

# ARLINGTON STONEHAM WINCHESTER

SUSTAINABLE LANDSCAPE  
WORKSHOP SERIES

**BOHLER //**

# INTRODUCTIONS

## + Town Representatives

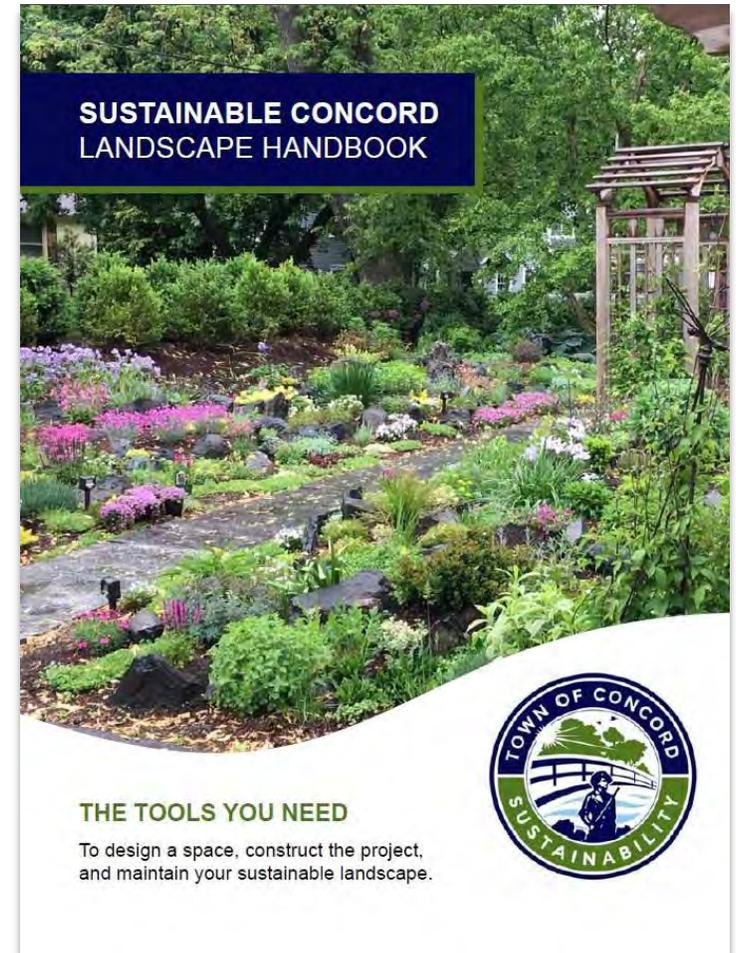
- + David Morgan, Environmental Planner + Conservation Agent, Town of Arlington
- + Ken Pruitt, Sustainability Director, Town of Winchester
- + Erin Wortman, Director of Planning and Community Development

## + Bohler

- + Leslie Fanger, Senior Landscape Architect & Project Manager
- + Lindsey Corse, Senior Landscape Designer

# SUSTAINABLE LANDSCAPE WORKSHOP SERIES

- + Grant received from MAPC
- + 3 Workshops: Stoneham (Design), Winchester (Construction), **Arlington (Maintenance)**
- + Sustainable Landscape Guidebook and training videos to follow
- + Goal: Educate and encourage residents, Town Agencies and Businesses to implement sustainable landscape practices



# WORKSHOP SERIES

Workshop 1:  
**DESIGN**

Tues, April 11,  
5:00-7:00PM

STONEHAM  
Town Hall

Workshop 2:  
**CONSTRUCTION**

Sat, May 20,  
1:00-3:00PM

WINCHESTER  
Library

Workshop 3:  
**MAINTENANCE**

Thurs, June 8,  
11:00AM-1:00PM

ARLINGTON  
Community Center

# WORKSHOP #3 AGENDA

**11:00am-11:20am: REVIEW SUSTAINABLE LANDSCAPE DESIGN**

**11:20am-11:40pm: REVIEW SUSTAINABLE CONSTRUCTION**

**11:40am-12:00pm: INTERMISSION / CASE STUDY**

**12:00pm-1:00pm: SUSTAINABLE LANDSCAPE MAINTENANCE**



# **SUSTAINABLE LANDSCAPE DESIGN REVIEW**

# SUSTAINABLE LANDSCAPE PRINCIPLES

## WHAT IS A SUSTAINABLE LANDSCAPE?

*“Main goals of sustainable landscape design are to **conserve water and energy, reduce waste and decrease runoff...** Residential gardens should **treat water as a resource, value soil, preserve existing plants, use only native/native cultivars or adaptive plants and conserve material resources.**”*

<https://www.landscapingnetwork.com>

1. Sustainable Design
2. Conserve water and energy
  - a) Reduce waste
  - b) Decrease stormwater runoff
3. Treat water as a resource
4. Value soil
4. Preserve existing native plants
5. Install mostly native plants  
(70% native, 30% cultivar/adapted)
6. Remove invasive species
7. Conserve material resources:  
reduce/reuse/recycle

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*“**Adapted plants** are species originally native to other regions of the world that have become acclimated and established in a new area. These plants thrive in the new location without being harmful to existing native plants or wildlife, and are able to grow and reproduce without intervention.”*

<https://txmq.org/el Paso/learn/gardening-in-el-paso-articles/why-we-landscape-with-native-and-adaptive-plants/>

**BOHLER //**

# DESIGN PROCESS

1. Who will do the work?
2. Draw a scaled map of the property
3. Analyze the property. Constraints? Concerns? Opportunities?
4. What are your needs? What features will you include?
5. Brainstorm layout options
6. Create your design

# STEP 1 – WHO WILL DO THE WORK?

## Design:

## Installation (& Maintenance):

+ **You** create design



You install in phases

+ **You** create design



Contractor installs

+ **Professional** designer



You install with help from contractor(s)

+ **Professional** designer



Contractor installs

REFER TO HANDOUT

**BOHLER** //

# STEP 2 – SCALED MAP

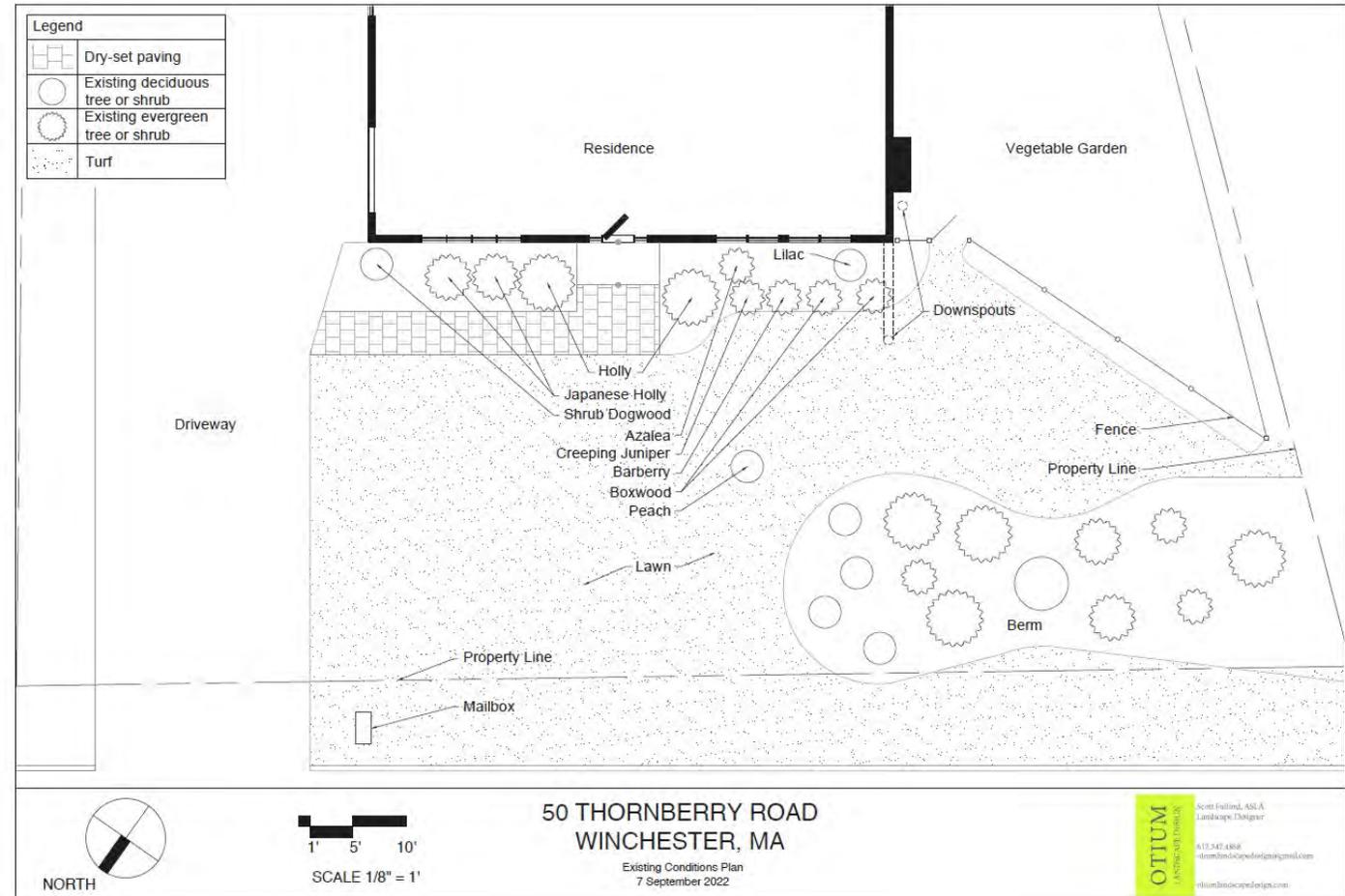
**Mapping Resource to Try At Home:**  
MASSMAPPER  
[https://maps.massgis.digital.mass.gov/  
MassMapper/MassMapper.html](https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html)

What to include on your map:

- + Property lines
- + North arrow
- + Scale bar
- + Dimensions
- + Footprint of structures on the property
- + Existing trees, shrubs and location of plant beds
- + Location of utilities (septic system, light poles, underground lines and overhead wires)
- + Environmental constraints (wetlands, streams, etc.)

# STEP 2: SCALED MAP

- + With a scaled map, we can accurately plan space.
- + We can determine our project area and see its relation to its surroundings.
- + Try MASSmapper at home.



# STEP 3 – ANALYZE THE SITE

Look at your scaled map:

**+ Identify the opportunities and constraints.**

These factors will influence your design choices.

- + Invasive plants and pests
- + Sun or shade?
- + Circulation patterns
- + Drainage/Flooding/erosion
- + Wet or dry?
- + Soil condition
- + Steep or flat?
- + Visibility

# STEP 4 – WHAT ARE YOUR NEEDS?

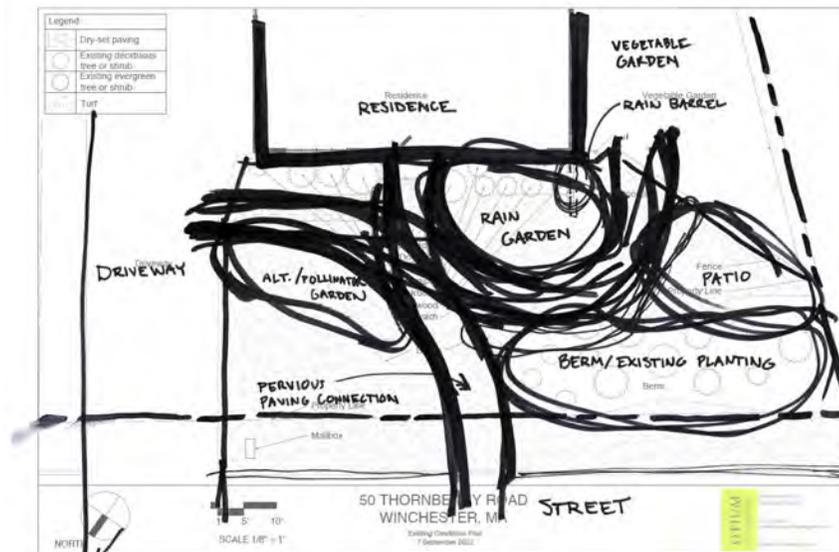
Questions to ask yourself:

- + What goals am I trying to accomplish?
- + Who's going to use this space, and for what? (Kids, pets, etc.)
- + What's my list of 'must-haves'?
- + What are my negotiable 'wants'?
- + Do I have a style in mind? What examples do I like/dislike?

