

MILLCREEK CITY CENTER
Urban Forestry Standard

City of Millcreek, Utah



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Millcreek City Community Development

Planning and Zoning

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1 Introduction

A. Purpose

This manual is a supplemental tool meant to assist in the implementation of Millcreek's General Plan and City Center Master Plan, and to provide standards for the selection, placement, installation and care of street trees in the City Center.

Existing city documents provide some guidance and narrative for street trees. The **Millcreek Together General Plan** identifies several goals that include street trees:

Character. Goal N-1: Preserve and enhance the physical elements that define each neighborhood's character.

*Strategy 1.3: Identify neighborhood natural features such as **trees**, waterways, and open spaces, and incorporate them into project design.*

Sustainability. Goal E-7: Promote environmentally sustainable efforts and initiatives in the public and private sector.

*Strategy 7.1: Encourage the integration of environmentally sustainable and cost effective best practices and technology in public infrastructure investments, such as **street trees**, permeable paving, green spaces, bicycle parking, electric vehicle charging stations, etc.*

Streetscape. Goal GC-3: Improve the safety and visual image of the community by enhancing the look and feel of major corridors and protecting our scenic viewsheds.

*Strategy 3.1: Improve streetscape aesthetics on major roadways by incorporating decorative paving, **street trees**, landscaped medians, pedestrian and vehicular lighting, and street furnishings such as bicycle rings, bollards, garbage/recycling receptacles, and undergrounding utility infrastructure.*

Tree Canopy. Goal HE-2: Promote a healthy and diverse tree canopy to enhance neighborhood liveability, provide habitat, and improve air and water quality.

Strategy 2.1: Develop a Street Tree Master

Plan to guide overall management and preservation of the tree canopy throughout the City. The Street Tree Master Plan should guide planting trees along streets during development and redevelopment, and should designate appropriate tree species for plantings.

Strategy 2.2: Encourage the planting of new trees and protect Millcreek's urban tree canopy by:

- Requiring a no net loss policy for the City's urban tree canopy by maintaining and preserving existing trees, replacing trees that need to be removed, and planting new trees on public and private property.
- Maintaining Tree City U.S.A. standards.
- Update the landscape ordinance in a manner to maximize the number of trees required for projects.



High quality street trees can impact neighborhood value and character.



Urban spaces need good tree canopy cover for improving human comfort.



Tree coverage creates spaces that people enjoy, feel safe in, and will linger in.



The **Millcreek City Center Master Plan, Chapter 4.C Streetscapes** states that:

"The City Center should have a consistent brand and aesthetic that identifies it as a distinctive destination... The City should also establish a set of landscape guidelines. These guidelines will indicate acceptable/unacceptable materials; paving types; recommended plant lists, planting minimums, green buffers..."

And the **Millcreek Code of Ordinances, Chapter 19.73 City Center Overlay Zone, section 19.73.070.E** states that:

"street trees shall comply with the Millcreek City Center Urban Forestry Standards".

The intention of this document is to clearly state the city's goals for street trees within the City Center, and help applicants understand and comply with city ordinances related to urban forestry. Proper application of these standards will promote a consistent appearance for all streets within the Center, ensuring that Millcreek City Center achieves the desired aesthetic and identity.

B. Rationale

The benefits of street trees are numerous. Studies have shown that high quality street trees bring increased property values, increase retail spending, and impact the way individuals feel about their communities. Additionally, a good quality tree canopy can have many positive environmental impacts including reduction in the 'heat island' effect in urban space, and significant reduction in storm water runoff during major rain events.

Millcreek City desires a long-term quality investment in community quality in the City Center Area. This document outlines how those requirements will be specified.

C. Goals

It is the intent that all new development within the City Center will upgrade the adjacent Right of Way (ROW) in accordance with the City Center Master Plan. Street trees will be an integral part of the City Center, and all new development within the City Center should achieve the following goals:

1. Conform with the General Plan, the City Center Master Plan, and the City Center Overlay Zone (CCOZ);
2. Improve the City's image and brand;
3. Enhance the visual appearance of streetscapes;
4. Create a unique identity for each street;
5. Establish opportunities for sustainable storm water management;
6. Encourage water conservation;
7. Support a diversity of plants suited to local conditions; and
8. Sustain and improve the City's urban forest.



2 Street Map and Tree Guide

In order to create a unique identity for each street in the Millcreek City Center, a unique tree has been selected for every street within the City Center District. The trees are selected to best fit the character, scale, and use of the street that they have been designated for. The streets are shown in Figure 2.1 (Millcreek City Center Urban Forestry Map) and their attributes are described in Table 2.1. The list of trees chosen for the City Center is given in Table 2.2.



Street trees add value to neighborhoods.

