniques and plant species recommendations represent years of practice by local nurserymen, landscapers and tree enthusiasts of the Town Buena Vista and the surrounding area. Their collective knowledge has been utilized to provide direction with plantings to create a truly lasting green canopy for the Town.

This guide must be reviewed prior to making selections on plantings or beginning landscaping. In reviewing this document, note species that you find interesting and learn the requirements for planting, watering, and protecting them for their long-term survival. Planting a tree in our town is a long term investment that we are excited that you are making. This guide provides valuable insight on protecting your investment for the long-term value of your property.

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Plant List (Revised December 2015)

The following lists of plants are the Town's recommendations on tree, grass, and shrub plantings that have the best chance of long-term survival. This extensive list of plants has been tested in the Town and has proven to be resilient in the Town's climate. While deviations from this are expected, the Town will not count these deviations towards the required trees per the Municipal Code, unless a 2 year warranty period is accepted

The plant list is divided into three groups based on the water needs of the plants. For healthy plants, a particular planting area should contain plants from only one group.

Behind the common name of each tree is a "Large", "Medium," or "Small" which refers to the tree's mature height. Large is over 40' when mature, Medium is 20' to 40' tall, and Small is under 20'.

When selecting plant species, consider the planting location and individual plant characteristics.

Planting location characteristics to consider are:

- soil type
- site exposure
- slope of grade
- possible microclimate
- site use

Plant characteristics to consider are:

- hardiness
- insect and disease susceptibility
- invasiveness potential
- growth rate
- water requirements
- litter potential (leaves, fruit, acorns, cones, or pods)
- allergic potential to property users
- toxic plant parts
- wildlife use/misuse potential
- hazardous growth (thorns, prickly leaves)
- mature size relative to utilities and structures
- site conditions

Group 1:

Grasses, shrubs, and trees in the following list require minimal irrigation, once established.

Trees - Evergreen

Juniperus monosperma

One Seed Juniper (Small)

Juniperus scopulorum

Rocky Mountain Juniper (Small)

Pinus edulis

Pinyon (Piñon) Pine (Small)

Grasses (from seed or plugs)

Agropyron cristatum, varieties	Crested Wheatgrass
Bouteloua gracilis	Blue Grama Grass
Koeleria cristata	Junegrass
Oryzopsis hymenoides	Indian Ricegrass
Pascopyrum smithii	Western Wheatgrass
Sporobolus cryptandrus	Sand Dropseed

Shrubs

Berberis fendleri	Fendler Barberry
Caragana arborescens	Siberian Pea Shrub
Cercocarpus montanus	Mountain Mahogany
Chrysothamnus nauseosus	Rabbitbrush
Fallugia paradoxa	Apache Plume
Fendlera rupicola	Fendlerbush
Holodiscus dumosus	Rock Spirea
Jamesia americana	Cliff Jamesia
Krasheninnikovia lanata	Winterfat
Philadelphus microphyllus	Littleleaf Mock Orange
Purshia stansburiana	Cliff Rose
Purshia tridentata	Bitterbrush
Rhus aromatica, ssp trilobata	3-leaf Sumac
Ribes cereum	Squaw Currant
Seriphidium vaseyanum	Mountain Sagebrush
Symphoricarpus rotundifolius (oreophilus)	Mountain Snowberry
Yucca glauca	Soapweed

Specific Watering Instructions - Group 1:

Establishment watering of the most drought tolerant plants (Examples: pinyon pine, rabbitbrush, littleleaf mock orange, and mountain sagebrush). Establishment water must be made available. The following schedule must be adhered to for the success of the planting.

1st Year - Soak the root zone to a depth of 15" every week for the first four weeks, then soak once every two weeks until the ground freezes (in November). Any time extended drought conditions result in the drying of the root zone, water must be applied. During the winter the soil condition must be checked monthly, water should be applied when the root zone is dry.

2nd Year - Soak the root zone to a depth of 15" once every 2 weeks beginning April 1st until June 30th. After June 30th, soak the root zone to a depth of 15" once a month until the

ground freezes. Any time extended drought conditions result in the drying of the root zone, water must be applied. The trees will have to be monitored closely for drought stress and watered if too dry. During the winter the soil condition must be checked monthly, water should be applied when the root zone is dry.