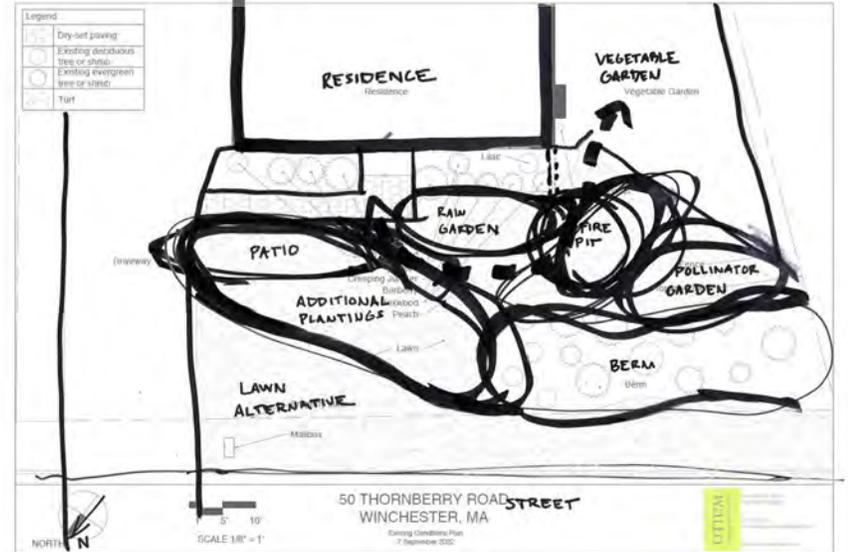
# STEP 5 – BRAINSTORM LAYOUT OPTIONS

1. Pollinator Planting
2. Rain Garden
3. Rain Barrel
4. Pervious Paving
5. Outdoor Patio
6. Lawn Alternative

Option 1



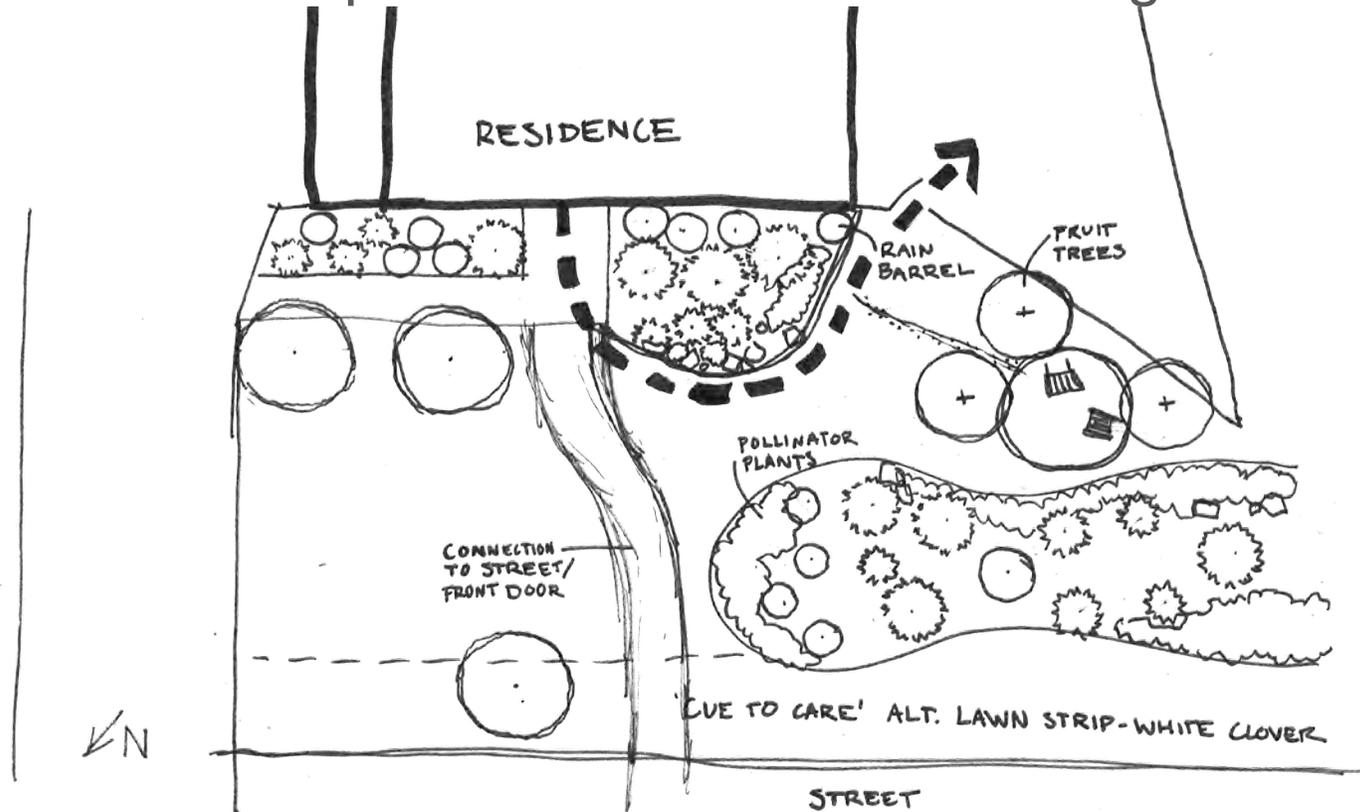
Option 2



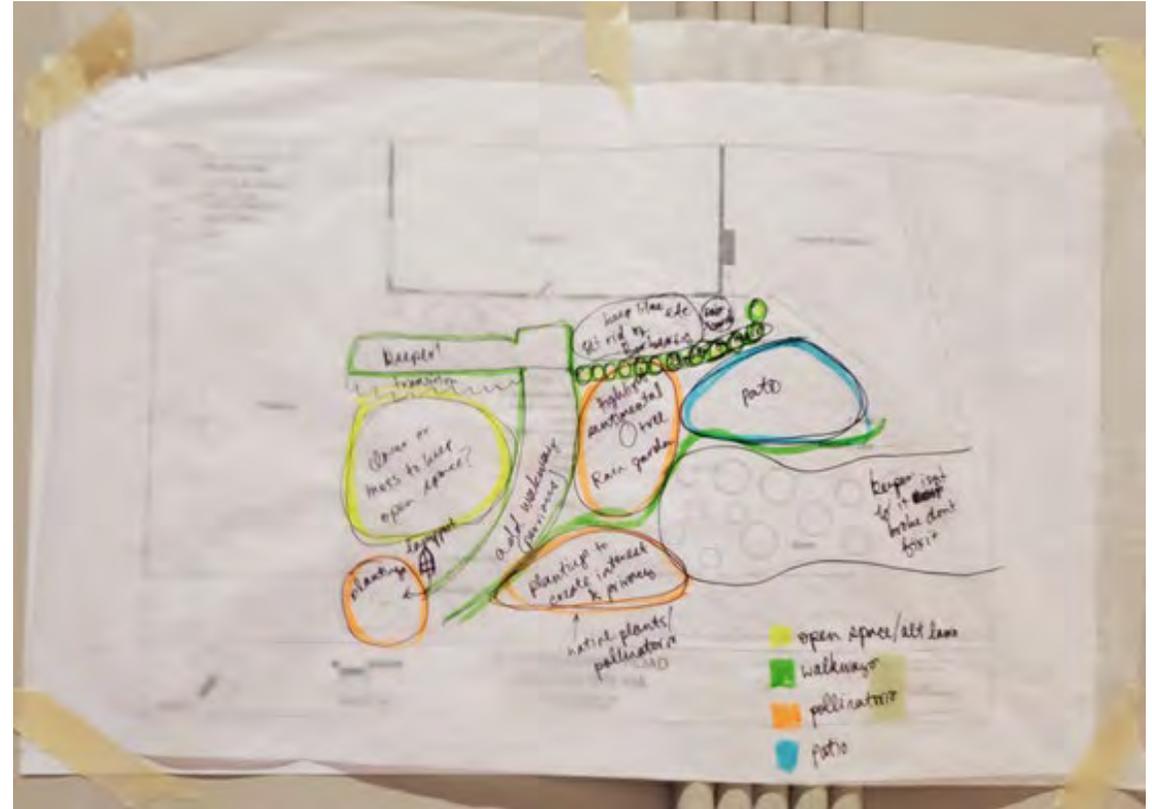
# STEP 6 – CREATE DESIGN

+ Combine the best aspects of each option to create the best design.

1. Pollinator Planting
2. Rain Garden
3. Rain Barrel
4. Pervious Paving
5. Outdoor Patio
6. Lawn Alternative



# STEP 6 – CREATE DESIGN



# SUSTAINABLE LANDSCAPE PRACTICES

- + Incorporate native plants!
- + Eradicate invasive species
- + Conserve water and energy
- + Reduce the use of fossil fuels (Yard equipment!)
- + Decrease erosion and stormwater runoff
- + Use pervious hardscape materials for infiltration
- + Support pollinators
- + Limit pesticide use



# WHAT ARE NATIVE PLANTS?

Why is this distinction important?

- + Native plants are *naturally occurring in the region*.
- + Because of this, they thrive in the area they're native to! They are well-adapted.
- + Native plants provide ecosystem services that non-natives and invasives do not.
- + Pollinators depend on native species to survive (Specifically, '**Keystone**' species).

# KEYSTONE PLANTS

+ ‘14% of native plants support 90% of butterfly and moth species.’ (Dr. Doug Tallamy) [National Wildlife Federation](#)

+ If you’re looking to add to your garden, start with these species.

Plant Type	Plant Genus	Sample of Common Species (not all encompassing)	# Caterpillar Species that Use this as a Host Plant	# of Pollen Specialist Bee species that Rely on this Plant
Trees	<i>Quercus</i>	White oak ( <i>Quercus alba</i> ), Black oak ( <i>Quercus velutina</i> )	436 	
	<i>Prunus</i>	American plum ( <i>Prunus americana</i> ), Black cherry ( <i>Prunus serotina</i> ), Chokecherry ( <i>Prunus virginiana</i> )	340 	
	<i>Betula</i>	River birch ( <i>Betula nigra</i> ), Sweet birch ( <i>Betula lenta</i> )	284 	
	<i>Populus</i>	Eastern cottonwood ( <i>Populus deltoides</i> )	249 	
	<i>Acer</i>	Box elder ( <i>Acer negundo</i> ), Silver maple ( <i>Acer saccharinum</i> ), Sugar maple ( <i>Acer saccharum</i> )	238 	
	<i>Malus</i>	Southern crabapple ( <i>Malus angustifolia</i> ), Sweet crabapple ( <i>Malus coronaria</i> )	237 	
	<i>Carya</i>	Bitternut hickory ( <i>Carya cordiformis</i> ), Pignut hickory ( <i>Carya glabra</i> ), Mockernut hickory ( <i>Carya tomentosa</i> )	213 	
	<i>Pinus</i>	Pitch pine ( <i>Pinus rigida</i> ), Eastern white pine ( <i>Pinus strobus</i> ), Virginia pine ( <i>Pinus virginiana</i> )	200 	
Shrubs	<i>Vaccinium</i>	Northern highbush blueberry ( <i>Vaccinium corymbosum</i> ), Black highbush blueberry ( <i>Vaccinium fuscatum</i> ), Hillside blueberry ( <i>Vaccinium pallidum</i> )	217 	14 
	<i>Salix</i>	Prairie willow ( <i>Salix humilis</i> ), Black willow ( <i>Salix nigra</i> )	289 	14 
Flowering Perennials	<i>Solidago</i>	Stiff leaf goldenrod ( <i>Solidago rigida</i> ), Atlantic goldenrod ( <i>Solidago arguta</i> )	104 	42 
	<i>Symphyotrichum</i>	Blue wood aster ( <i>Symphyotrichum cordifolium</i> ), Smooth aster ( <i>Symphyotrichum laeve</i> )	100 	33 
	<i>Helianthus</i>	Woodland sunflower ( <i>Helianthus divaricatus</i> ), Small woodland sunflower ( <i>Helianthus microcephalus</i> )	66 	50 