TABLE 2.1 - Millcreek City Center Street Inventory

STREET NAME	STREET TYPE*	ROW[†]	STREET BUFFER TYPE[†]	MEDIAN[†]
3300 South	Principal Arterial	96'+10'	6' Park strip	12' Possible
Richmond Street	Minor Arterial	90'+10'	6' Park strip	12' Possible
1300 East (S of 3300)	Minor Arterial	90'+10'	6' Park strip	12' Possible
Highland Drive (N of 3300)	Major Collector	66'+10'	Tree grate	10' Possible
Highland Drive (S of 3300)	Minor Arterial	66'+10'	Tree grate	10' Possible
Elgin Avenue	Neighborhood	61'-90'	6' min, strip/grate	No
Villa Vista Avenue	Neighborhood	61'-90'	6' min, strip/grate	No
Miller Avenue	Neighborhood	61'-90'	6' min, strip/grate	No
Woodland Avenue	Neighborhood	61'-90'	6' min, strip/grate	No
Chambers Avenue	Neighborhood	61'-90'	6' min, strip/grate	No
3345 South	Neighborhood	TBD	TBD	No
Luck Lane	Neighborhood	TBD	TBD	No
FUTURE STREET	STREET TYPE	ROW	TREE LOCATION	MEDIAN
Millcreek Common	Common	Varies	6' min, strip/grate	The Common
New Laneways/Paths	Laneway	30'	Tree grate	No
New Woonerf	Woonerf	40'	Island & grate	No

* Street type according to Millcreek 2018 Transportation Master Plan

[†] ROW, Street Buffer, Median info based on Millcreek City Center Overlay Zone, Ordinance 19-57, dated 2019/12/16





FIGURE 2.1 - Millcreek City Center Urban Forestry Street Map. The boundary of the City Center is indicated with a dashed line.

TABLE 2.2 - Millcreek City Center Street Tree List

Common Name	Botanical Name	Cultivar	Height	Spread	Recommended Street
Large Trees					
Honeylocust	<i>Gleditsia triacanthos</i>	Shademaster, Skyline	40-50'	25-40'	Richmond Street
Accolade Elm	<i>Ulmus x 'Accolade'</i>	Accolade	50-60'	30-40'	Millcreek Common Highland Drive
Zelkova	<i>Zelkova serrata</i>	Village Green, Green Vase	40-55'	30-50'	3300 South
Small Trees					
Bigtooth Maple	<i>Acer grandidentatum</i>	Rocky Mt Glow, Mesa	20-30'	15-25'	Marketplace streets
Paperbark Maple	<i>Acer griseum</i>		20-25'	15-25'	Villa Vista Avenue
Sunset Maple	<i>Acer truncatum</i>	Ruby Sunset	25'	20'	Chambers Avenue
Eastern Redbud	<i>Cercis canadensis</i>		20-30'	25-35'	Woodland Avenue
Flowering Crabapple	<i>Malus spp.</i>	Spring Snow, fruitless varieties only	20-25'	15-20'	Elgin Avenue
Kwanzan Cherry	<i>Prunus serrulata</i>	Kwanzan	15-25'	15-20'	new laneways
Frontier Elm	<i>Ulmus x 'Frontier'</i>	Frontier	30-40'	20-30'	Highland Drive
Zelkova	<i>Zelkova serrata</i>	City Sprite	20-25'	15-20'	Miller Avenue
Zelkova	<i>Zelkova serrata</i>	Wireless	20-25'	30-35'	under powerlines



Acer grandidentatum
BIG TOOTH MAPLE

(Z3) Native, full sun, water-wise.

Slow growing tree grown in either single or clump form. Orange to pink to red fall color. Native to the Rocky Mountains, it can tolerate any well-drained soil; sand, loam, clay, limestone or calcareous. Glossy leaves and bold fall color distinguish the 'Mesa Glow' cultivar. Rocky Mountain Glow is a native selected from SLC area, grafted to sugar maple root stock.

H 20-30' W 15-25'



Acer griseum
PAPERBARK MAPLE

(Z5) Full sun to part shade

Slow growing maple with an oval to rounded crown and open habit. Striking cinnamon-brown exfoliating bark. Soft green leaves change to deep red in fall.

H 20-25' W 15-25'



Acer truncatum 'Ruby Sunset'
RUBY SUNSET MAPLE

(Z4) Fall color, low maintenance, street tree.

Elegant foliage stays fresh and glossy throughout the growing season. A great choice for smaller sites requiring a more compact tree.

H 25' W 20'



Cercis canadensis 'Eastern'
EASTERN REDBUD

(Z5) Full sun.

Graceful arching small tree. Small rosy pink flowers cover branches in early spring. Large, heart-shaped, green leaves turn yellow in fall.

H 20' W 20'



Gleditsia triacanthos var. *inermis*

HONEYLOCUST

(Z3) Full sun.

Deciduous, upright tree with a spreading crown and ascending branches. Compound foliage is dark green, turning to yellow in the fall. Great shade tree for filtered shade requirements. Very salt tolerant .

H 45' W 35'



Malus 'Spring Snow'

SPRING SNOW CRABAPPLE

(Z4) Full sun.

Profuse white flowers in spring are followed by medium green foliage. Yellow fall color. Fruitless.

H 25' W 22'



Prunus serrulata 'Kwanzan'

KWANZAN FLOWERING CHERRY

(Z5-9) Full Sun. Flowering, ornamental tree

The Kanzan cherry is a popular cultivar of the double-flowering cherries, thanks to its stunning pink blossoms, good fall color, lack of fruit, and vase-shaped form. It is a splendid specimen that can be planted in containers, along walks and streets, and in buffer strips.

