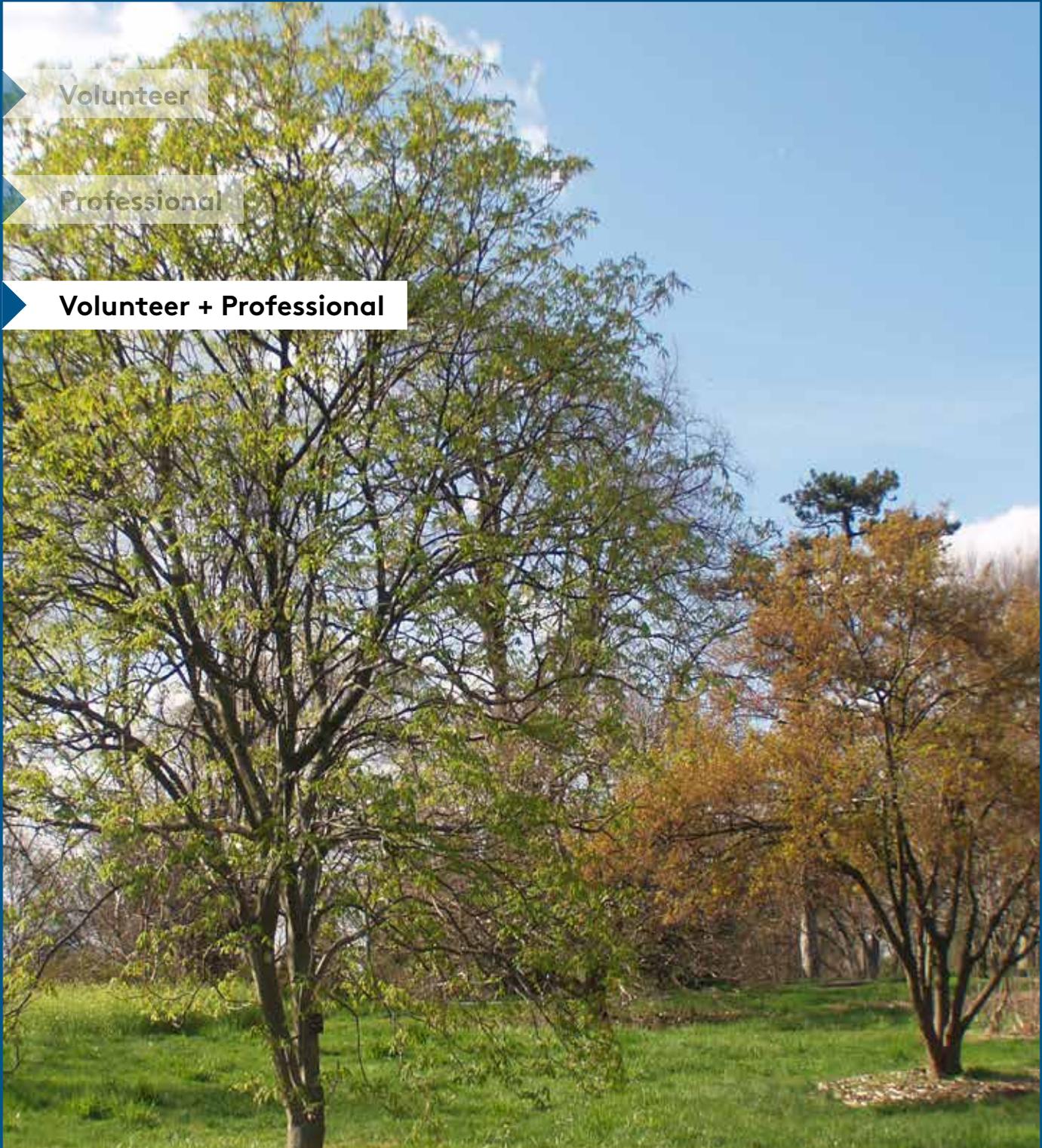


Volunteer

Professional

Volunteer + Professional



Laundry to Landscape

Image Source: Maggie_and_her_camera, "Aesculus x pavia (Red Buckeye)." 14 April 2008 via Flickr CC BY-NC 2.0.



HELLO

MY NAME IS

Laundry to Landscape

The Laundry to Landscape lot design can save water and money with its graywater harvesting system.

This lot design requires you to work with an experienced professional to disconnect your washing machine wastewater, or 'graywater', and re-route the water to your garden through pipes and trenches. Instead of traveling underground through the City's hard pipes, the graywater can stay on site and irrigate the trees and plants on your lot.

Laundry to Landscape will save water while providing a beautiful landscape amenity.