# SUSTAINABLE LANDSCAPE PRACTICES

## RAIN BARRELS



+ Condition: Roof gutters downspout

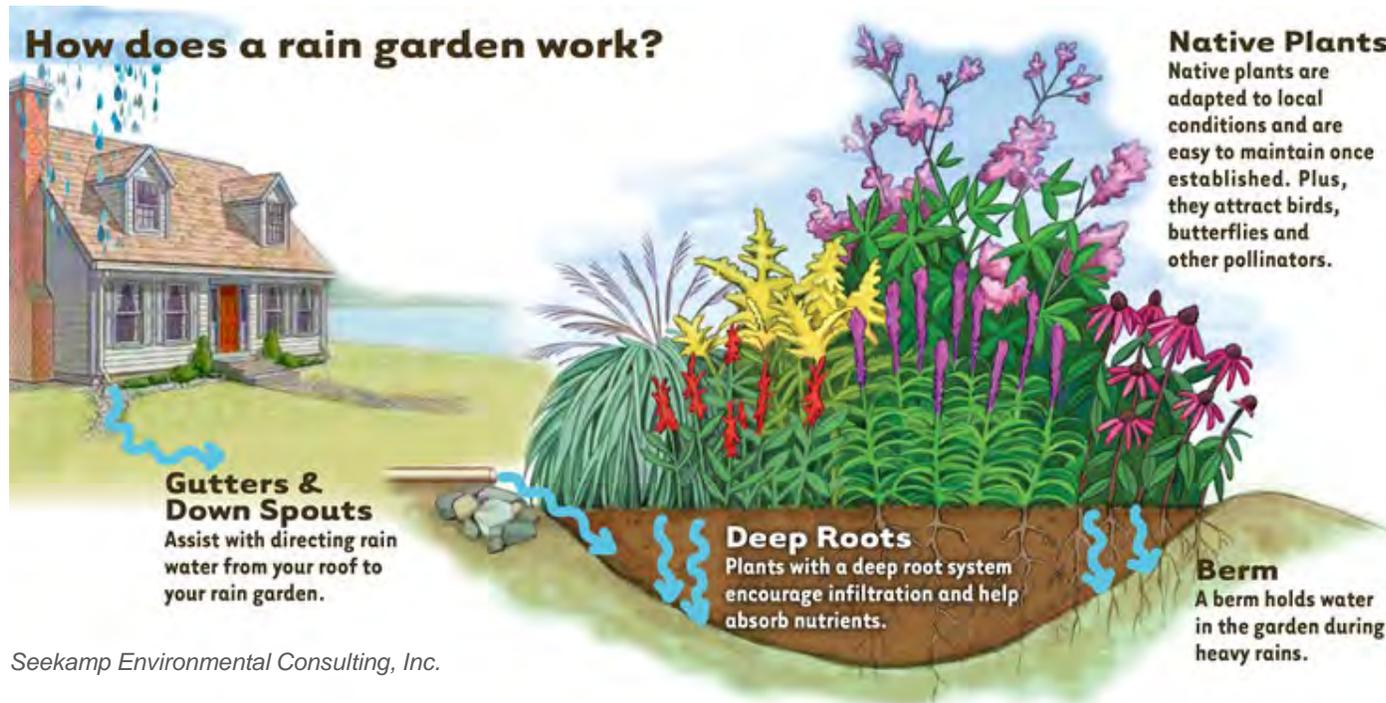


+ Opportunity: Add rain barrels to downspouts

- + Collect stormwater runoff
- + Use collected water to water your plants
- + Conserve water
- + Prevent erosion

# SUSTAINABLE LANDSCAPE PRACTICES

## RAIN GARDENS



- + Prevents stormwater runoff and erosion
- + Plants absorb water and filter pollutants
- + Provide food and shelter for wildlife
- + ‘Keystone’ plants provide the most benefit for wildlife

+ Opportunity: Redirect water into a rain garden

*Seekamp Environmental Consulting, Inc.*

# 'CUES TO CARE'



- + You can utilize your lawn as a **'Cue to care.'**
- + A clean edge: Lawn or stone edges frame planting areas as more attractive.



# **SUSTAINABLE LANDSCAPE CONSTRUCTION REVIEW**

# STEP 1 – WHO WILL DO THE WORK?

## Design:

## Installation (& Maintenance):

+ You create design



You install in phases

+ You create design



Contractor installs

+ Professional designer



You install with help from contractor(s)

+ Professional designer



Contractor installs

# REVIEW: SUSTAINABLE CONSTRUCTION PROCESS

1. **DESIGN IS COMPLETE** (WORKSHOP #1. Best done during winter)
2. **PRIORITIZE BASED ON AVAILABLE BUDGET**
3. **WHO IS DOING THE WORK?** You, contractor, combination?
4. **PREPARE A MATERIALS LIST**
5. **DETERMINE IF CONSTRUCTION EQUIPMENT IS NEEDED**
6. **KNOW WHAT'S UNDERGROUND**
7. **PROJECT AREA LAYOUT**
8. **SITE PREPARATION**
9. **GO SHOPPING!**
10. **ARRANGE FOR DELIVERY**
11. **INSTALL** your sustainable landscape design!  
MAINTAINANCE – (WORKSHOP #3!!!)

## 2. PRIORITIZE BASED ON BUDGET

- + **Analyze what you can accomplish now and what needs to wait.**
- + Create a phasing plan to complete entire project
  - + What can you accomplish within the year?
  - + In what order should projects be completed?
  - + Can projects overlap? How long will they take?
  - + Start early! Plan in the winter to prepare for spring work
  - + (Could be 5 year plan?)

# 4. PREPARE A MATERIALS LIST

Based on your phase 1 budget, list things you need but don't yet have.

- + Tools
- + Raw materials
  - + Hardscape (paving, furniture)
  - + Softscape (plant material, soil amendments, mulch)

# 5. DETERMINE IF CONSTRUCTION EQUIPMENT IS REQUIRED

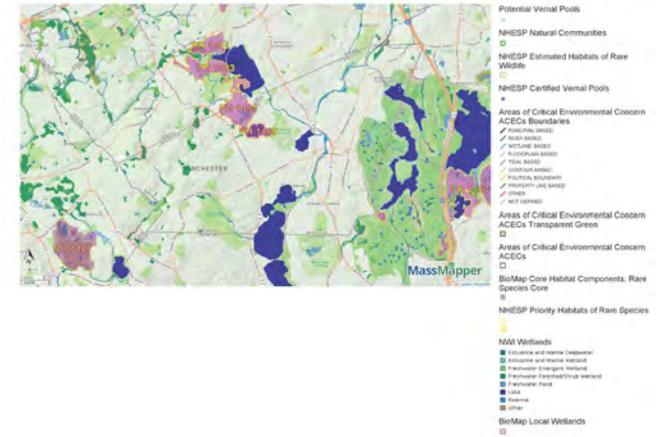
- + Can the work be done manually, or do you need to rent equipment or hire an operator?
- + Ask someone you know!
- + Access restrictions
  - + Determine HOW construction equipment will get to your yard and plan ahead. Do you have a fence? Will the equipment fit through a gate?



# 6. KNOW WHAT'S UNDERGROUND

Before digging any holes, find out where underground utilities are located on your property.

- + Call DIGSAFE (811) BEFORE construction
  - + (Not necessary if you are only using hand tools)
- + Check [MASSMAPPER](#) for information about your property.
  - + Use the search icon to find layers and toggle them on



# 7. PROJECT AREA LAYOUT

Materials you can use to outline your project area:

- + Garden hose
- + Wood stakes
- + Spray chalk
- + Landscape flags
- + Rope
- + Edge the soil using a shovel



# 8. SITE PREPARATION

## RELOCATE VALUED EXISTING PLANTS

Transplanting: Replanting either a whole plant or divided portion.

- + Thoroughly water the plant beforehand
- + Dig a new hole for your plant
- + Dig up plant – avoid main root ball
- + Put plant in the new hole at ground level or slightly higher
- + Backfill
- + Water, monitor, and mulch
- + Timing: Replant before the plant blooms, or after it's finished. Pick a mild day



# 8. SITE PREPARATION

## AMEND EXISTING SOIL

Get a [Routine Soil Analysis](#) done

- + Mail or drop-off sample
- + pH and nutrient recommendations are included with test results
- + One cup of dry soil in a Ziploc bag
- + Amend existing soil (Native plants likely won't need any)



UMass Soil & Plant Nutrient Testing Laboratory  
 Paige Laboratory, Room 203  
 161 Holdsworth Way  
 Amherst, MA 01003  
 (413) 545-2311  
[soiltest@umass.edu](mailto:soiltest@umass.edu)  
<http://soiltest.umass.edu>

**USE THIS FORM FOR ROUTINE SOIL ANALYSIS – HOME GROUNDS AND GARDENS**

Visit our website to download a copy of [Sampling Instructions for Routine Soil Analysis](#), which includes a description of routine and optional soil tests offered. Send your sample(s), completed submission form and payment to the address listed above. Enclose check payable to UMass for \$20 for each sample plus additional fees for optional tests requested below.

<b>Main Contact</b>		<b>Send Copy to</b>		<b>Method of Receiving Results</b>	
Name:		Name:		<input type="checkbox"/> US Mail (Please include \$2 per order for postage & handling)	
Business Name:		Business Name:		<input type="checkbox"/> Email	
Street Address:		Street Address:			
City, State, Zip:		City, State, Zip:			
Phone:		Phone:			
Email Address:		Email Address:			

LAB # (Leave blank)	Sample ID (You create this)	Approx. area Represented by Sample (Sq. ft. or Acres)	Crop Code, limit of 3 (See reverse side of this form)	Routine Analysis (\$20.00)	Organic Matter (\$6.00)	Soluble Salts (\$6.00)	Nitrate (\$8.00)
				<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Order Total \$ \_\_\_\_\_

Office Use Only	
Received	Due
Check#	PO#
Cash	Date

Please make check payable to the University of Massachusetts or "UMass"



# 8. SITE PREPARATION

## EROSION CONTROL

Stormwater runoff on slopes can create erosion issues.

Techniques for protecting soil and/or redirecting water flow:

+ Native Plants and Natural Mesh/Netting



+ Retaining Wall (Professional Recommended)



+ Riprap or Dry Stream Bed



+ Rain Garden



# 9. GO SHOPPING

## Shop for Materials That Are:

- + Locally sourced
- + Renewable
- + Made from recycled materials
- + Re-purposed, reclaimed, or 'Freecycled'
- + Pervious/Porous/Permeable
- + Low-Energy Input (When created)



+ Tools



+ Furniture



+ Soil amendments



+ Hardscape materials



+ Nursery plants



+ Hardscape materials

# 9. GO SHOPPING! OR DON'T!

## FREECYCLE



+ Palette patio (Not for garden beds)



+ Reclaimed brick



+ Dig! Free rocks!