H 20-25' W 15-20'



Ulmus x 'Accolade'

ACCOLADE ELM

(Z4) Full sun. Deciduous Shade Tree

Vase shaped, medium to large, deciduous elm. Glossy dark green foliage and good yellow fall color. Has excellent resistance to Dutch elm disease (DED). Use along streets and in large yards.

H 50-60' W 30-40'





Ulmus 'Frontier'

FRONTIER ELM

(Z4) Full sun. Fall color.

*Deciduous upright-pyramidal tree with proven superior resistance to Dutch elm disease. Smooth, grey-green bark and remarkable fall foliage colors of red-purple. A U.S. National Arboretum introduction, it is a hybrid of *U. carpinifolia* and *U. parvifolia**

H 30-35' W 20-25'



Zelkova serrata 'City Sprite'

CITY SPRITE ZELKOVA

(Z5) Full sun, water-wise.

Upright, fast-growing tree with a vase-shaped structure. The dark green, foliage turns orange to bronze-red in the fall. Tolerant of heat, drought, windy and urban conditions. Shade tree. Small form is ideal for smaller spaces.

H 24' W 18'



Zelkova serrata 'Green Vase'

GREEN VASE ZELKOVA

(Z5) Deciduous Shade Tree, Waterwise, fall color

A deciduous, upright, fast-growing tree with a vase-shaped structure. The dark green, fine textured foliage turns orange to bronze-red in the fall.

H 50' W 35'



Zelkova serrata 'Village Green'

VILLAGE GREEN ZELKOVA

(Z5) Full Sun. Pest and disease resistant

The Village Green Zelkova is a large shade tree with a graceful shape, clean foliage, attractive bark, and varying autumn color.

H 40-60' W 30-50'



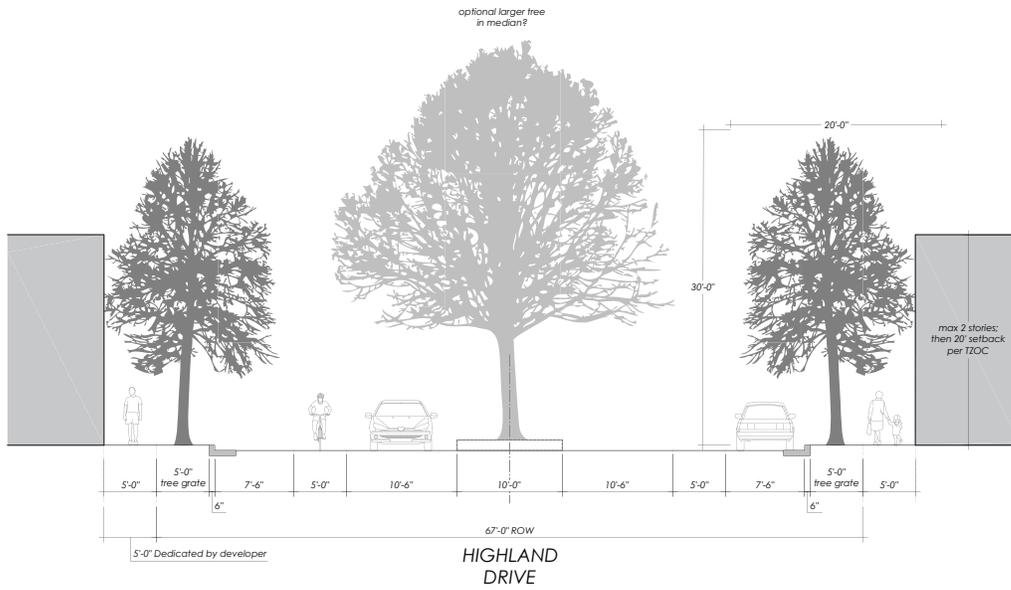
Zelkova serrata 'Wireless®'

WIRELESS ZELKOVA

(Z5) Full sun, water-wise.

Broadly spreading vase. Medium green foliage turns red in fall. Excellent choice for planting under utility lines.

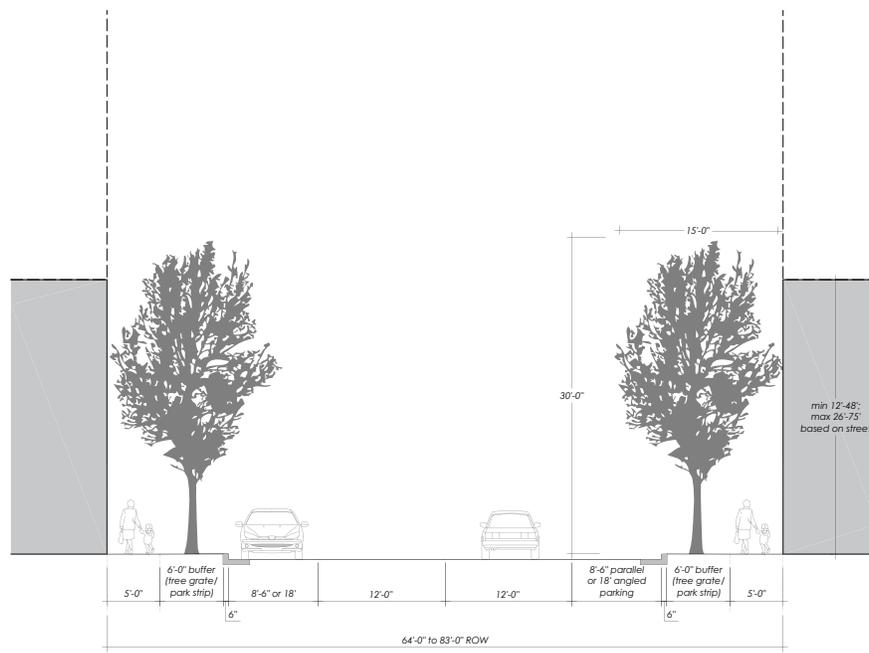
H 24' W 36'