[For more information refer to DFC-lots.com](http://DFC-lots.com)

What is the lot design likely to cost?

The estimated cost of the Laundry to Landscape is moderate (\$1,000 – \$2,500) and based on utilizing volunteer and professional labor, permit requirements, plumbing, and trees. The cost assumes that residents or volunteers have access to basic safety gear and garden tools.

How much upkeep will this lot design require?

This is a low-maintenance lot design. Trees will be watered by grey water from the washing machine.

Will the installation of this lot design require a professional?

The installation of this lot design will require professional assistance for the first few steps of this lot design, unless you have experience with or a desire to learn about plumbing. The Field Guide identifies volunteer opportunities if you, with the help and support from friends, family or neighbors would like to construct the planting portion of this lot design. Please refer to the Step-By-Step section for guidance on professional and volunteer recommended steps for this lot design. If you do not feel able to tackle the volunteer aspect of this lot design, a professional can construct the full project.

How long will it take to install this lot design?

This lot design requires a professional for the completion of several steps. The projected installation time listed below is for volunteer opportunities listed in step-by-step section only. While people tackle projects differently, the Field Guide estimates installation time of the lot design to be one to two full weekends with volunteer group organized by a knowledgeable lot leader. The Field Guide recommends the help of at least eight healthy adults or youth to complete this lot design. The Field Guide assumes that the lot is 'construction ready,' and all equipment and materials required for lot design have been acquired and are ready to use.

Cost	\$50 - 1,000	\$1,000 - 2,500	\$2,500 - 5,500	\$5,500 +
People	Volunteer	Professional	Volunteer + Professional	
Experience	Beginner	Intermediate	Advanced	
Upkeep	Low	Medium	High	
Stormwater	Good	Better	Best	
Location	Residential Lot in Full Sun to Part Sun (Next to Occupied House is Ideal)			