+ Plant swaps



+ Kiddie Pool



+ Urbanite (Used, broken concrete)



+ Urbanite plant beds



+ Leaf mulch

# 10. ARRANGE FOR DELIVERY

- + Designate an area for your delivered materials to be stored or staged.
- + This area should be *outside of the project work zone*.
- + Best to lay out a tarp for most materials to be delivered on.
- + Make sure delivery vehicle will be able to access this spot.
- + Be prepared to cover materials if it rains before they get installed



# 11. INSTALL TREE PLANTING

## Soil Preparation:

- + Avoid creating areas where standing water exists
- + Soil test will determine nutrients your soil needs

## Organic amendments:

- + Place throughout the area where roots will spread

## *Ideal* planting time:

- + FALL – September to Mid-October
- + SPRING – Before buds break

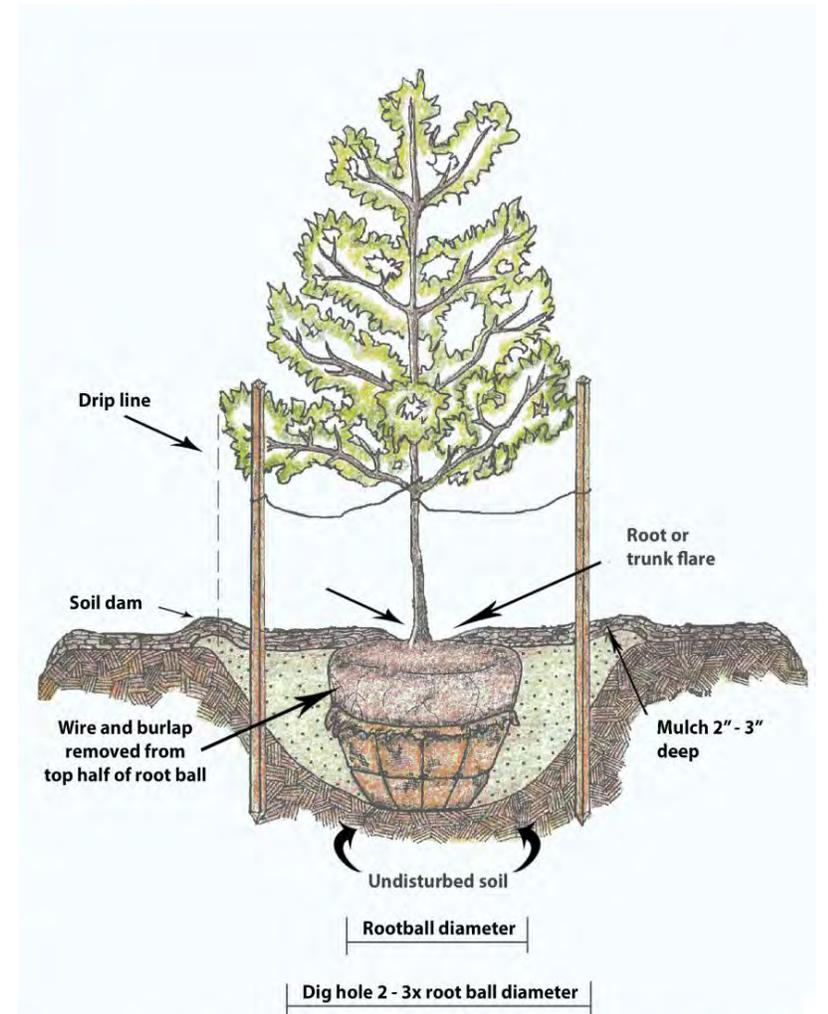


Diagram 1: This B&B tree has been planted at the proper depth, and has had the wire and burlap removed from the top half to allow new roots to grow outwards. Drawing by Lauren Chase-Rowell

# 11. INSTALL TREE PLANTING

- + Installation process varies based on how your tree is packaged
- + Nursery-grown trees are packaged in one of three ways:

## + Ball and Burlap



## + Container/Potted



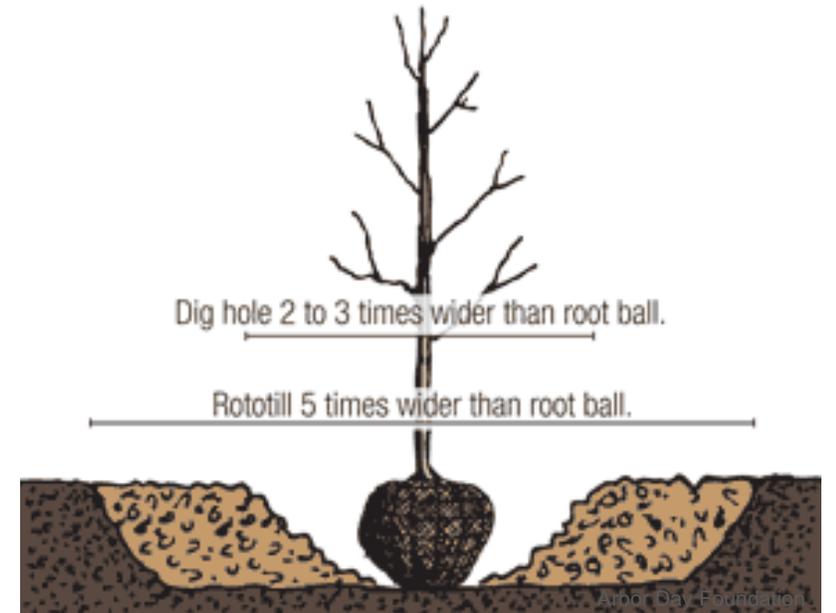
## + Bare Root



# 11. INSTALL

## Dig A Hole:

- + WIDTH: 2-3 x wider than the root ball
- + DEPTH: Only as deep as the root ball
- + Keep trunk base/top of roots level with ground Remove wire or twine from ball.
- + Cut burlap away
- + Best practice: Do not leave any burlap or wire
- + Backfill halfway



# 11. INSTALL

## Watering

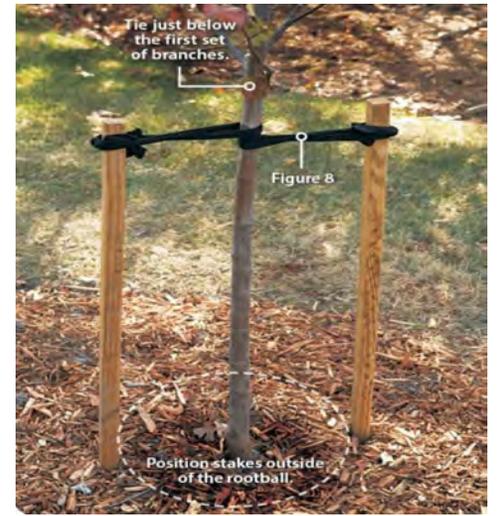
- + Watering during the first year is crucial to establish new plants
- + Keep soil moist, not soggy
- + Early morning or evening to retain moisture
- + Slowly but thoroughly
- + Water mulch, not leaves

## Tree Staking

- + May not be necessary unless there's a high chance of falling over from wind

## Watering Schedule:

1. Immediately after planting
  2. The day after planting
  3. Daily for the first week
  4. Twice a week for the next month or so
  5. Gradually decrease frequency
- + If dry to the touch, it needs water



# 11. INSTALL RAIN GARDEN

Rain gardens divert and control runoff. Great for areas with ponding or erosion.

1. Lay out proposed rain garden. Use a hose or stakes to outline the area
2. Dig a bowl-shape about 6-8" deep. Deepest in the middle, (slightly) sloped slides
3. If the spot is sloped, building a berm on the downhill edge helps a rain garden hold stormwater
4. Add native species (Water until established)
5. Mulch



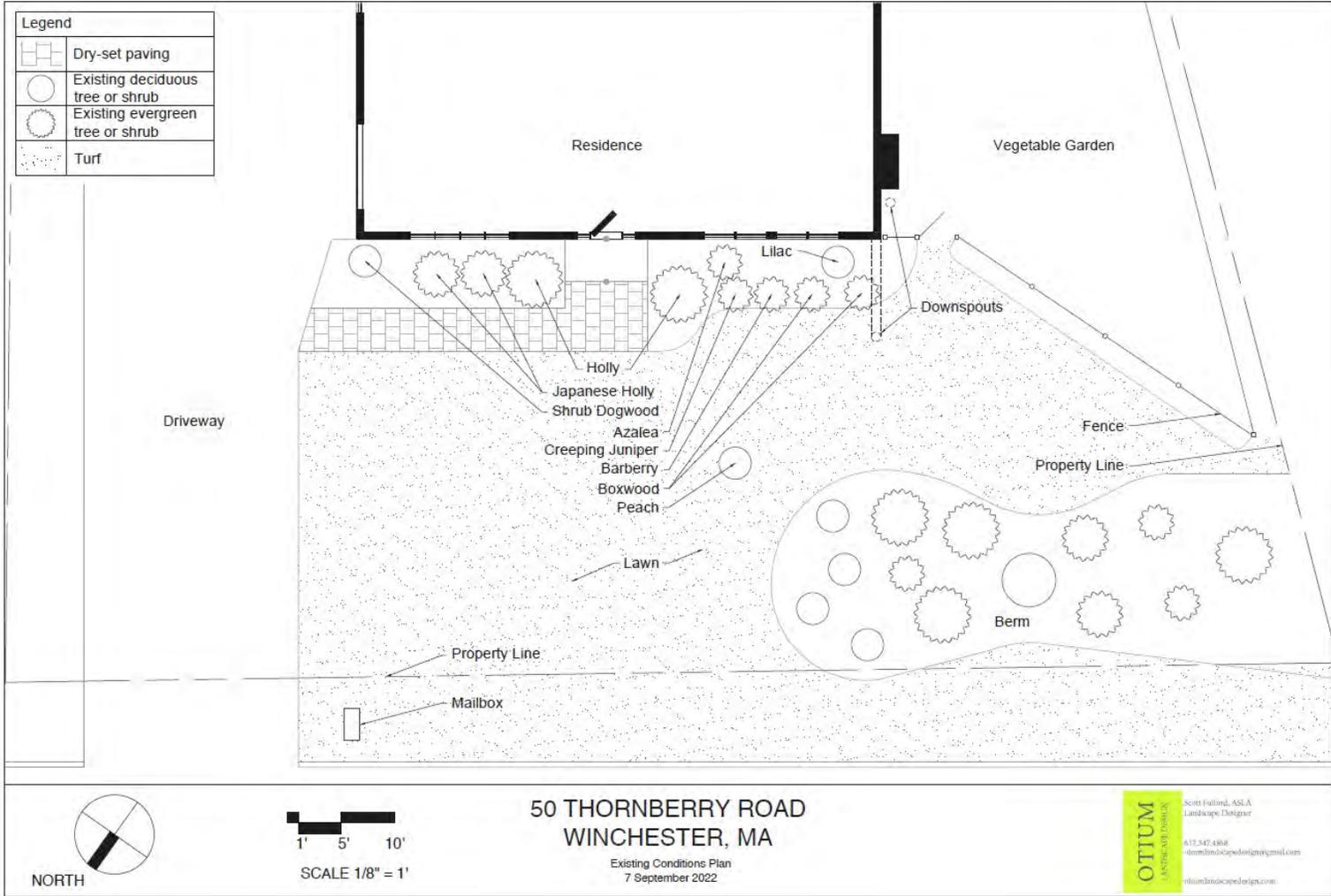
+ The down-slope edge of this garden is bermed to hold water like a bowl