Millcreek City Center Urban Forestry Standards

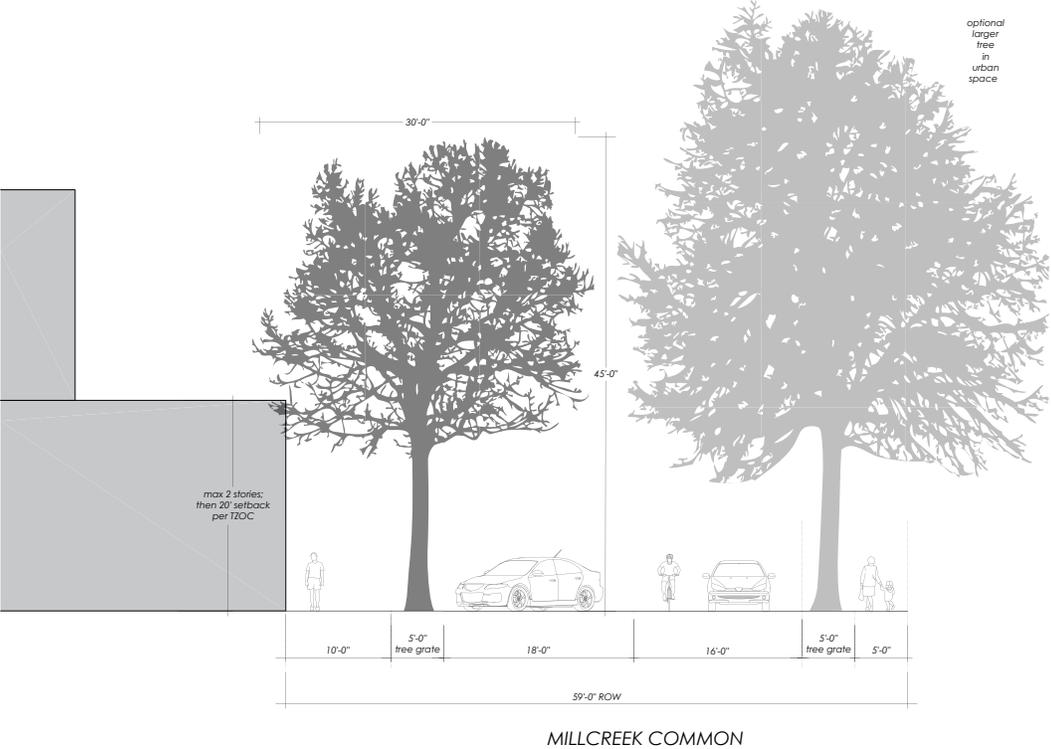


3300 South



NEIGHBORHOOD STREET





3 Planting Requirements

A. Intent:

The intent of these requirements is to establish consistent planting guidelines for street trees, to maintain the appearance of park strip trees, to allow access for repair and maintenance of public utilities, to encourage water conservation, and to set guidelines for tree care and maintenance.

B. Applicability:

The requirements of this section shall apply to all “park strips”, as defined in the appendix, except as otherwise noted:

Discretionary Authority: The zoning administrator may modify the standards of this section to address site specific conditions.

C. Approval Process

Trees installed as part of new construction or redevelopment:

Trees shall be approved as part of a site plan approval process found in Section 19.73.030 of the Millcreek Code.

Trees installed as part of streetscape enhancement or replacement of existing trees:

Trees shall be planted in accordance with the standards provided herein and subject to the approval of the Millcreek Planning and Zoning and Millcreek Public Works Departments.

D. General Park Strip Requirements:

1. Property Owner Responsibility: All park strips shall be landscaped by the abutting property owner, in conformance with the provisions of this section. For permits involving new construction of a principal building, the contractor shall be responsible for landscaping the park strips as part of the building permit. In general, this landscaping will involve improving the ground surface of the park strip with trees and plant material, or hard surface treatments with tree grates where permitted.

2. Maintenance: All park strip landscaping shall be maintained in a safe and well



Small/medium sized street trees below power lines.

kept condition by the abutting property owner. Trash, other debris, and noxious weeds shall not be allowed to collect or grow in these areas.