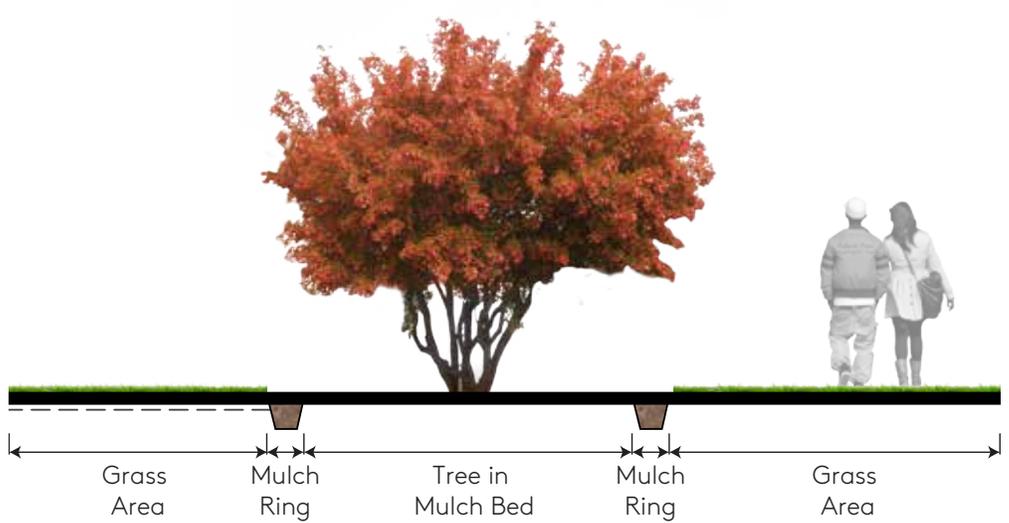
Laundry to Landscape

Examples of Trees with Mulch Rings

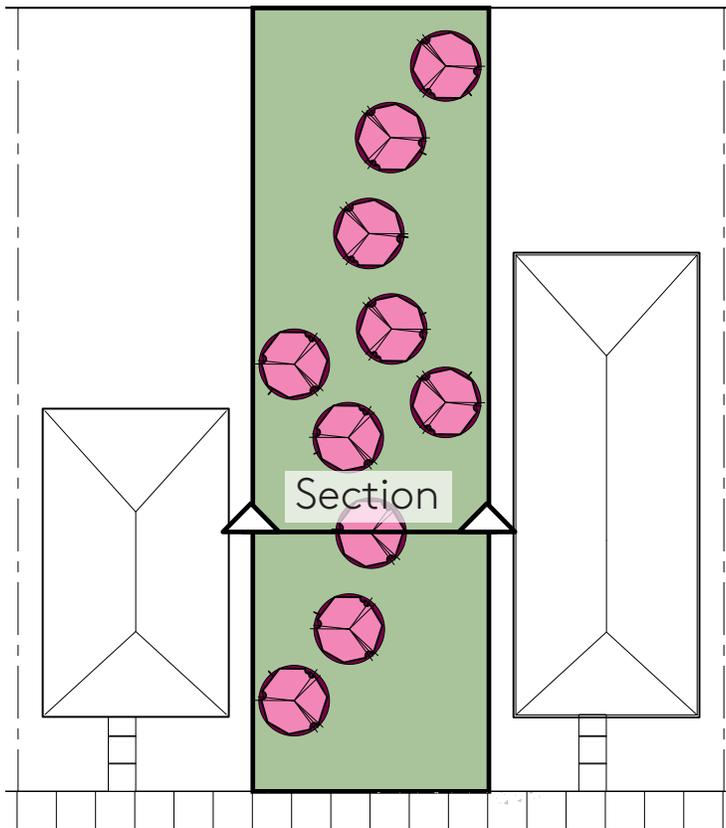


1 - Trees with Mulch Rings

Section



Where Do I Grow?



The Laundry to Landscape can be constructed on a single lot and can be utilized by one or two neighboring properties. Position near houses to reduce the length of irrigation piping required.

-  Trees
-  Mulch Bed
-  Grass or Optional Groundcover

What Is Graywater?

Graywater is wastewater produced by household tasks, such as showering, bathing, running the sink to wash hands or dishes, and using the washing machine to do laundry.

This water contains soap but is otherwise clean. Most often this water flows into Detroit's sewerage system and is then treated at a wastewater treatment plant. The amount of water used for these tasks can add up quickly and can be expensive for the city to treat!

This lot design is engineered to utilize graywater as an irrigation source for the landscape. This will reduce the amount of wastewater the city treats, reduce the amount of potable water required for irrigation, and will keep your garden looking healthy.

You should consult the San Francisco Graywater Design Manual before installing this lot design.



1 - Irrigation Installation



2 - Graywater Garden

Additional Resources

There are additional ways to utilize graywater in your household and to reduce the amount of water you use. Check out some of these resources for more information.

**Washtenaw County Water
Quality Programs**

**City of Chicago Water
Reuse Handbook**

**California Department
of Water Resources Graywater Guide**

Before You Start

'Construction Ready'

This lot design assumes that you have prepared the lot to a 'construction ready' state.

'Construction Ready' refers to a lot that is clean and clear of trash, hazardous objects, unwanted trees, brush and vegetation, fences, and other unwanted structures.

It may be necessary to remove grass in preparation for your lot design. Refer to the Remove Your Grass box located on the right hand side of this page for more information.

Is there an available water source near your lot? Consider how and where you will access water during and after construction to ensure that your plants can establish.

If your lot is not ready for construction, refer to the [Clean + Green](#) lot design.

You can find the lot design at DFC-lots.com.

Call Before You Dig

Locate underground utilities before beginning your lot design. MISS DIG provides a free service to Michigan residents by locating and marking utilities on requested properties. Call (800) 482-7171 or 811 at least three days before you plan to start digging on your lot.

Test Your Soil

Harmful pollutants have made their way into many urban soils. To proceed with awareness, consider having your soil tested before construction. Two great options are available:

Soil testing is free to members of Keep Growing Detroit's Garden Resource Program. Call (313) 757-2635 for more information or visit detroitagriculture.net.

If you are not yet a member, you can work directly with Michigan State University's (MSU) Extension Program. They have a Home Lawn and Garden Soil Test Mailer for \$25. For more information call (888) 678-3464 or visit msusoiltest.com.

If you are concerned about the presence of lead or other contaminants in your soil, call the Michigan Department of Health and Human Services at (866) 691-5323 or (800) 424-LEAD.

Remove Your Grass

Need to remove grass in areas where you are constructing your lot design?

There are many ways to remove unwanted grass. The first is to remove the grass and its root system by digging up the grass. Another option is to cover your lot with cardboard or a plastic tarp to smother your grass in darkness. It will take several weeks, but after being covered, the dead grass will be easier to remove.

Till Safely

Before you till, inspect your lot for signs of buried concrete or rubble that was not removed during the cleanup stage. Large debris can ruin tiller blades.

When tilling, wear appropriate safety gear, such as covered boots with socks, long pants, safety glasses, dust mask, and ear protection. Make sure you understand the safe operating procedures of your tiller. Refer to the user's manual.

Laundry to Landscape Step-By-Step

Let's Start

Want to create the Laundry to Landscape? The Field Guide recommends hiring a professional for some tasks. Here are a few guiding principles to help you understand the tasks involved in the lot design and the steps appropriate for volunteers.

Check off tasks as you go along.