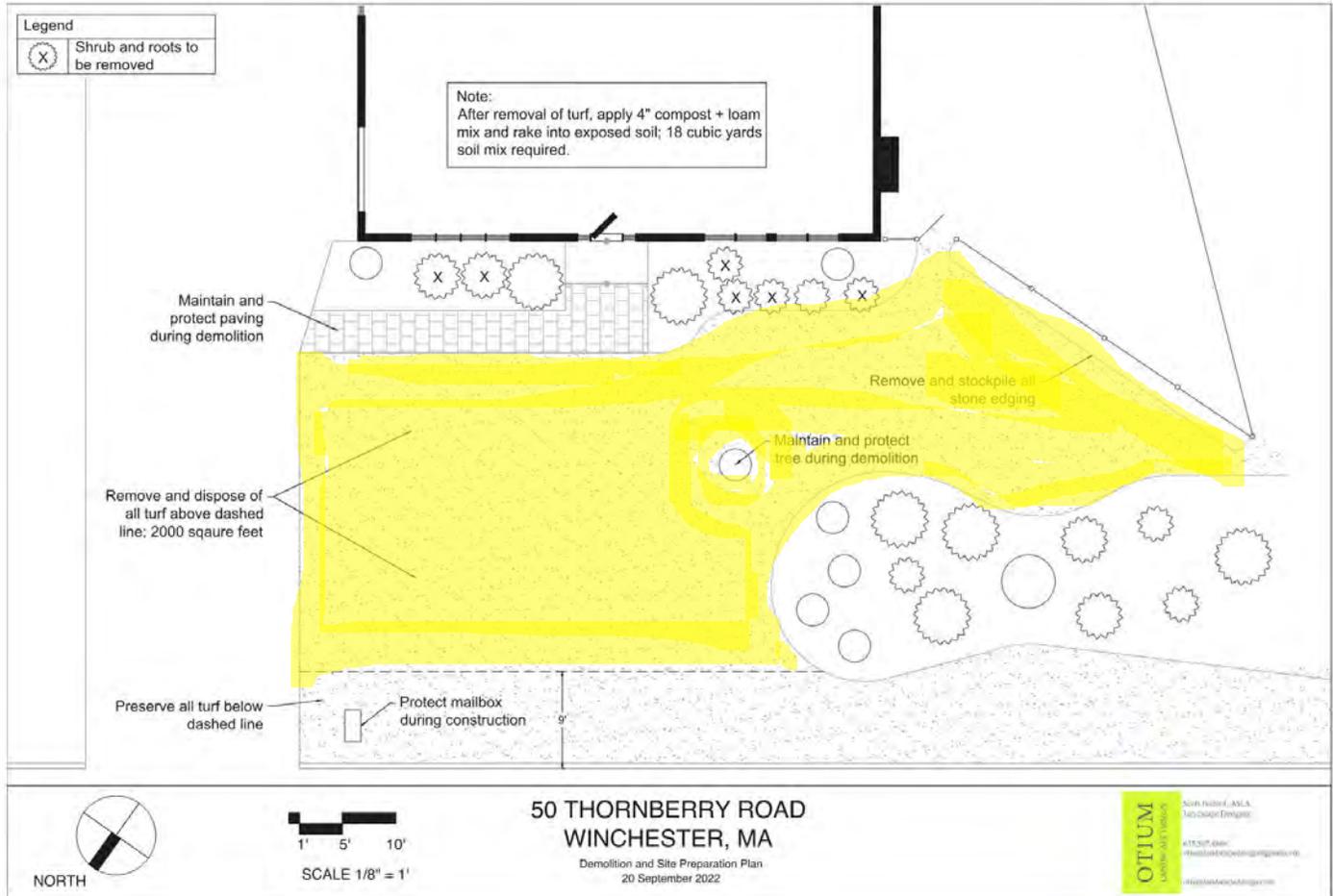


# **INTERMISSION: CASE STUDY**

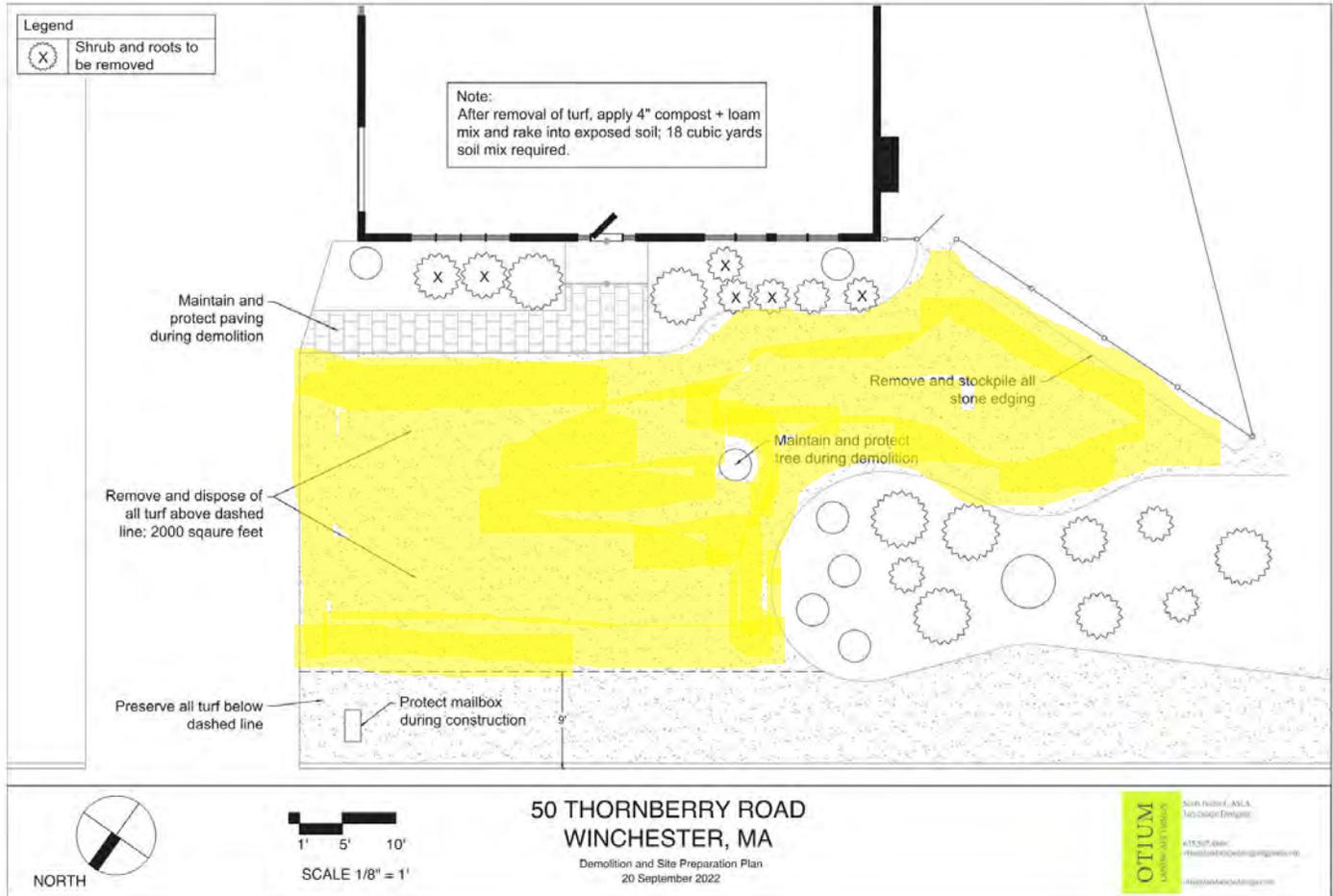
# SITE PREPARATION AND DEMOLITION



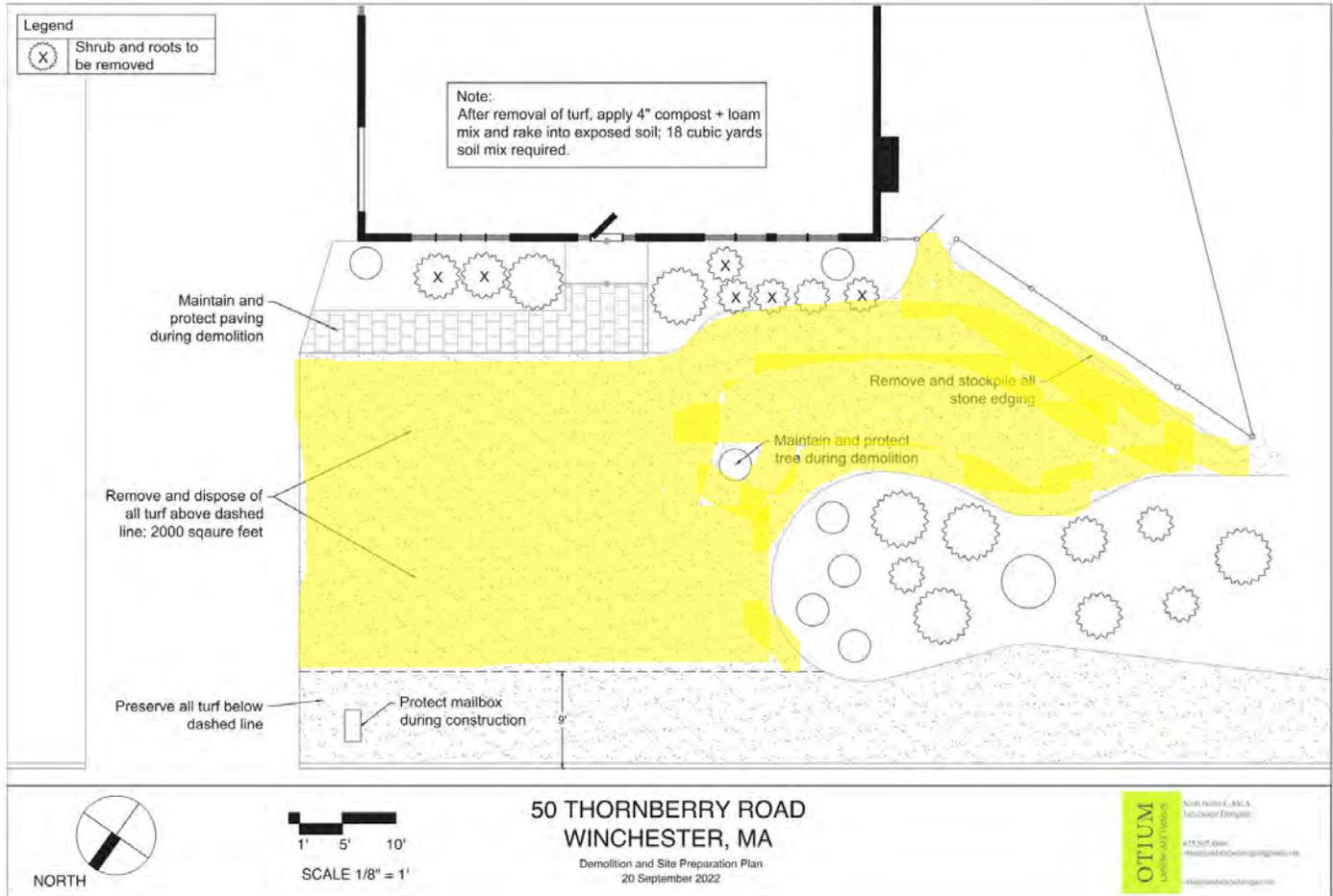
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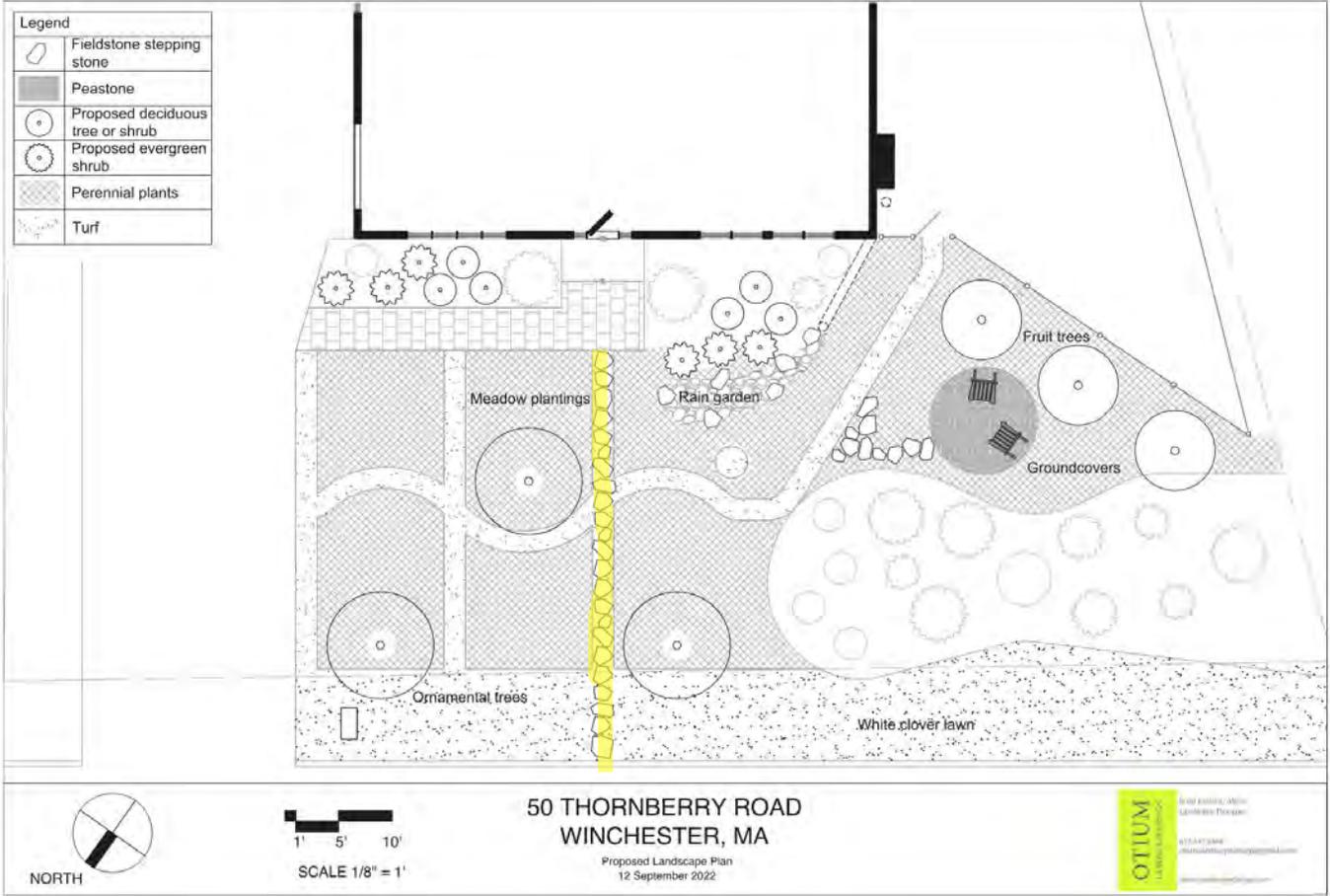
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# SITE PREPARATION AND DEMOLITION