3. Watering: Sufficient water shall be provided by an “operable irrigation system” for locally appropriate vegetative ground cover, annuals, perennials, shrubs and trees to keep them in a healthy condition. “Operable irrigation system” shall mean a fixed underground irrigation system connected to the adjacent property’s water supply, but does not include a movable hose, sprinkler or other portable watering system.

E. Park Strip Trees: Site placement requirements

1. Spacing And Size: Park strip trees are to be provided at the equivalent of at least one tree for every 40’ of street frontage (see Table 2.2) They may be clustered or spaced equally as deemed appropriate by the urban forester. Tree size shall be a minimum of two inch caliper (measured at a point 6 inches above the soil line) at time of planting.

2. Tree Grates: If new trees are proposed in a park strip in which the area surrounding the tree will have an impervious surface, the property owner responsible for installation shall ensure that tree wells with grates are provided which have dimensions adequate to accommodate the recommended tree species (e.g. 6’ x 6’ grate for any large tree). All new installation of tree grates shall be accompanied by an operable irrigation system to ensure adequate water to the tree, and structural soil shall be installed according to Millcreek City engineering standards.

3. A permit must be obtained from Millcreek City before planting any tree in a parkstrip. Tree species and location shall be approved by the city.

4. Tree selection based on mature tree size shall be determined by park strip (or tree grate) width and overhead high voltage transmission lines. Millcreek City Urban Forestry Standard specifies the following requirements:

- 36” - 59” park strip - small tree at maturity (less than 30 ft tall).
- 60” - 95” park strip - with no overhead wires - medium to large tree at maturity (30 ft or greater).
- 96” and greater park strip / central median - with no overhead wires - large tree at maturity (50 ft and greater).
- any park strip with high voltage transmission lines* – small tree at maturity (less than 30 ft tall).

* Note that overhead street light, cable, fiber optic and phone lines ARE NOT high voltage transmission lines.

5. The following setbacks shall be used for placing trees in park strips/tree grates:

- 5’ from water meter and/or utility box



Millcreek City Center Urban Forestry Standards

- 5' from residential driveway
- 5' from property line
- 10' from non-traffic conducting signage
- 10' from fire hydrant
- 15' from utility pole and/or light
- 20' from an unregulated intersection (20' back from intersecting sidewalks)
- 30' from stop signs
- 30' from commercial driveway and/or alley
- 40' from an intersection with traffic lights (40' back from intersecting sidewalks)
- 15' from a tree that is small in size at maturity (less than 30' tall)
- 20' from a tree that is medium in size at maturity (30 to 50' tall)
- 30' from a tree that is large in size at maturity (more than 50' tall)

F. Tree Planting

Trees planted in the City shall adhere to the most current version of American National Standards Institute (ANSI) A-300 (Part 6) Transplanting (Tree Planting Cue card by the Urban Tree Foundation) and the list of selected street trees for Millcreek City Center.

Selecting Quality Trees

Planting quality trees begins by choosing vigorous, structurally sound trees from the nursery. Strong trees have straight roots, a thick trunk, and one central dominant leader growing straight to the top. The root collar (the uppermost roots) should be in the top 2 inches of the root ball.

Digging the Hole

A firm flat-bottomed hole will prevent trees from sinking. Dig the hole only deep enough to position the root collar even with the landscape soil surface (finished grade). Excavate an area three times the size of the root ball. Backfill the hole with native soil once tree has been positioned. This loose soil promotes rapid root growth and quick establishment.

Installing the Tree

Great care should be taken with the new tree. Remove soil and roots from the top of the root ball to expose the root collar; cut away any roots that grow over the collar. Also cut any roots that circle or mat along the sides and bottom of the root ball. The root collar should be even with the landscape soil after planting. Main branches should be well distributed along the central leader, not clustered together. They should form a balance crown appropriate for the cultivar or



species. Backfill with soil removed from the hole. Minimize air pockets by applying water and packing gently. Build a berm 4 inches tall around the planting hole to help force water through the root ball.

Staking

Staking should either be with two stout posts driven into the ground outside the root zone of the newly planted tree with strong wire or cable tethers with thick hose or other flexible, soft protection to prevent abrasion of the tree trunk bark. Alternately, use three evenly spaced guy wires using strong wire or cable looped around the trunk at the first or second major branch and tied to strong ground stakes with even tension applied to stabilize the tree from shifting in the wind. The stakes and wires should be checked periodically to assure they are still functioning properly. After one year, the staking should be removed or significantly adjusted according to the stability of the tree.

Mulching

A layer of organic mulch, such as leaf litter, shredded bark, or wood chips, helps protect tree roots from temperature extremes and conserves soil moisture. Mulch also helps prevent grass from competing with the tree for water and nutrients. The mulched area makes it easier to operate mowers and weed eaters without hitting the trunk and compacting soil. Apply mulch to a depth of 3 to 4 inches (slightly thinner on top of the root ball).

Irrigation

Consistent irrigation is critical for establishment. 1. Apply about 3 gallons irrigation per inch of trunk diameter to the root ball 2 or 3 times a week for the first growing season. 2. Increase volume and decrease frequency as the tree becomes established. 3. Weekly irrigation the second year and bimonthly irrigation the third year should be sufficient for establishment. 4. Once established irrigation requirements depend on species, climate and soil conditions. 5. Irrigation devices should be regularly checked for breaks and leaks.