Guiding Principles

Professional Recommended:

Research + Prepare Your Lot

Volunteer Opportunities:

Plant Trees + Create Mulch Ring

Maintain Your Lot Design

Sow Remaining Lot

Research + Prepare Your Lot

Before beginning this lot design, carefully read the San Francisco Graywater Design Manual. The manual explains how to modify your household plumbing in a way that allows water from your washing machine to irrigate your outdoor landscape. [The San Francisco Graywater Design Manual](#) provides a shopping list and step-by-step instructions to creating a Laundry to Landscape lot design.

Not sure if Laundry to Landscape is the right lot design for you? Here are a few guiding principles to help you understand the project:

- Awareness and understanding of the location and proximity of your washing machine to the proposed Laundry to Landscape lot location is important. Ideally, the washing machine is located near an exterior wall since you will need to route your piping outdoors to the Laundry to Landscape lot site.

If the washing machine is on an interior wall, check to see if there is a crawlspace or basement where the pipe could be run outside.

If your washing machine is in your basement, you will likely require a pump.

If your washing machine is on the first floor, you can use its internal pump to move water up to 50 feet, but be careful! Overworking your washing machine's internal pump can damage your machine. Refer to the San Francisco Graywater Design Manual's section on pumped systems for more information.

- Make sure you locate all pipes, wires, and studs that may be located near your washing machine connection. Take care to avoid cutting any of these during the installation.

Laundry to Landscape Step-By-Step

- Check to be sure your landscape bed is low enough for water to flow into it **when connected**. If your washing machine and connection point are lower than your landscape bed, you will need to install an additional pump.
 - **Connecting your washing machine to your irrigation system is a great way to reuse water, but be sure to take careful inventory of what cleaning product you use so as not to harm your plants.** Certain soaps and bleaches will need to be substituted for more eco-friendly products. Do not construct this lot design if your washing machine is not operating properly.
 - **This lot design should be tailored to meet the needs of your household.** The number of washing machine cycles you complete on a single day should equal the number of mulch rings on your site. For example, if you wash five loads of laundry one day, you can irrigate five mulch rings.
 - **Decide on the tree arrangement on your lot. Existing trees can be integrated into this lot design, and the Field Guide plan is only one possibility. Be creative and make it your own!**
-

○ Plant Trees + Create Mulch Ring

The Field Guide recommends planting 1.5 inch diameter trees; however, smaller or larger trees can be planted if preferred.

Trees can be purchased in pots or balled and burlapped. If you decide to plant larger trees, speak with a professional or an educational group as older trees can be more difficult to establish.

Plant trees as soon as possible after purchasing. If you cannot plant them the same day, do not leave unplanted trees in direct sunlight. Keep them in shade and well watered until you can plant them. (Trees dry out fast!)

Identify the location where you wish to plant the trees. Dig a hole three times the width of the root ball and equal to the depth.

Pots should be removed before placing the tree in the planting hole. Balled and Burlapped root balls should remain wrapped until placed in hole. Unwrap the top 1/3 of the root ball and peel back the burlap once planted. Remove any twine, nails, or stakes. The root flare should be level with the ground when you place the tree in the hole.

Water the root ball, then backfill the hole with the soil previously removed from planting. Add water to the tree every six inches as you backfill the hole. Compact the soil lightly after each watering until the hole is filled with soil and level with the adjacent ground.

The Field Guide recommends adding three foot diameter by three inch depth of wood chips or mulch around trees. Keep wood chips or mulch a few inches away from tree trunks.

For more guidance on tree planting refer to the [Tree Planting Detail](#).

Laundry to Landscape Step-By-Step

○ Maintain Your Lot Design

Check irrigation components regularly to ensure they are working properly. As long as they are working properly, there will be no need for additional tree watering.

Trees require care and attention to thrive.

The Field Guide recommends connecting with an arborist or taking a workshop on tree health and maintenance. The Greening of Detroit offers a great Citizen Forester program to interested residents.

To maintain your system during the winter months, switch your valve to drain into the sewer.



Visit the Resources page on the Field Guide's web site (DFC-lots.com) to discover other vendors and places to purchase plants.

Average Height of Plants



Large and Small Trees

○ Sow Remaining Lot

If you are seeking a lower maintenance alternative to a traditional lawn, the Field Guide recommends a fescue seed mix. **If you follow the Laundry to Landscape lot design you will need approximately 10 to 12 pounds of fescue seed mix for the remaining lot and three 8 by 112.5 foot rolls of single net germination blankets.**

This family of floppy grasses is drought-resistant and requires one cutting (in August or September) per year. Fescue can be established in full sun to shade and should be seeded in spring (mid-March to mid-May) or fall (August to September).