3rd year and beyond - Soak the root zone to a depth of 15" at the beginning of the season. The trees will have to be monitored closely for drought stress and watered if too dry. Any time extended drought conditions result in the drying of the root zone, water must be applied. Monthly watering will encourage faster growth.

Group 2:

Grasses, shrubs, and trees in this classification require more water than those in Group 1.

Trees - Deciduous

Acer negundo	'Sensation' Boxelder (Medium)
Crataegus ambigua	Russian Hawthorn (Small)
Crataegus succulenta coloradensis	Colorado Hawthorn (Small)
Crataegus x mordenensis "Toba"	Toba Hawthorn (Small)
Malus sp	Flowering Crabapple varieties (Small)
Malus sp	Apple varieties (Small)
Prunus maackii	Amur Chokecherry (Small)
Prunus padus	European Bird Cherry (Small)
Prunus sp "Montmorency"	Montmorency (Sour) Cherry (Small)
Prunus virginiana "Schubert"	Canada Red Cherry (Medium)
Sorbus x thuringiaca	Oakleaf Mountain Ash (Medium)

Trees – Evergreen

Abies concolor	White or Concolor Fir (Large)
Pinus aristata	Bristlecone Pine (Medium)
Pinus contorta latifolia	Lodgepole Pine (Large)
Pinus flexilis	Limber Pine (Large)
Pinus ponderosa	Ponderosa Pine (Large)
Pseudotsuga menziesii	Douglas Fir (Large)

Grasses – Native grasses from seed

Festuca ovina	Sheep Fescue
Elymus lanceolatus	Sodar Wheatgrass
Blepharoneuron tricholepis	Pine Dropseed
Calamagrostis purpurascens	Purple Reed Grass

Deschampsia cespitosa

Tufted Hair Grass

Decorative Landscape Grasses

Calamagrostis acutiflora "Avalanche"

Feather Reed Grass

Calamagrostis acutiflora "Karl Foerster"

"Karl Foerster" Feather Reed Grass

Festuca glauca "Elijah Blue"

"Elijah Blue" Blue Fescue

Helictotrichon sempervirens

Blue Avena Grass or Blue Oat Grass

Leymus arenarius "Blue Dune"

"Blue Dune" Lyme Grass

Miscanthus sinensis "Purpurascens"

Flame Grass

Miscanthus sinensis "Silberfeder"

Silver Feather Grass

Panicum virgatum "Heavy Metal"

Heavy Metal Switch Grass

Shrubs

Amelanchier alnifolia

Serviceberry

Aronia melanocarpa

Black Chokeberry

Caryopteris x clandonensis

Blue Mist Spirea

Cerasus (Prunus) tomentosa

Nanking Cherry

Cotoneaster lucida

Peking Cotoneaster

Lonicera tartarica "Arnolds Red"

Arnold's Red Honeysuckle

Oreobatus(Rubus) deliciosus

Thimbleberry

Padus(Prunus) virginiana ssp.melanocarpa

Chokecherry

Pentaphylloides (Potentilla) floribunda

Potentilla, All Varieties

Pinus mugo "Mughus"

Mugo Pine

Ribes "Pixwell" Pixwell

Gooseberry

Ribes "Red Lake"

Red Lake Currant

Ribes aureum

Golden Currant

Ribes inerme

White Stem Gooseberry

Rosa foetida "bicolor"

Austrian Copper Rose

Rosa glauca rubrifolia

Red Leaf Rose

Rosa harrisoni

Harrison's Rose

Rosa rugosa "Hansa"

Hansa Rose

Rosa woodsii

Woods Rose

Sambucus microbotrys (racemosa)

Red Elderberry

Shepherdia argentea

Silver Buffaloberry

Sorbaria sorbifolia

Ural False Spirea

Spirea bumalda

All S. bumalda varieties

Spirea Vanhouttei	Vanhoutte Spirea
Syringa sp	Most other Lilac Varieties
Syringa vulgaris	Common Purple Lilac
Syringa vulgaris alba	Common White Lilac
Syringa X prestoniae "Donald Wyman"	Donald Wyman Lilac
Syringa X prestoniae "James McFarlane"	James McFarlane Lilac

Specific Watering Instructions - Group 2:

Establishment watering of plants that require medium amounts of water (Examples: potentillas, hawthorns, serviceberry, Rocky Mtn. maple, Ponderosa pine). Establishment water must be made available. The following schedule must be adhered to for the success of the planting.