G. Tree Maintenance

Tree Maintenance in the City of Millcreek shall be performed to specifications written in accordance with American National Standards Institute (ANSI) A300 (Part 1) Tree Management Standards, and in accordance with International Society of Arboriculture Best management Practices.

Trees on Public Property and within the city right-of-way shall be pruned by the Urban Forestry Department to maintain a Due Standard of Care. Vertical clearance shall be maintained at a minimum height of 13'6" for all roads, streets throughways etc.



After Planting Care

Aftercare is essential to ensure new plantings succeed and grow. Newly planted trees shall be monitored weekly for the first three months, monthly during the next year's growth and then at six (6) month intervals for a period of five years or until they acclimate to their new environment.

Pruning

Training young trees promotes structurally sound growth and overall tree health. Cut back or remove codominant stems (stems that compete with the central leader) to encourage growth in the central leader. Early training guidelines:

1. Directing the growth of young trees is essential if mature trees are to perform properly in the landscape. Early training pruning will establish proper structure and form.
2. Shade trees that grow to be large should have one relatively straight central leader. Heading the tree is acceptable provided the central lead is retained.
3. The diameter of branches that grow from the central leader, or trunk, should be no larger than two-thirds (one-half is preferred) the diameter of the trunk measured just above the branch.
4. The largest branches should be free of bark that extends into the branch union, known as included bark (see A and B).
5. Temporary branches should be present along the lower trunk below the lowest main branch. These branches should be no larger than 3/8 inch in diameter. The trunk should be free of wounds, sunburned areas, conks (fungal fruiting bodies), wood cracks, bleeding areas, signs of boring insects, cankers, or lesions. Properly made recent pruning cuts are acceptable.
6. The trunk caliper (thickness) and taper should be sufficient so that the tree remains vertical without a stake.
7. The root collar (the uppermost roots) should be within the upper 2 inches of the solid media (substrate). The root collar and the inside portion of the root ball should be free of defects, including circling, kinked, and stem grinding roots. You may need to remove soil near the root collar to inspect for root defects.
8. The tree should be well rooted in the soil media. Roots should be uniformly distributed throughout the container. The tree's structure and growth should be appropriate for the species or cultivar. When the container is removed, the root ball should remain intact. When the trunk is lifted, both the trunk and root system should move as one.
9. The root ball should be moist throughout at the time of inspection and delivery. The roots should show no signs of excess soil moisture as indicated by poor root growth, root discoloration, distortion, death, or foul odor. The crown should show no signs of moisture stressed as indicated by wilted, shriveled, or dead leaves or branch dieback.