Soil should be prepared for seeding by scarifying, raking, or tilling the soil four to six inches deep to loosen any compaction, allowing for easier seed germination and better water infiltration. Apply seed mix to a damp lot.

Sow seed across the remaining lot by using a seed spreader or by hand. A seed rate of five pounds per 1,000 square feet is recommended. Gently water seedlings daily until they are four to six inches in height. Placing a thin layer of straw or a germination blanket over seeded areas will help ensure that your seed establishes by keeping seeds from blowing away and protecting them from birds. Germination blankets or straw can be purchased at most nurseries and garden stores.

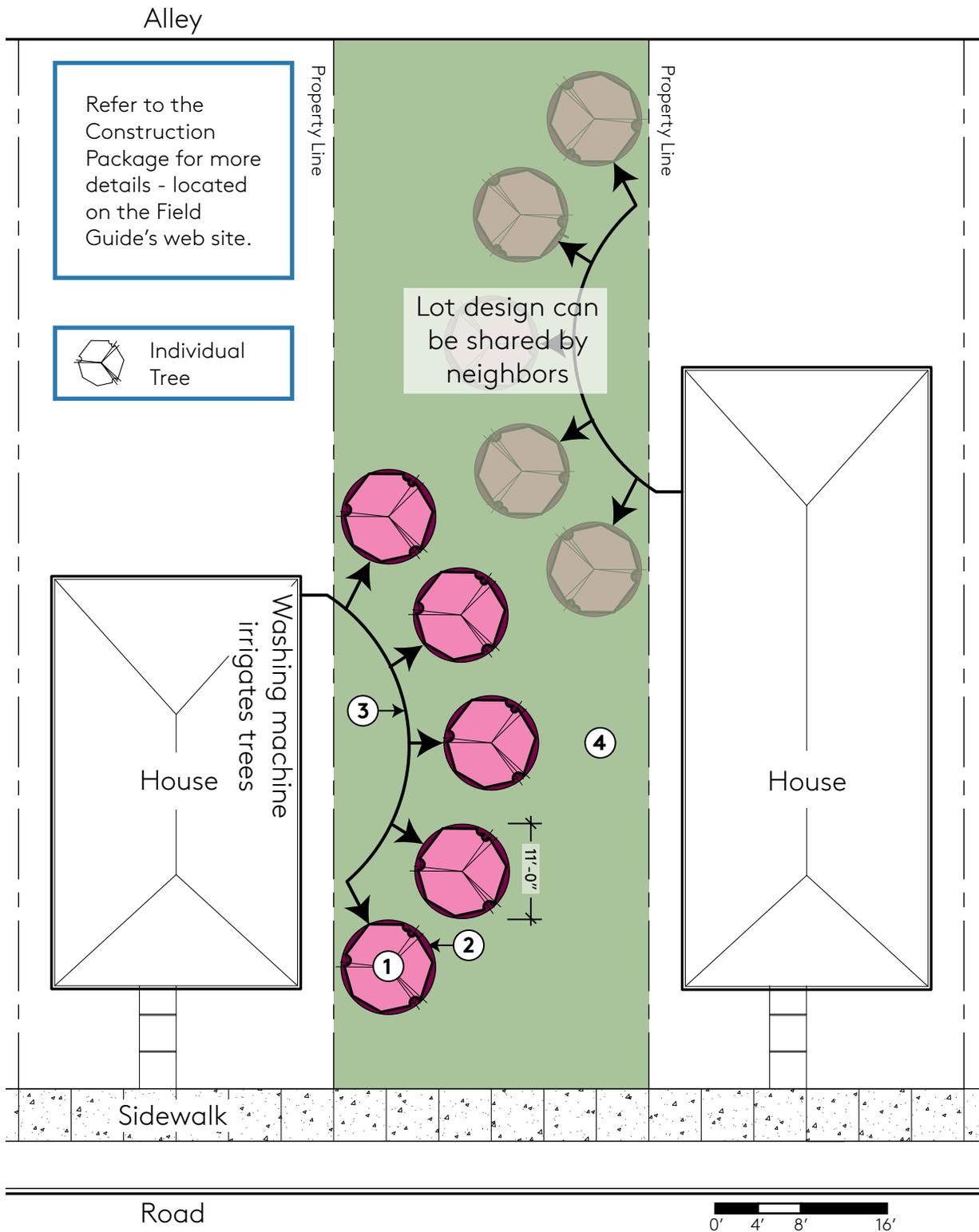
Once established, grass will not require supplemental watering except during unusually dry periods. Eco-Turf Low Maintenance Fescue Mix is one recommended seed mix and can be purchased through the Michigan Wildflower Farm.