1st Year - Soak the root zone to a depth of 15" every week until Sept 1st, then soak once every 10 days until the ground freezes (in November). Any time extended drought conditions result in the drying of the root zone, water must be applied. During the winter the soil condition must be monitored, and water applied when the root zone is dry.

2nd Year - Soak the root zone to a depth of 15" once every week beginning April 1st until June 30th. After June 30th soak the root zone to a depth of 15" once every 10 days until the ground freezes. Any time extended drought conditions result in the drying of the root zone, water must be applied. The plants will have to be monitored closely for drought stress and watered if too dry. During the winter the soil condition must be monitored, and water applied when the root zone is dry.

3rd year and beyond - Soak the root zone to a depth of 15" at the beginning of the season and once every 2 weeks until the ground freezes (in November). The plants will have to be monitored closely for drought stress and watered if too dry. Any time extended drought conditions result in the drying of the root zone, water must be applied.

Group 3:

Grasses, shrubs, and trees in this classification require more water than those in group 2. Group 3 plants need to be planted in areas that get regular irrigation. Group these plants in moist areas or along water ways or in irrigated environments.

Trees - Deciduous

Acer ginnala	Ginnala Maple (Small)
Alnus incana, ssp tenuifolia	Thin leaf Alder (Small)
Populus acuminata	Lanceleaf Poplar (Large)
Populus angustifolia	Narrowleaf Cottonwood (Large)
Populus balsamifera	Balsam Poplar (Large)
Populus deltoides ssp monolifera	Plains Cottonwood (Large)
Populus tremuloides	Quaking Aspen (Large)

Trees – Evergreen

Abies lasiocarpa	Subalpine Fir (Large)
Picea engelmannii	Engelmann Spruce (Large)
Picea glauca densata	Black Hills Spruce (Large)
Picea pungens	Colorado Spruce, all colors (Large)

Lawn Grasses from seed (Note: normally requires irrigation at least once every five days.)

Festuca rubra	Creeping Red Fescue
Poa pratensis	Kentucky Bluegrass
Poa hybrid	Armadillo Hybrid Bluegrass
Festuca sp.	Tall Fescue Varieties

Shrubs

Acer glabrum	Rocky Mt. Maple
Betula fontinalis	River Birch
Betula glandulosa	Bog Birch
Distegia involucrata	Twinberry Honeysuckle
Salix sp.	All shrub willow varieties
Swida sericea (Cornus stolonifera)	Red Twig Dogwood
Syringa palibin meyeri	Dwarf Korean Lilac

Specific Watering Instructions - Group 3:

Establishment watering of plants that require the most water (Examples: Colorado spruce, aspen, cottonwood, and most non-native trees, red twig dogwood, alder, willow). Establishment water must be made available. The following schedule must be adhered to for the success of the planting.

1st Year - Soak the root zone to a depth of 15” every week until the ground freezes (in November). Any time extended drought conditions result in the drying of the root zone, water must be applied. During the winter the soil condition must be checked monthly, water should be applied when the root zone is dry.

2nd Year - Soak the root zone to a depth of 15” once every week beginning April 1st until June 30th. After June 30th soak the root zone to a depth of 15” once every 10 days until the ground freezes. Any time extended drought conditions result in the drying of the root zone, water must be applied. The trees will have to be monitored closely for drought stress and watered if too dry. During the winter the soil condition must be checked monthly, water should be applied when the root zone is dry.

3rd year and beyond - Soak the root zone to a depth of 15” at the beginning of the season and once every 10 days until the ground freezes in November. The trees will have to be monitored closely for drought stress and watered if too dry. Any time extended drought conditions result in the drying of the root zone, water must be applied.

Planting Methods and Techniques

The following planting methods and techniques were taken from [2012 GreenCO Tree Planting Recommendations](#) and local planting standard practice in the Arkansas River Valley. Following these instructions will result in the best chance of long-term survival for your trees and other plantings.

Trees and shrubs should be planted at those times of the year during which proper root development can occur. In Buena Vista, that period is April through September.