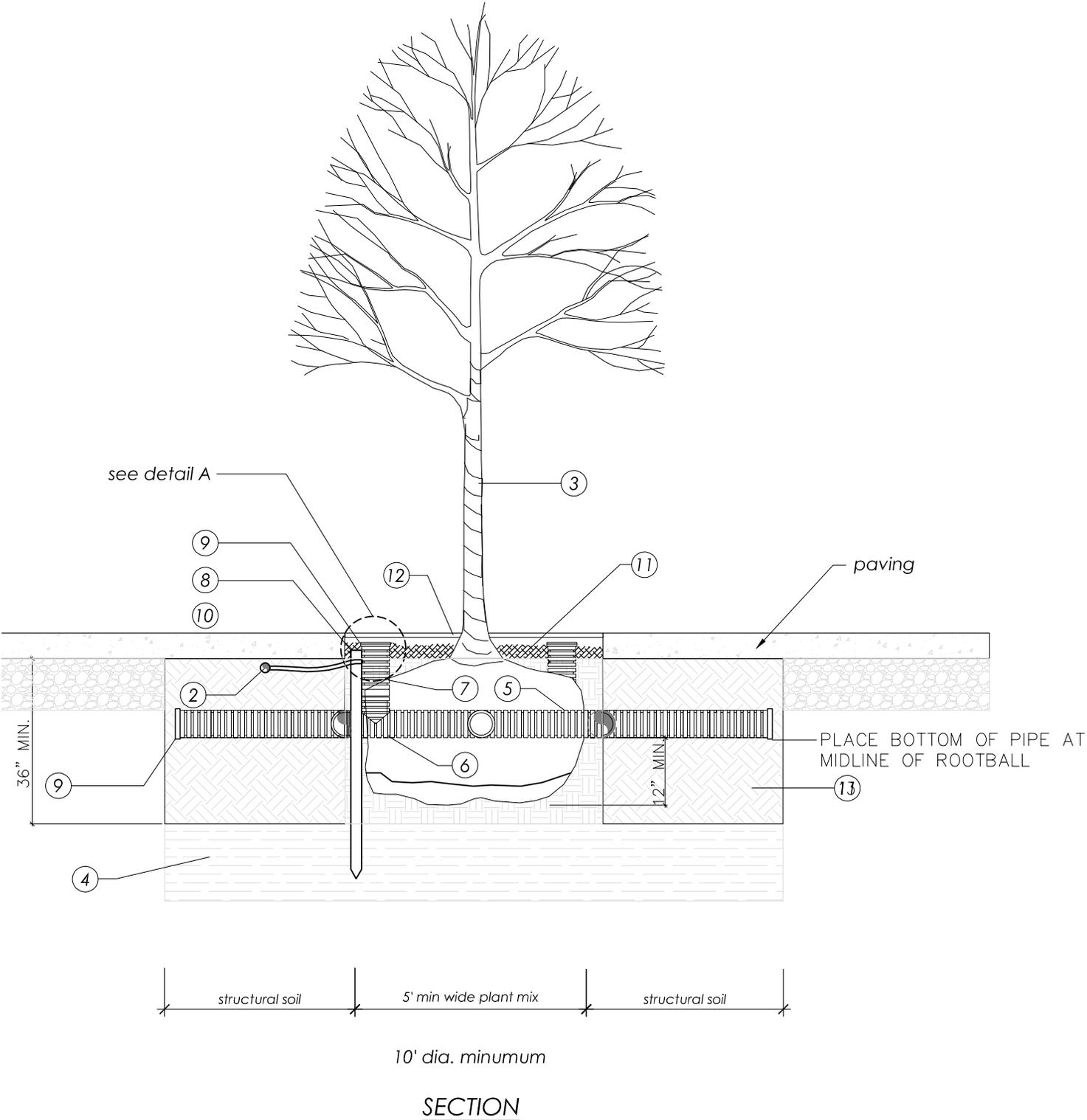
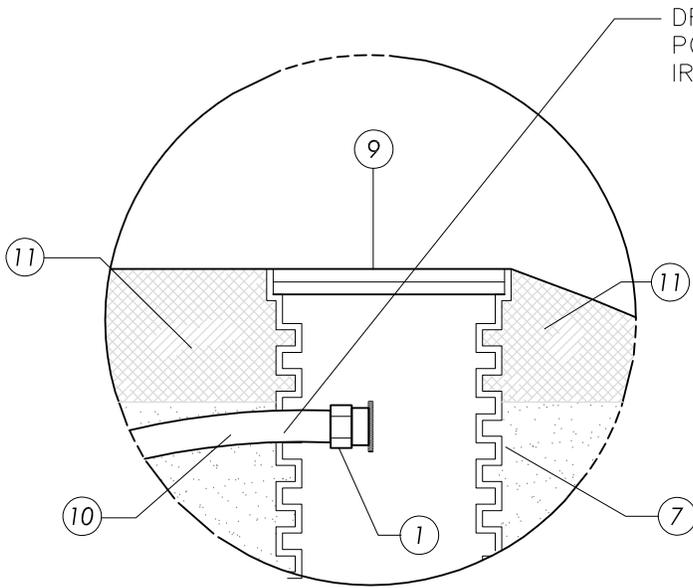
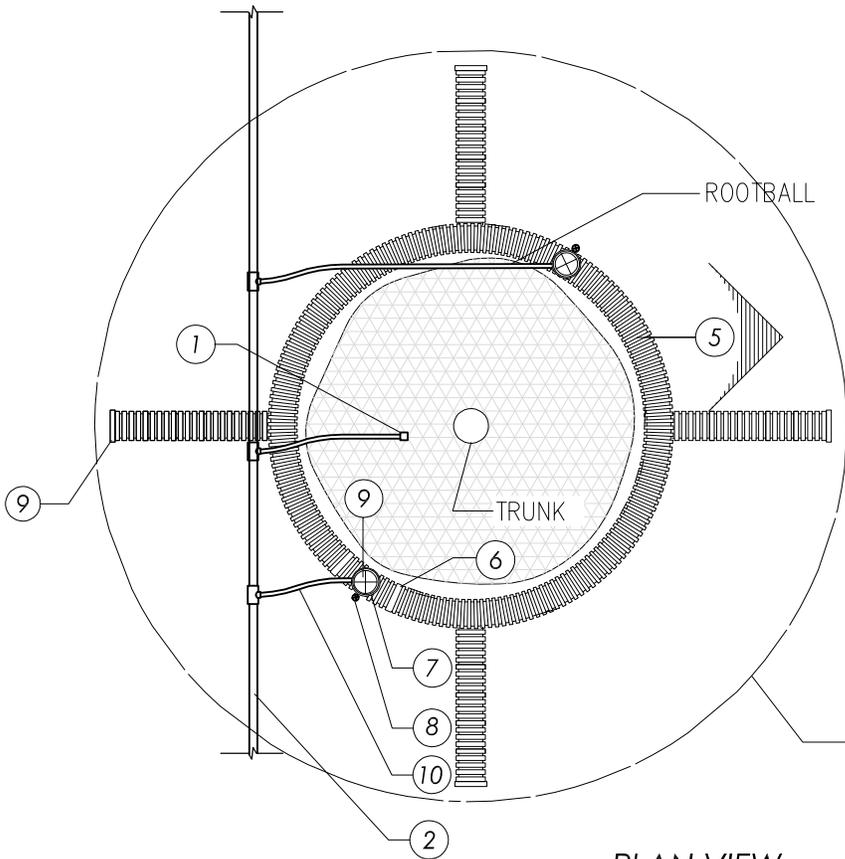


FIGURE 3.1 - Tree grate with tree ring irrigation in structural soil



DETAIL A



PLAN VIEW

DRILL HOLE THROUGH WALL OF POLYETHYLENE PIPE RISER TO ACCEPT IRRIGATION BUBBLER AS REQUIRED.