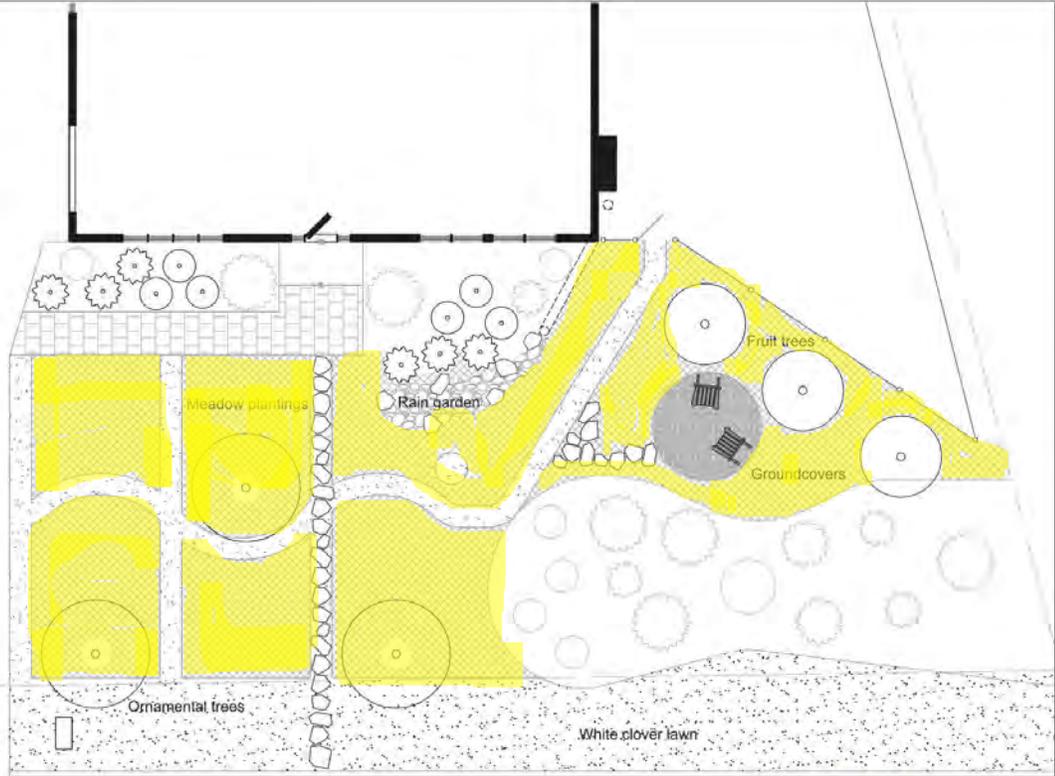
# INSTALLATION



# INSTALLATION



Legend	
	Fieldstone stepping stone
	Peastone
	Proposed deciduous tree or shrub
	Proposed evergreen shrub
	Perennial plants
	Turf



1' 5' 10'  
SCALE 1/8" = 1'

50 THORNBERRY ROAD  
WINCHESTER, MA

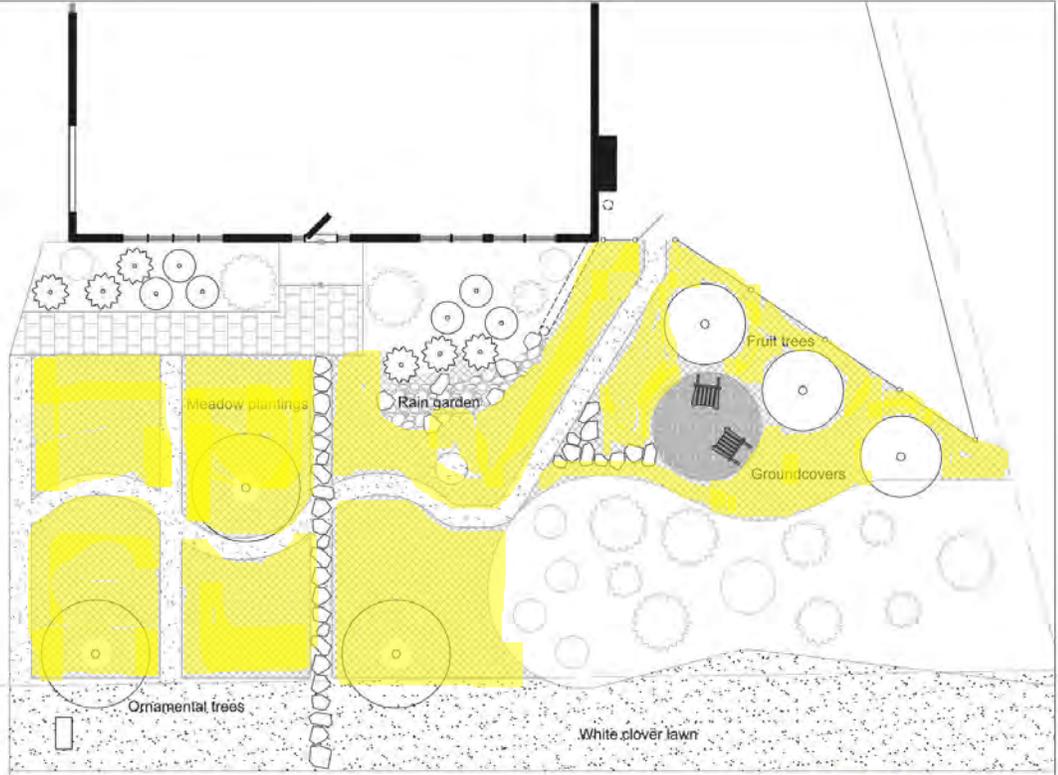
Proposed Landscape Plan  
12 September 2022



# INSTALLATION



Legend	
	Fieldstone stepping stone
	Peastone
	Proposed deciduous tree or shrub
	Proposed evergreen shrub
	Perennial plants
	Turf



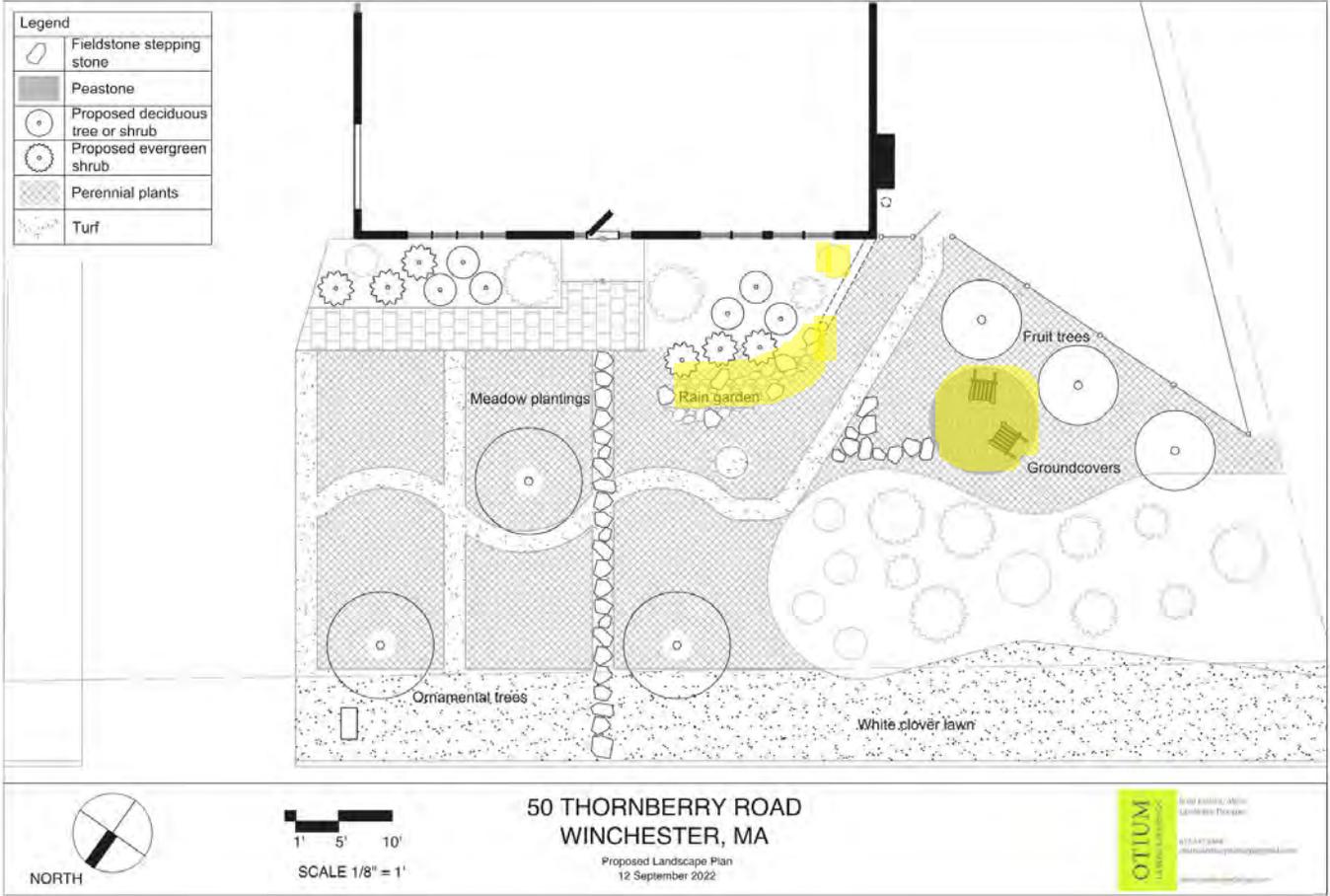
1' 5' 10'  
SCALE 1/8" = 1'

50 THORNBERRY ROAD  
WINCHESTER, MA

Proposed Landscape Plan  
12 September 2022



# INSTALLATION





**SUSTAINABLE  
LANDSCAPE  
MAINTENANCE**

# STEP 1 – WHO WILL DO THE WORK?

## Design:

## Installation (& Maintenance):

+ You create design



You install in phases

+ You create design



Contractor installs

+ Professional designer



You install with help from contractor(s)

+ Professional designer



Contractor installs

# SUSTAINABLE LANDSCAPE MAINTENANCE

## 1. WINTER

1. GENERAL PLANNING
2. DETERMINE IF CONTRACTOR NEEDED FOR MAINTENANCE. CONTACT EARLY!

## 2. SPRING

1. IPM (INTEGRATED PEST MANAGEMENT)
2. INVASIVE PLANT REMOVAL
3. WEEDING AND PRUNING
4. COMPOST
5. MULCH

## 3. SUMMER

1. BETTER LAWN CARE
2. SUSTAINABLE MAINTENANCE EQUIPMENT (MOWERS, BLOWERS)

## 4. FALL

1. FALL CLEANUP
2. BEFORE/AFTER EXAMPLES

THINGS YOU CAN DO TODAY

RESOURCES

ACTIVITY



**SPRING**

# 1. IPM

## INTEGRATED PEST MANAGEMENT

*Integrated Pest Management is an environmentally sensitive approach that uses a combination of practices that account for the pest species, their life cycle, and how they interact with the environment.*

**Pesticides are used as a last resort, and only *after* a problem occurs.**

IPM means knowing the species you are attempting to control and targeting that species.