It is the responsibility of the developer/planter to locate all underground utilities prior to undertaking any excavation. Please call 811 for assistance in locating utilities. A two day response is normal from each utility. Contact each utility for tree planting with close proximity of a utility for specifications.

Excavations prepared for balled-and-burlap or container plants should have sloping sides and be three times (3x) the width of the widest part of the root ball, and have a depth equal to the height of the root ball.

Backfill for all plants should be 25% organic material (peat or compost) and 75% native soil. It is suggested that water be applied during or immediately after planting. After a deep soaking with water, additional backfill soil will need to be used to fill any holes created by settling. Let the soil settle on its own. Tamping wet soil will compact it, which is not desirable for the plant. Additional backfill must be applied before the landscape fabric and mulch is installed. After the plant is completely installed, and the watering dish is completed, additional watering is recommended to ensure complete saturation of the root ball and surrounding backfill.

Plants shall always be handled by their container or by the metal handles on balled-and-burlap plants. Under no circumstances should plants be dragged, lifted, or pulled by the trunk or foliage parts.

All twine, rope and plant labels secured around the trunk of a tree shall be removed after planting is completed.

Trees or shrubs that have root balls secured in a wire basket shall have 1/3 to 1/2 of basket removed after the plant is placed in the planting pit and before backfilling occurs. Burlap shall be removed to the maximum extent possible while maintaining the integrity of the root ball (minimum of one-third (1/3) of the burlap shall be removed).

Warranty Period – Check with your landscaping provider for their warranty period and installation requirements. If the plant does not survive during that warranty period, contact your provider/contractor about replacement of the dead materials.

Protecting Your Investment – The Next Steps

Staking and Guying of Trees

All trees over 4-feet tall must be staked and guyed to keep the root ball stable for the first full year after planting. Each tree should be guyed for one year on at least two (2) sides utilizing grommated fabric tree straps at least one-inch (1") wide to keep the tree and root ball stable. The tree trunk should be able to move one-inch (1") in any direction. Rubber hose or bare wire shall not be used to stabilize a tree. Be sure to tighten the guy wires when they need to be tightened, as they will loosen as time goes on. The guy wires and stakes must then be removed after the one year anniversary. Removal of the guy wires after one year is very important to allow the trees to strengthen properly. **Detail #1 and Image #1**

Wood Chip Mulch

Place medium sized decorative bark or shredded cedar wood-chip mulch in the tree watering dish. The mulch will reduce water evaporation from the soil and discourage competing weeds. Make sure the mulch is less than 1-inch deep immediately at the crown of the plant and about 2-inches deep in the remainder of the dish.

Deer Protection

Protection from browsing deer or antler rubbing by the deer or elk is strongly suggested. Install protection within two days of planting. Weld-wire fence, formed into a tube large enough for protection of the plants is recommended. The fence is attached to the ground with 2-foot long rebar stakes driven into the ground at the base of the fence or wired to steel "T" posts which would be installed to stake & guy the trees. Shrubs and junipers may not be a target of heavy browsing, but it is the responsibility of the owner to protect them if they begin sustaining damage. **Detail #3**

Protection from wind

In new development areas, evergreen trees (Ponderosa pine, Colorado spruce and others) should have snow fence installed at the time of planting. This 4' tall snow fence should remain in place for two full winters to protect the evergreens from wind and animal damage while becoming established. Junipers should be covered with burlap for the first winter.

Water Supply

An irrigation system with a timer is strongly recommended for all tree plantings to maximize watering efficiency and promote healthy tree growth.

If a drip irrigation system is installed, the system must be extended outward as the tree roots expand. Sprayers work quite well for this design. Check emitters often to ensure adequate water is reaching the plant roots.

If a sprinkler system is installed, consider the roots of existing plants and trees during the design phase. Plants/trees with severed roots will need additional water while growing new roots. Design to minimize damage to bark from the pressurized water. Ensure the system is providing the correct amount of water. Irrigate when the air is calm and temps are cool.

When watering is performed by hand hoses, the watering dishes which are built around the plants should be filled with water and then given time to soak in, then filled again, and then again (3 times filling dish). This will assure that there is enough water to soak to the bottom of the roots. At planting time, these watering dishes should be 2.5 times the diameter of the original root ball with a berm 3-4 inches high. Fill the dish with mulch to reduce evaporation. They will have to be rebuilt occasionally as they will erode. Never count on the rainfall to be enough water for your newly planted plants. Stick to your watering schedule, no matter how much rain we get.