Other Field Guide lot designs can be used as groundcovers. Check out the web site for additional options and ideas.

Next Level: If you would like to bring additional color to your grass you can always plant bluebells, crocuses and/or daffodils to create a decorative show in spring. Bulbs should be planted in the fall.

For more guidance on bulb planting refer to the [Bulb Planting Detail](#).

Laundry to Landscape Lot Design



1 Tree

2 Mulch Ring

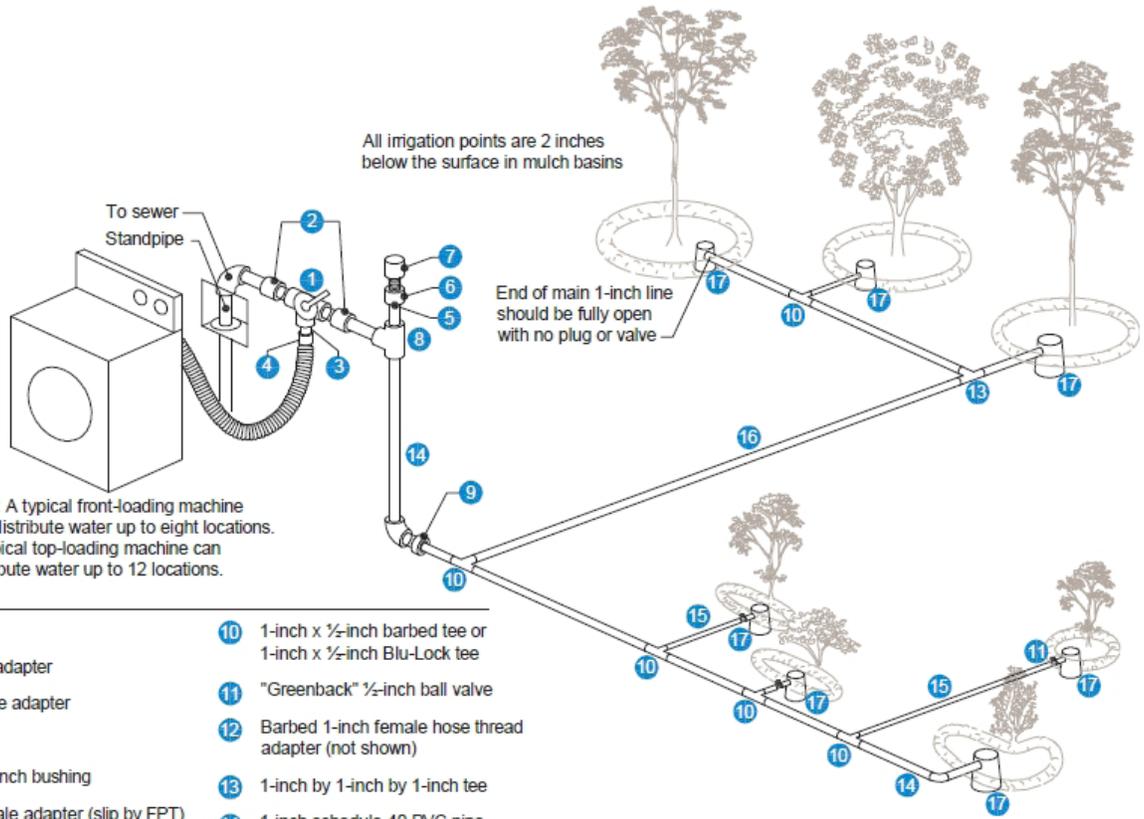
3 Irrigation Line, Connected to Washing Machine

4 Grass or Optional Groundcover

San Francisco Graywater Design Manual Diagram

Irrigation Hookup Diagram

This diagram, created by San Francisco Public Utilities Commission, shows the necessary hookups to create the irrigation component of this lot design.



Note: A typical front-loading machine can distribute water up to eight locations. A typical top-loading machine can distribute water up to 12 locations.