+ Pesticides - herbicides, insecticides

### 1. Prevent

+ Planting early, using resistant plants, reducing plant stress

### 2. Monitor

### 3. Intervene

+ Biological (Natural enemies)

+ Natural Solutions (Pesticides/natural chemicals)

+ Mechanical/physical

# 1. IPM BIOLOGICAL

- + Attract birds (Natural enemies)
- + Attract beneficial insects (Natural enemies)
- + Spices
  - + Cinnamon, cayenne, paprika, turmeric, bay leaves, ground coffee, citrus peels
- + Plantings
  - + Mint, basil, lavender, rosemary, lemongrass, marigolds (Attract beneficial insects and prevent pests)

7 BENEFICIAL INSECTS FOR GARDEN PEST CONTROL		
INSECTS	PREYS ON	ATTRACTED BY
 LADYBUGS	<ul style="list-style-type: none"> <li>• APHIDS</li> <li>• WHITEFLIES</li> <li>• COLORADO POTATO BEETLES</li> </ul>	<ul style="list-style-type: none"> <li>• DILL</li> <li>• DANDELION</li> <li>• FERN-LEAF YELLOW</li> <li>• BASKET OF GOLD</li> </ul>
 GROUND BEETLES	<ul style="list-style-type: none"> <li>• SLUGS</li> <li>• CATERPILLARS</li> <li>• COLORADO POTATO BEETLES</li> <li>• CUTWORMS</li> </ul>	<ul style="list-style-type: none"> <li>• EVENING PRIMROSE</li> <li>• AMARANTHUS</li> <li>• CLOVER</li> </ul>
 MINUTE PIRATE BUGS	<ul style="list-style-type: none"> <li>• SPIDER MITES</li> <li>• APHIDS</li> <li>• THRIPS</li> <li>• CATERPILLARS</li> </ul>	<ul style="list-style-type: none"> <li>• CARAWAY</li> <li>• FENNEL</li> <li>• ALFALFA</li> <li>• SPEARMINT</li> </ul>
 GREEN LACEWINGS	<ul style="list-style-type: none"> <li>• APHIDS</li> <li>• WHITEFLIES</li> <li>• LEAFHOPPERS</li> <li>• MEALYBUGS</li> </ul>	<ul style="list-style-type: none"> <li>• DILL</li> <li>• ANGELICA</li> <li>• GOLDEN MARGUERITE</li> <li>• CORIANDER</li> </ul>
 APHID MIDGES	<ul style="list-style-type: none"> <li>• APHIDS</li> </ul>	<ul style="list-style-type: none"> <li>• DILL</li> <li>• PLANTS WITH PLENTY OF NECTAR AND POLLEN</li> </ul>
 DAMSEL BUGS	<ul style="list-style-type: none"> <li>• CATERPILLARS</li> <li>• MITES</li> <li>• APHIDS</li> <li>• CABBAGE WORMS</li> </ul>	<ul style="list-style-type: none"> <li>• CARAWAY</li> <li>• PETER PAN GOLDENROD</li> <li>• SPEARMINT</li> <li>• FENNEL</li> </ul>
 BRACONID WASPS	<ul style="list-style-type: none"> <li>• CATERPILLARS</li> <li>• APHIDS</li> </ul>	<ul style="list-style-type: none"> <li>• FERN-LEAF YARROW</li> <li>• LEMON BALM</li> <li>• PARSLEY</li> <li>• COMMON YARROW</li> </ul>

# 1. IPM

## NATURAL SOLUTIONS

Chemical IPM limits harm to non-targets, humans, and the environment. Pesticides are used only when needed.

- + Boric acid
- + Soap spray
- + Milky spore (grubs)
- + Neem oil
- + Diatomaceous Earth
- + White vinegar
- + Bait stations (For limited pesticide use)
- + Spot-spray



+ Vinegar



+ Neem oil



+ Dish soap spray



+ Diatomaceous Earth

# 1. IPM

## MECHANICAL/PHYSICAL

- + Humane traps
- + Mulch (weed control)
- + Fencing/barriers/screens
- + Soil solarization (4-8 weeks)
- + Cultivating soil
- + Weed filter fabric (Not plastic)



+ Soil cultivation



+ Mulch as a weed barrier



+ Soil solarization

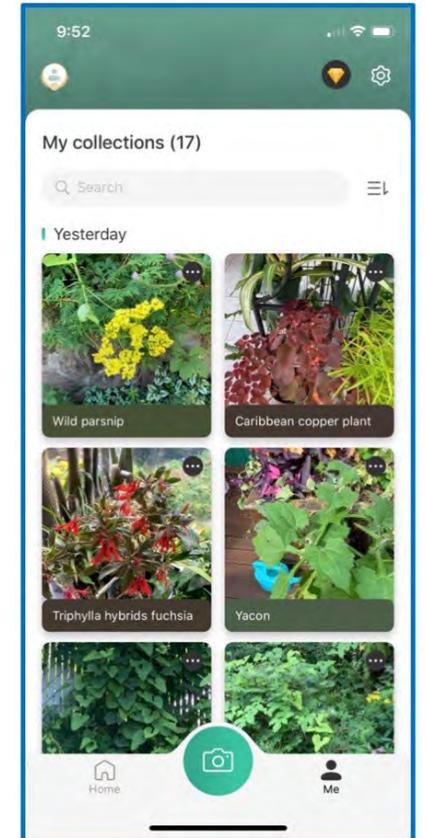


+ Fencing/barriers for larger creatures like rabbits

# 2. INVASIVE PLANT REMOVAL

## PLANT IDENTIFICATION

- + Because IPM requires some knowledge of the species you're dealing with, online tools will help you identify plants and critters around you.
- + Take/upload a photo of the plant/insect, and learn what it is!
- + Recommended Mobile Apps:



# 2. INVASIVE PLANT REMOVAL

**Herbicides are a last resort. Instead, try:**

- + Full root removal
- + Consistent cutting
- + If herbicides are necessary, they can be limited by cutting stems and dabbing plant with herbicide
- + **Planting natives immediately after removal helps prevent invasive regrowth**



+ Full root removal of barberry



+ Herbicide application on cut stems

# 3. WEEDING/PRUNING

## + Spring cleanup

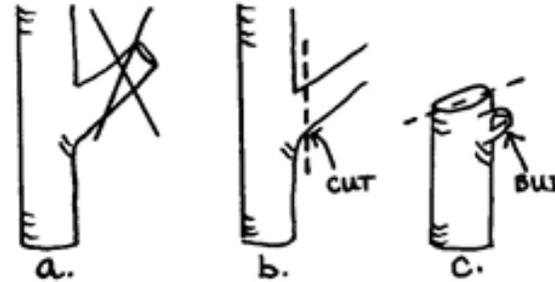
- + Do not start before late April-May. Protect pollinators and your plants' health!

## + Pruning

- + Maintain shape and size
- + Encourage flowering
- + Remove dead stems
- + Discourage pests
- + Prune summer bloomers in early spring
- + Prune spring bloomers right after flowering

## + Deadheading

- + Removing faded or dead flowers
- + Ensures continued blooming throughout growing season
- + Pinch or cut below the flower, and above the first set of leaves. NOTE: Varies based on species. Know the plant you're working with first.



- Do not leave stubs!**
- Cut cleanly, back to a main supporting stem.**
- Head back to just above a bud; cut on a slight angle.**

## Tools

**Hand shears** – use to cut branches up to 3/4" in diameter



**Lopping (long-handled) shears** – use to cut branches 3/4" – 1 1/2" in diameter



**Pruning saw** – use to cut branches larger than 1 1/2" in diameter



# 3. WEEDING/PRUNING

+ Weeds will need to be maintained throughout the growing season.

+ MANUAL PULLING

+ Easiest after rain

+ Wear gloves

+ Use the right hand tools!

+ STEAMING

+ Steam kills weeds! This does need to be done every few weeks, however.

+ Professional needed for larger areas.



# 3. WEEDING/PRUNING

## EDIBLE WEEDS

- + Consider leaving (some) weeds in your edible garden
  - + Some weeds are edible!
  - + Some weeds are natural pest repellants (Especially ones with strong fragrances)



+ White clover



+ Dandelion



+ Purple dead nettle



+ Henbit

# 4. COMPOST

- + *'Process that converts organic materials into a nutrient-rich soil amendment or mulch through natural decomposition.'* (EPA)
- + Waste reduction
- + Healthy soil, healthy plants
- + Nature's recycling!



+ Cedar compost bin



+ Composter



+ Tumbler



+ DIY tumbler



# 4. COMPOST TOPDRESSING

- + Topdressing with compost
  1. Fertilize a few weeks before
  2. Mow and rake the day before
  3. Apply and spread thin layer of compost
  4. Avoid walking on/mowing for a week
- + Top-dress during the growing season
- + Adds nutrients back to soil
- + Better moisture retention, health, stress/disease resistance



# 5. MULCH

1. Calculate amount required (Usually sold by cubic yards)
  - + **Total length x total width x 3" depth = cubic feet of mulch needed**
  - + Add 20% to account for compaction
2. Clean out beds, weed
3. Water plants
4. Spread mulch! 2-3" depth (Late spring)
  - + Don't bury any plants
  - + Keep 1-2" away from root flare

### Mulch Calculator

Mulch Area:

Length =  ft

Width =  ft

Depth =  in

Optional:

Pricing in:  Bulk  Bags

price  per

Answer:

**Cubic yards = 0.93 yd<sup>3</sup>**

**Cubic feet = 25 ft<sup>3</sup>**

**Cubic meters = 0.71 m<sup>3</sup>**

**Cost = \$37.20**  
at \$40.00 per cubic yard

### Mulch Calculator

Estimate how much mulch is required for a given area at a specified depth. Also, based upon your inputs, see a practical visual representation of the area covered.