Tree Watering: Amount of water needed

During a drought, trees must be given top watering priority over your lawn. However, caring for trees requires different watering methods than your lawn. During water restrictions, irrigation systems designed to water turf do not sufficiently water your trees. During a drought, trees should be given a higher priority than lawns. Lawns can be replaced in a matter of months whereas a 20 year old tree will take 20 years to replace.

How much water your tree should receive depends upon the tree size. A general rule of thumb is to use approximately 10 gallons of water per inch of trunk diameter for each watering. Measure the trunk diameter at knee height. General formula: Tree Diameter x 5 minutes = Total Watering Time.

Understanding Tree Roots

Tree root systems consist of large perennial roots and smaller, short-lived, adsorbing roots. The large, woody tree roots and their primary branches increase in size and grow horizontally. At least 90% of large roots are located in the top 12" inches of the soil. Root functions include water and mineral conduction, food and water storage, and anchorage.

In contrast, adsorbing roots, although averaging only 1/16 inch in diameter, constitute the major portion of the root system's surface area. These smaller roots grow outward and predominantly upward from the large roots near the soil surface, where minerals, water and oxygen are relatively abundant. The major function of adsorbing roots is the absorption of water and minerals.

Large roots and small adsorbing roots occupy a large area underground. Typically, the root system of a tree extends outward well past the drip-line, up to two to four times the height of the tree.

Remember, all trees' root systems will increase in spread as the plant becomes established. You must apply water to the soil where the roots are. Soaking the full width and depth of the root zone every time the plant is watered is extremely important. A tree that has been planted for five years may have a root system that spreads 5-6 feet in every direction. You must supply water where those roots are located for the tree to remain healthy.

Rodent, Gopher, Rabbit, and Ground Squirrel Damage

It is the responsibility of the owner to anticipate and prevent small animal damage. Plants which die due to damage by animals will need to be replaced during the warranty period. Gopher tunnels in the root area of the tree must be broken down, as soon as they are noticed to prevent the drying of the plant's roots. Removal of the animal that is digging under your tree is a must.

Definitions

Backfill: The soil used to fill in around a plant being planted.

Balled-and-burlap: A method to harvest large plants and trees out of a field or natural setting. Plant roots are severed, leaving a ball of soil around the intact roots. Burlap and nails are used to keep the soil in place. The burlap roots and soil may then be placed in a wire basket for easier handling.

Caliper: The diameter of the trunk of a tree measured at a point six inches (6") above the ground surface.

Drip Line: The circle that would be drawn on the ground surface around a tree directly under and corresponding to the perimeter of its outermost branch tips.

Root ball: Refers to the soil and root mass associated with potted plants and balled-and-burlap trees.

Tree: Includes trees, perennial plants and shrubs of all kinds for the purpose of this document.

Tree Board: The citizen volunteer board created by Section 2-201 of the Buena Vista Municipal Code.

Tree, large: A tree with a projected maximum height at maturity greater than forty feet (40').

Tree, medium: A tree with a projected maximum height at maturity of between twenty (20') and forty (40') feet.

Tree, small: A tree with a projected maximum height at maturity of not greater than twenty feet (20').

Tree Lawn: A landscaped area lying between the curb or pavement edge of a street and the adjacent property, and which may be traversed by sidewalk.

Xeriscaping: A landscape design and construction technique which incorporates the following seven principles of water conservation: Proper planning, soil improvement, limited turf area, efficient irrigation, the proper use of mulches, use of native and drought tolerant plants, and proper maintenance. Plants in Group 1 of the guide are appropriate for xeriscaping in the Town of Buena Vista.

Watering dish: A berm constructed outside a plant's perimeter made from soil, rock or other materials to keep water contained around a plant while watering.