Legend

- | | |
|---|---|
| <ul style="list-style-type: none"> 1 3-way valve 2 PVC 1-inch male adapter 3 1-inch barbed male adapter 4 Hose clamp 5 PVC 1-inch x 1 1/2-inch bushing 6 PVC 1 1/2-inch female adapter (slip by FPT) 7 Auto vent (or air admittance valve) 8 1-inch PVC tee 9 1-inch barbed x slip adapter | <ul style="list-style-type: none"> 10 1-inch x 1/2-inch barbed tee or 1-inch x 1/2-inch Blu-Lock tee 11 "Greenback" 1/2-inch ball valve 12 Barbed 1-inch female hose thread adapter (not shown) 13 1-inch by 1-inch by 1-inch tee 14 1-inch schedule 40 PVC pipe 15 1/2-inch poly tubing 16 1-inch HDPE tubing 17 Mulch shield or valve box |
|---|---|

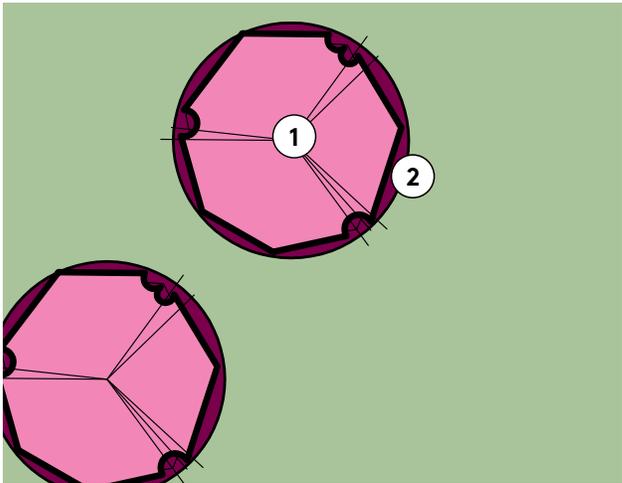
Planting: Full Sun to Part Sun



Red Buckeye¹
Aesculus pavia
 15' Height x 15' Width
 Blooms April - May
Quantity: pots or B & B



Autumn Brilliance Serviceberry²
Amelanchier x grandiflora
 20' Height x 20' Width
 Blooms April
Quantity: pots or B & B



Shiloh Splash River Birch³
Betula nigra 'Shiloh Splash'
 30' Height x 15' Width
 Blooms April - May
Quantity: pots or B & B



Pagoda Dogwood⁴
Cornus alternifolia
 15' Height x 20' Width
 Blooms April
Quantity: pots or B & B

Key

- 1** Trees: Red Buckeye, Autumn Brilliance Serviceberry, Shiloh Splash River Birch, Pagoda Dogwood, Sweet Gum, or Smoke Bush
- 2** Mulch Ring



Sweet Gum⁵
Liquidambar styraciflua
 70' Height x 50' Width
 Requires Moist Soil
Quantity: pots or B & B



Smoke Bush⁶
Cotinus coggygia (royal purple)
 10' Height x 10' Width,
 Excellent fall color
Quantity: pots or B & B

Plant Sizes

-  **Pots:** 1.5 inch diameter trees are available at commercial landscape supply stores in pots or balled and burlapped (B & B).



Tulip Tree⁷
Liriodendron tulipifera
 90' Height x 50' Width
 Blooms mid-Spring
Quantity: pots or B & B

 **For this lot design, residents can select a single species, a variety of species, or another species not shown here.**

Image Source: 1) A. Barra, "Aesculus pavia 'Splendens'" May 2004 via Wikimedia CC BY 3.0; 2) Paul Woods, "Amelanchier in bloom 1." 13 April 2013 via Flickr, CC BY-NC-SA 2.0; 3) Sue Sweeny, "River Birch." 2005 via Wikimedia, CC BY-SA 3.0; 4) Rob Routledge, "Cornus Alternifolia." 04 June 2012 via Wikimedia, CC BY 3.0; 5) Steve Severinghaus, "Fall Sweet Gum Leaves." 14 November 2014 via Flickr, CC BY-NC-SA 2.0; 6) Tapir Girl, "Smoke Tree." 14 June 2007 via Flickr, CC BY-NC-SA 2.0; 7) David Andersen, "Tulip Heave II." 18 April 2010 via Flickr, CC BY-NC-SA 2.0

Did You Know?

Professionals Can Help!

The Field Guide to Working With Lots provides a Construction Package for each lot design. The Construction Package includes information and details required for a professional to construct this design. On the Field Guide web site, use the [Construction Package](#) link located near the top of this lot design page to download and print. Your selected professional will then be able to provide a cost estimate and schedule based on the condition of your lot and the design you select.

Want to Hire Locally?

DFC-lots.com has a growing list of Detroit-based professionals and suppliers of landscape materials and services.

Still unsure of where to start?

Call (313) 294-LOTS or email fieldguide@detroitfuturecity.com for assistance.