Inputs

Area in Square Feet:

Depth in Inches:

Outputs

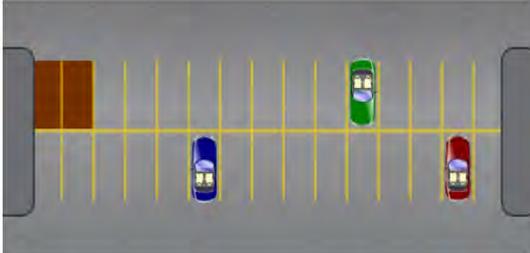
**Cubic Yards of Mulch:** 2.78

**Number of 2 Cubic Foot Bags:** 37.50

**Number of 3 Cubic Foot Bags:** 25.00

That would cover about

2 parking spaces at a depth of three inches



+ <https://www.landscapecalculator.com/calculators/mulch>

# 5. MULCH



+ Pine Needle Straw



+ Natural Bark Mulch



+ Leaf Mulch



+ Groundcover



+ Aged Sawdust



+ Straw



+ Grass clippings



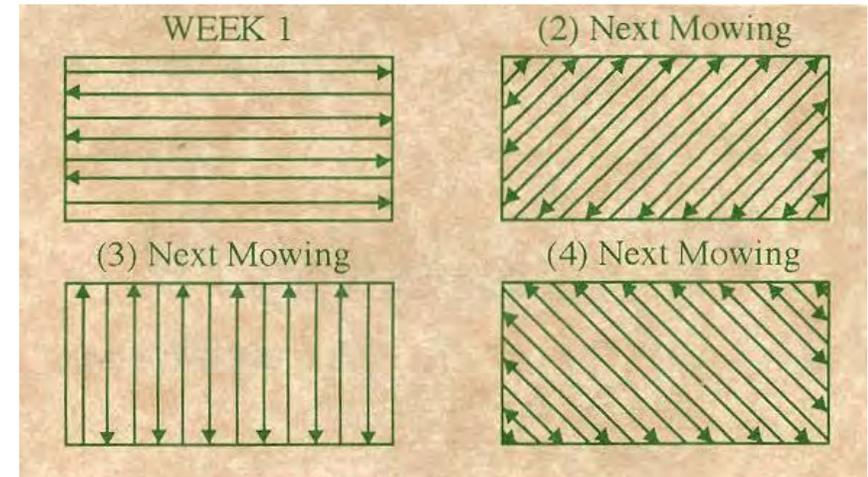
+ Compost



**SUMMER**

# 1. BETTER LAWN CARE

- + Turfgrass Lawn Mowing Schedule
  - + Never remove more than 1/3 of the grass blade in a single mowing
  - + Frequency: by plant height, not set schedule
  - + Alternate mowing pattern for healthier/stronger grass
- + Edging
  - + Remember 'Cues to Care'
  - + Maintain clean edges between materials



# 1. BETTER LAWN CARE LAWN CULTURE

- + Kill your lawn!
- + Alternatives are low-maintenance, sustainable, safer, and attractive. **Save water, money, and labor.**
- + The traditional lawn: Wastes water, diminishes biodiversity, pollutes water bodies, provides no use/purpose



*"Lawns are a reflection of the fact we're socialized to keep up appearances, to be cohesive with the community. Those who spray chemicals are more likely to know their neighbors by name. And in the US at least you might even be legally obligated to tend to your lawn and fined if you don't." – Paul Robbins <https://www.bbc.com/future/article/20220426-should-people-get-rid-of-their-garden-lawns>*

**BOHLER //**

# 1. BETTER LAWN CARE

## LAWN ALTERNATIVES

- + Concord Lawn Alternative Demonstration Gardens: Junction Park, West Concord, CCHS (Right of the lower entry), Main Library
- + Will not need supplemental watering after the first year of establishment

### + Pennsylvania Sedge

Pennsylvania Sedge  
*Carex pensylvanica*

Watering – Minimal once established

Maintenance: 1x year (June/July)

Height: 5 inches



### + Green Carpet/Rupturewort

Green Carpet/Rupturewort  
*Herniaria glabra*

Watering – Minimal once established

Maintenance: No mowing

Height: 3 inches max



### + Microclover Black Beauty

Micro-clover Fescue Mix  
*Microclover™ Black Beauty Blend*

Watering – Minimal once established

Maintenance: 1-2x month

Height: mow to 3-4 inches

Used by the New York City Parks Department



# 1. BETTER LAWN CARE

## LAWN ALTERNATIVES

+ Clover (Red, white)



+ Moss



# 1. BETTER LAWN CARE

## LAWN ALTERNATIVES

+ Wild Strawberry



+ Creeping thyme (White thyme, woolly thyme,)



# 1. BETTER LAWN CARE

## LAWN ALTERNATIVES

+ Pearl's Premium Grass Seed



Mow only once a month  
Seldom or never water  
Thrives without chemicals  
Saves you money on lawn care  
Grows 12" deep roots



+ Low-mow fescue



# 1. BETTER LAWN CARE

## LAWN ALTERNATIVES

- + Embrace weeds. (The non-invasive ones)
- + Add beds for planting areas
- + Where lawn is burnt or dying, consider functional alternatives.



# 2. ELECTRIC MAINTENANCE EQUIPMENT

- + Switch to electric yard equipment to reduce use of fossil fuels, and carbon emissions
- + Rely more on hand-powered tools than power tools if you can



+ Battery-powered leaf blower

+ Lawnmower

+ Weedwhacker

+ Chainsaw

+ Hedge trimmer

# 2. MANUAL MAINTENANCE EQUIPMENT



+ Loppers



+ Shears



+ Hand pruner



+ Wheelbarrow



+ Push spreader



+ Cultivator



+ Hose



+ Push mower



+ Leaf rake



+ Metal rake



+ Hand trowel



+ Gloves!



**FALL**

# 1. FALL CLEANUP



**LEAVES:  
LOVE 'EM  
AND LEAVE 'EM**

## + Leaf 'Mulching-In-Place'

- + **Leave your leaves where they are!** They will decompose over the winter and nourish your lawn and garden. For free! And labor-free!
- + Or, run over them with a mower to cut them up into mulch
- + **If you want to rake/blow, don't dispose of them**
  - + Pile leaves in a corner of your yard. They will become nutritious leaf mulch.
- + *"Vacuuming, carting, and dumping leaves costs the town over \$100,000 each year" - The Village of Irvington in NY*



# 1. FALL CLEANUP

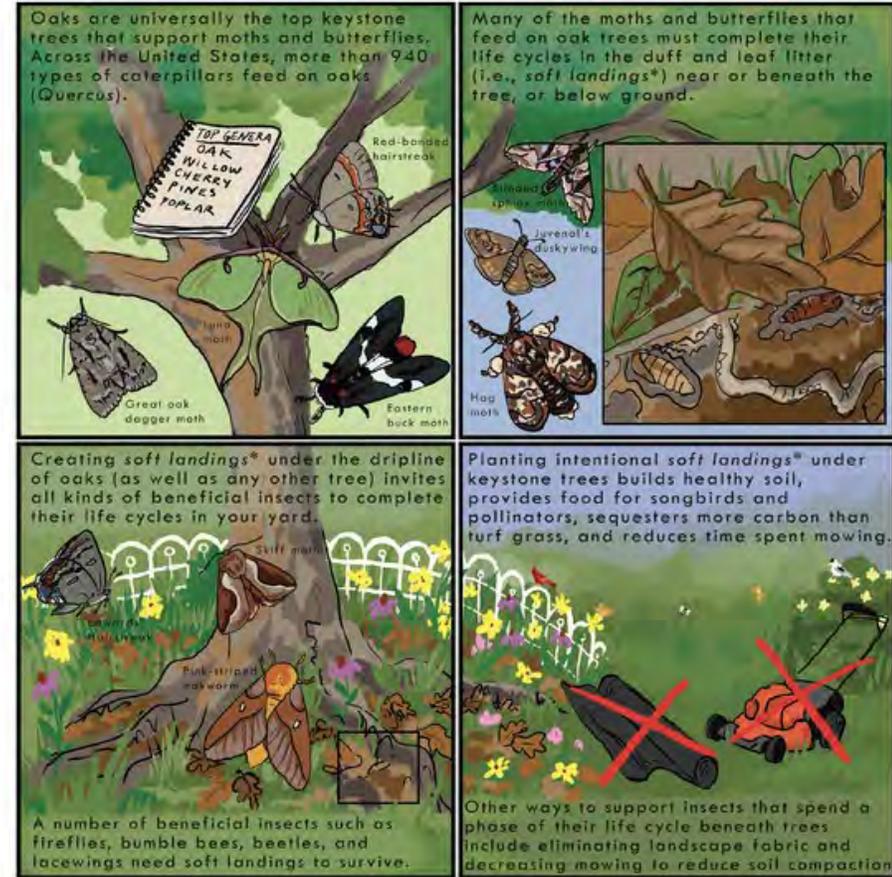
## Soft Landings

- + Soft materials under your trees provide safe havens throughout pollinators' life cycles
- + (Another reason to 'Love 'Em and Leave 'Em')
  - + Leaf litter
  - + Debris
  - + Soft plants



## SOFT LANDINGS

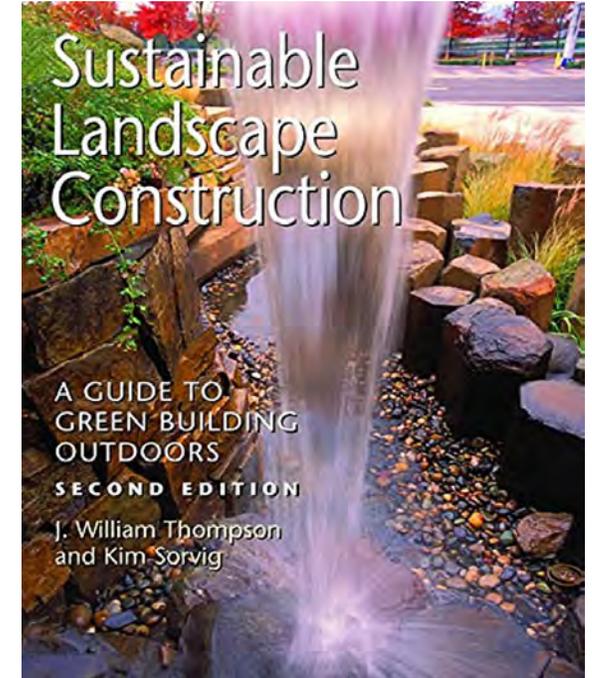
**Soft landings** are diverse native plantings under keystone trees (or any other regionally appropriate native tree). These plantings provide critical shelter and habitat for one or more life cycle stages of moths, butterflies, and beneficial insects such as bumble bees, fireflies, lacewings, and beetles. In addition to plants, **soft landings** also include leaf litter, duff, and plant debris.



Funded by a grant from Wild Ones Minnesota. © 2021 Heather Holm and Neighborhood Greening. Developed in consultation with Desiree Narango, Ph.D.; artwork by Elsa Cousins. More information: [www.PollinatorsNativePlants.com/softlandings.html](http://www.PollinatorsNativePlants.com/softlandings.html)

# THINGS YOU CAN START TODAY

- + Research
- + Weed Manually
- + Limit or Quit using Roundup
- + Switch to electric or manual tools
- + Start a compost pile/bin
  - + Separate kitchen trash
- + Switch to Bio-Based Products
- + Explore Lawn Alternatives
- + Talk to Professionals
- + Use IPM instead of Raid
- + Leave your leaves alone!
- + Kill your lawn!
- + Be Creative!!



- + "Sustainable Landscape Construction" by J. William Thompson and Kim Sorvig

# RECAP - BITE-SIZED PROJECTS

- + Start small. You don't need a large space to make an impact.
- + See what you can easily accomplish at home!
- + Use resources for guidance.
- + Don't be intimidated.
- + Ask your design professionals or contractors questions. Ask about implementing sustainable practices.
- + Buy a little more material than you need!
- + Use what you already have and be creative.

# THANK YOU!

Workshop 1:  
**DESIGN**

Tues, April 11,  
5:00-7:00PM

STONEHAM  
Town Hall

Workshop 2:  
**CONSTRUCTION**

Sat, May 20,  
1:00-3:00PM

WINCHESTER  
Library

Workshop 3:  
**MAINTENANCE**

Thurs, June 8,  
11:00AM-1:00PM

ARLINGTON  
Community Center

# RESOURCES

- + <https://www.energyandfacilities.harvard.edu/facilities-services/landscape-maintenance/organic-maintenance-program>
  - + <https://www.pollinatorsnativeplants.com/softlandings.html>
  - + <https://www.epa.gov/recycle/composting-home>
  - + <https://www.nrdc.org/stories/composting-101#howto>
  - + <https://concordma.gov/2425/Lawn-Alternative-Demonstration-Gardens>
  - + <https://www.growforagecookferment.com/edible-backyard-weeds/>
  - + <https://www.popularmechanics.com/home/lawn-garden/a17419/mulch-your-leaves-this-fall/>
  - + <http://www.leleny.org/p/lele-toolkit.html>
  - + <https://www.treehugger.com/natural-homemade-insecticides-save-your-garden-without-killing-earth-4858819>
  - + <https://community.massenergize.org/SherbornMA/actions/2303>
  - + <https://www.arboday.org/trees/index-choosing.cfm>
  - + <https://www.nytimes.com/2022/06/15/realestate/yes-you-can-do-better-than-the-great-american-lawn.html>
  - + <https://rwmwd.org/news/rethinking-the-traditional-lawn/>
  - + <https://blogs.cornell.edu/biocontrolbytes/2021/04/20/when-can-i-clean-up-my-gardenand-still-protect-beneficial-insects/>
  - + <https://www.bbc.com/future/article/20220426-should-people-get-rid-of-their-garden-lawns>
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