References

www.csfs.colostate.edu

www.greenco.org

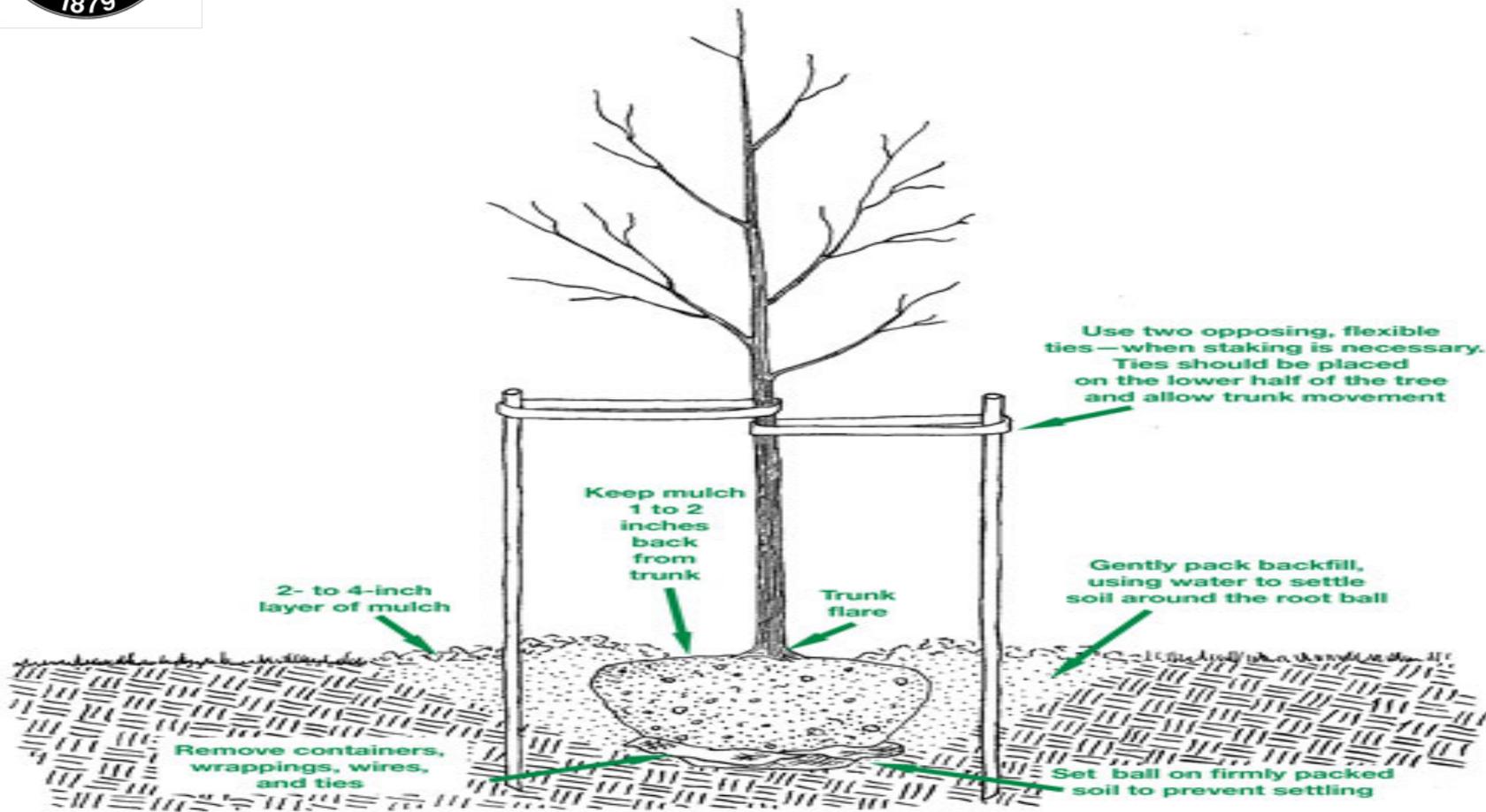
www.treeownersmanual.info

www.isa-arbor.com

www.epa.gov/watersense/

www.buenavistaco.gov

<http://www.colostate.edu/Dept/CoopExt/4dmg/Trees/caring.htm>



Standard Tree Planting and Staking Detail

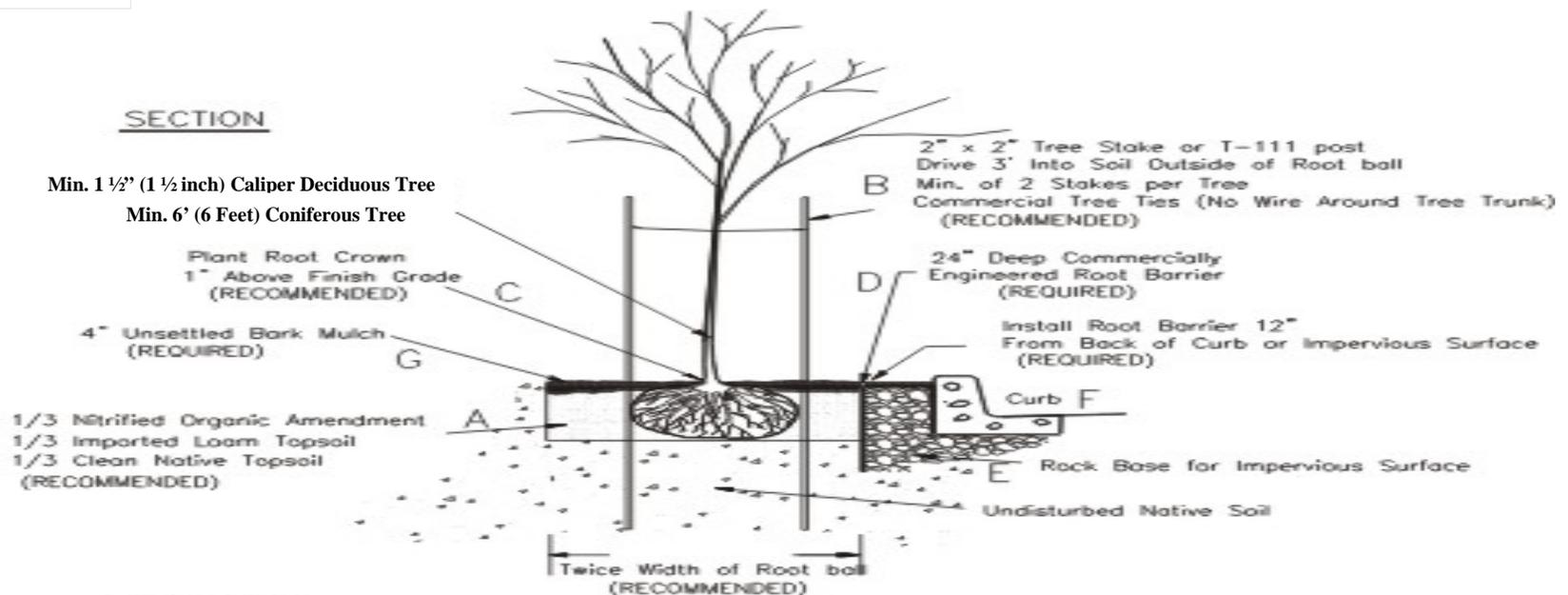