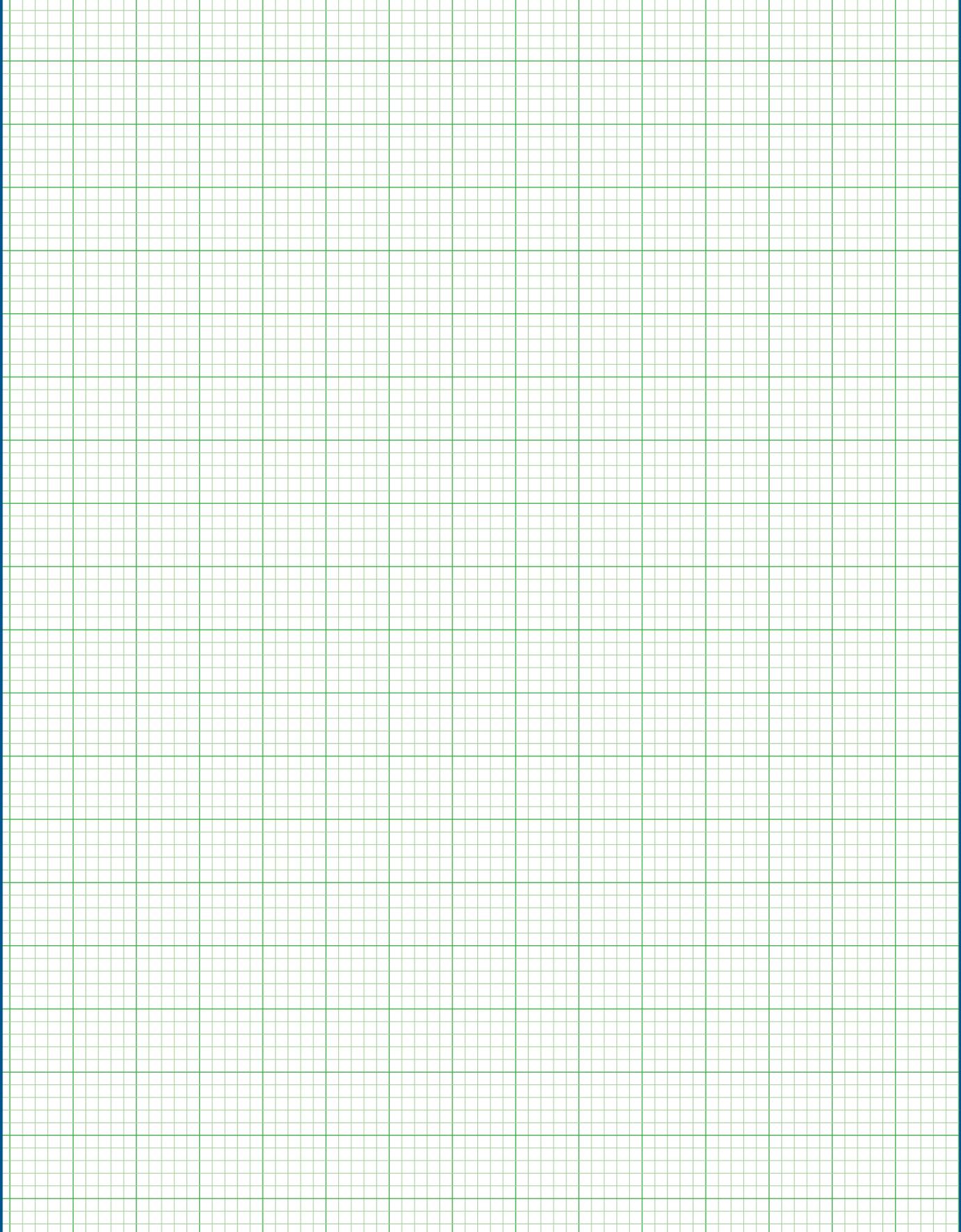
Helpful Facts

- This design utilizes water from household washing machines to irrigate the landscape.
- Similar designs have been installed successfully in San Francisco.
- Keeping washing machine water out of the municipal sewer will reduce chemicals and energy needed to treat wastewater.
- Graywater Action is a wonderful bilingual resource for understanding a range of ways you can better manage graywater on your property.
- Read a great report on the five-year impact of graywater irrigation on plants at aciscience.org

Planting Tips

- Call ahead to make sure the nursery or garden store has the plants you need for lot design.
- The best time to plant trees and shrubs is in the spring or fall.
- Do not plant in extreme heat.
- Inspect trees before purchasing to be sure they are healthy and well-formed. This will help you select trees that will be more likely to survive.
- When mulching around trees, do not place mulch too close (less than three inches) to the tree trunk. This will protect the tree from disease.
- Do not plant trees under overhead wires.

Draw Your Lot





**DETROIT
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**working
with lots**
A FIELD GUIDE

**Visit DFC-lots.com
#DFClots**

Image Source: Paul Woods, "Amelanchier in bloom 1." 13 April 2010 via Flickr, CC BY-NC-SA 2.0.