- ① BUBBLER AS INDICATED ON IRRIGATION PLAN
- ② IRRIGATION LATERAL LINE
- ③ SEE PLANTING DETAIL.
- ④ UNDISTURBED SUBGRADE
- ⑤ 4" ϕ SINGLE-WALL CORRUGATED POLYETHYLENE WATERING PIPE (PERFORATED). PLACE BOTTOM OF PIPE AT MIDLINE OF ROOTBALL.
- ⑥ 4" ϕ POLYETHYLENE SNAP TEE FITTING.
- ⑦ 4" ϕ POLYETHYLENE PIPE RISER.
- ⑧ $\frac{1}{2}$ " ϕ X 24" REBAR SET PLUMB. SECURE PIPE TO REBAR WITH WIRE TIE.
- ⑨ 4" ϕ POLYETHYLENE SOLID END PLUG.
- ⑩ $\frac{1}{2}$ " POLYETHYLENE SWING PIPE, LENGTH AS NEEDED
- ⑪ BARK MULCH
- ⑫ TREE GRATE
- ⑬ STRUCTURAL SOIL

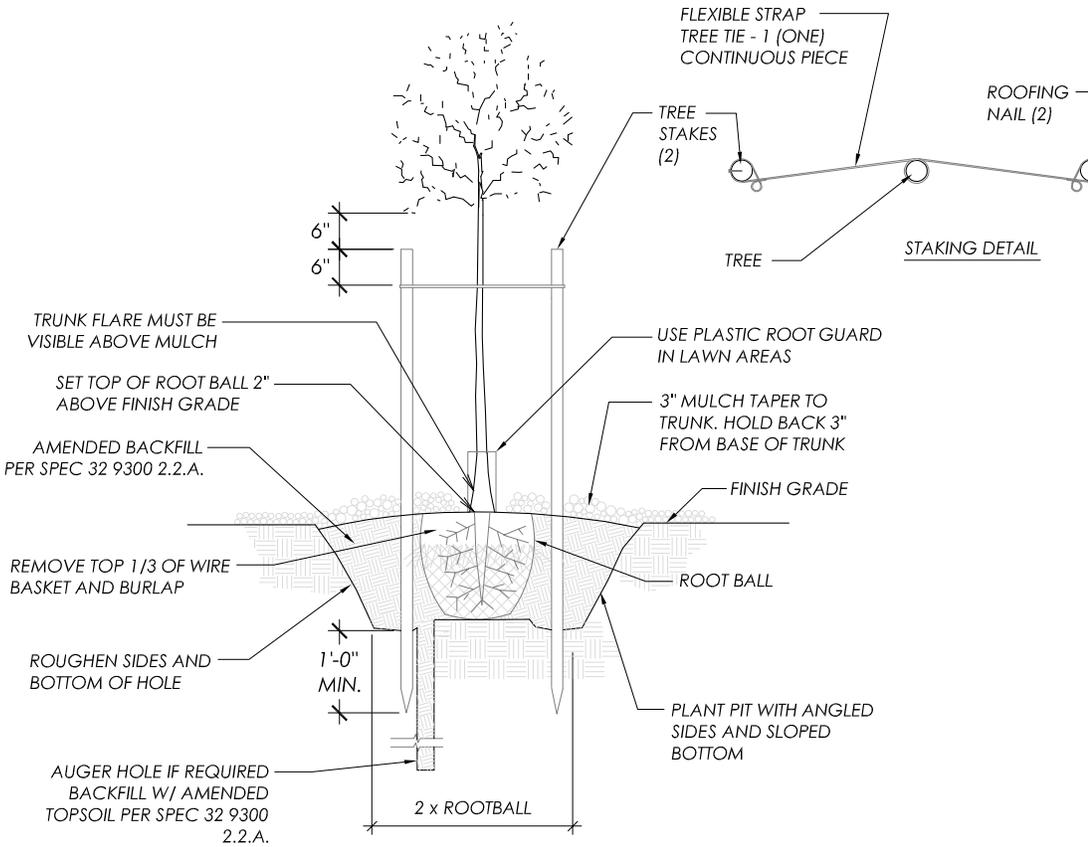


FIGURE 3.2 - Tree installation in park strip / median

4 Appendix

Additional Information:

Waterwise Plants for Utah Landscapes: <http://waterwiseplants.utah.gov/>

Jordan Valley Conservation Garden Park: <http://conservationgardenpark.org/>

State of Utah Water Division: <http://www.conservewater.utah.gov/outdooruse/Lawn/>

State of Utah Water Division: <http://www.conservewater.utah.gov/OutdoorUse/SprinklerSystem/>

USU Center for Water Conservation: <http://www.hort.usu.edu/html/CWEL/CWELOverview.htm>

Crime Prevention Through Environmental Design: <http://www.cpted.net>