February 1, 2016

Detail #1



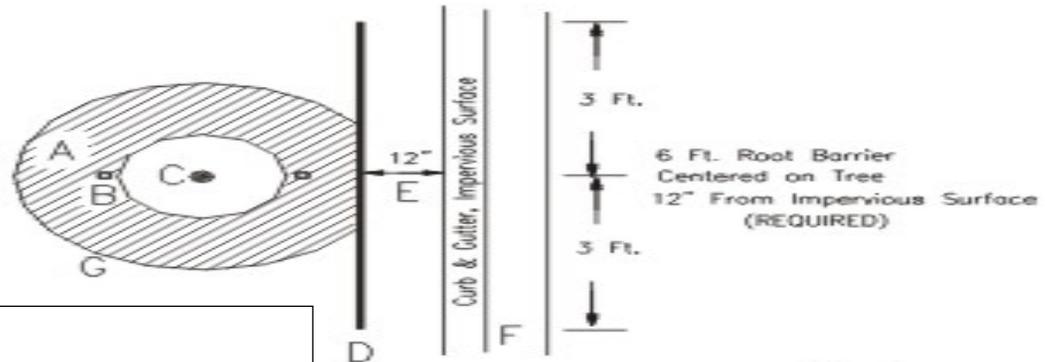
SECTION

Min. 1 1/2" (1 1/2 inch) Caliper Deciduous Tree
 Min. 6' (6 Feet) Coniferous Tree



PLAN VIEW

- A Amended Soil
- B Tree Stakes
- C Root ball
- D 24" Root Barrier
- E Rock Base
- F Curb or Impervious Surface
- G 4" Unsettled Bark Mulch



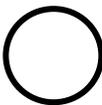
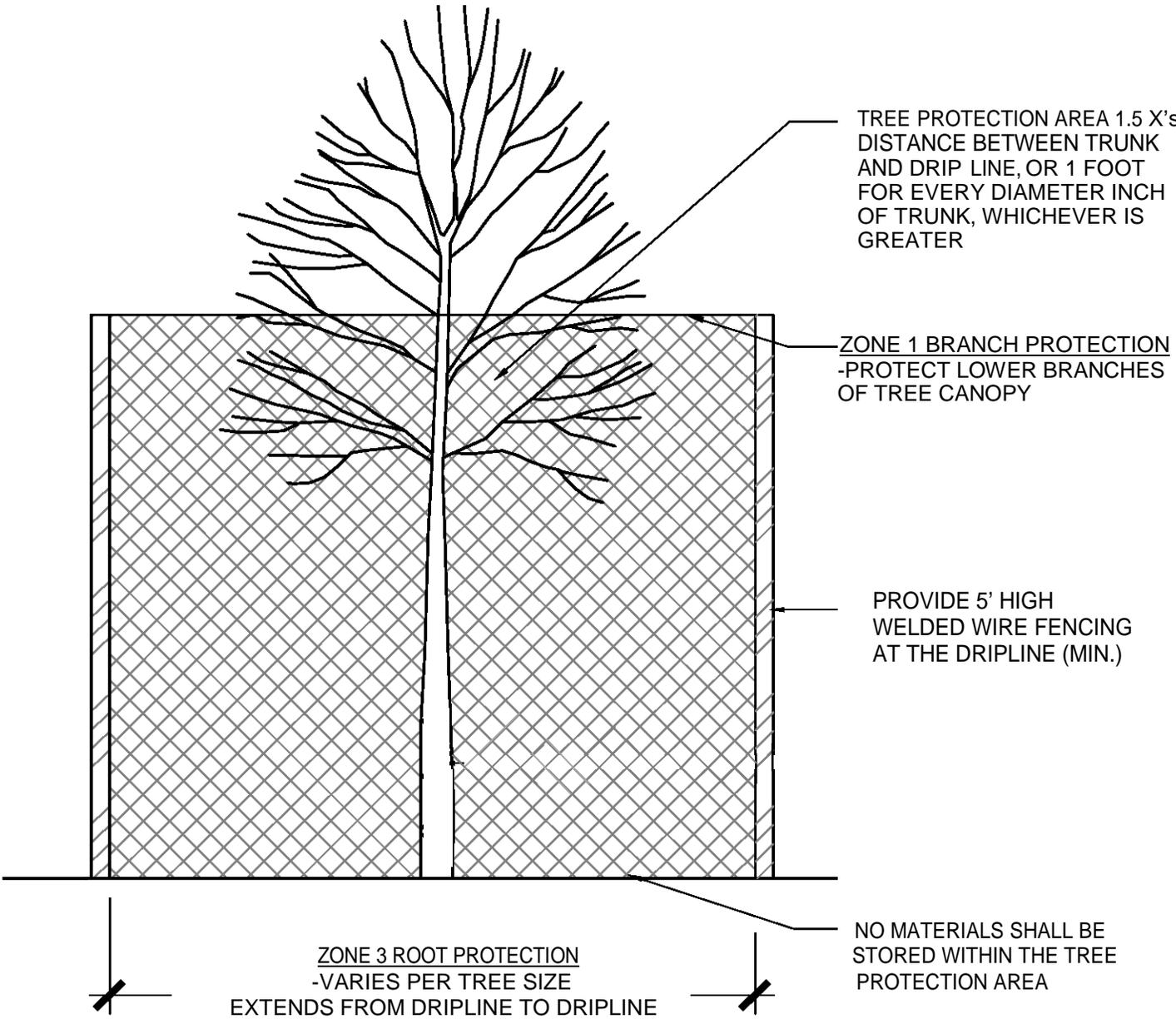
FILE: tree
 P. Young, 1/20/05

Small Tree Planting and Staking Detail
 February 1, 2016

Detail #2

Detail #3

February 1, 2016



TREE PROTECTION

SCALE: NTS

Image #1



Image #2



Image #3

