



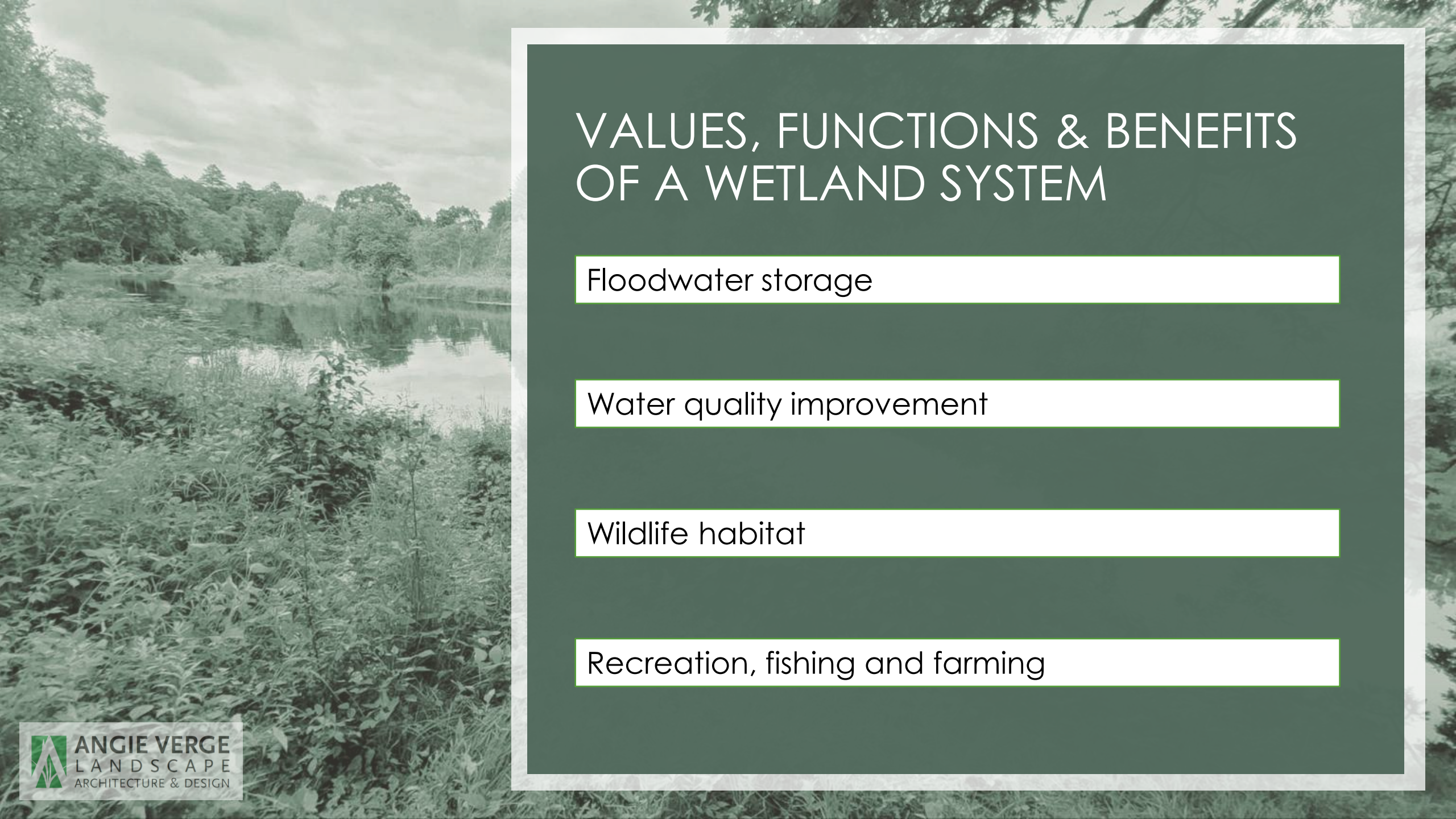
LANDSCAPE DESIGN FOR WETLANDS

Angie Verge, PLA, MCH
angieverge.com
[@angieverge](https://www.instagram.com/angieverge)



ANGIE VERGE
LANDSCAPE
ARCHITECTURE & DESIGN

WETLANDS 101



VALUES, FUNCTIONS & BENEFITS OF A WETLAND SYSTEM

Floodwater storage

Water quality improvement

Wildlife habitat

Recreation, fishing and farming



TYPES OF WETLANDS

BORDERING VEGETATED WETLAND (BVW)

RIVERS & STREAMS

LAKES, PONDS & VERNAL POOLS

COASTAL SHORES & MARSHES

Fun Facts about Wetlands

An acre of wetland can store 1–1.5 million gallons of floodwater

Up to one-half of North American bird species nest or feed in wetlands

Although wetlands keep only about 5 percent of the land surface in the conterminous United States, they are home to 31 percent of our plant species

Massachusetts Wetland Protection Act

- **1963:** The Massachusetts Wetlands Protection Act (WPA) was established to safeguard wetlands and associated resource areas from negative impacts of development.
- **1972:** The Act was codified, reinforcing the protected status of wetlands and establishing buffer zones.
- **1996:** The Rivers Protection Act was introduced, creating additional protections for riverfront areas, which are administered under the WPA.

Conservation Commissions

- **1957:** The Conservation Commission Act authorized municipalities to create conservation commissions to oversee the protection of open spaces and wetlands, allowing communities to acquire land for conservation purposes.
- **1963:** The Massachusetts Wetlands Protection Act gave local Conservation Commissions the authority to issue permits in accordance with the Act.
- Commissions (or ConCom) consist of 3-7 volunteer members
- Public meetings and hearings typically occur 1-2 times per month
- Most municipalities have also enacted Wetland Protection Bylaws with more detailed regulations, also administered by the local ConsCom

Resource Area

- A designated zone where water is present at or near the surface of the soil for significant periods, supporting a variety of plant and animal life adapted to these saturated conditions.

Jurisdiction

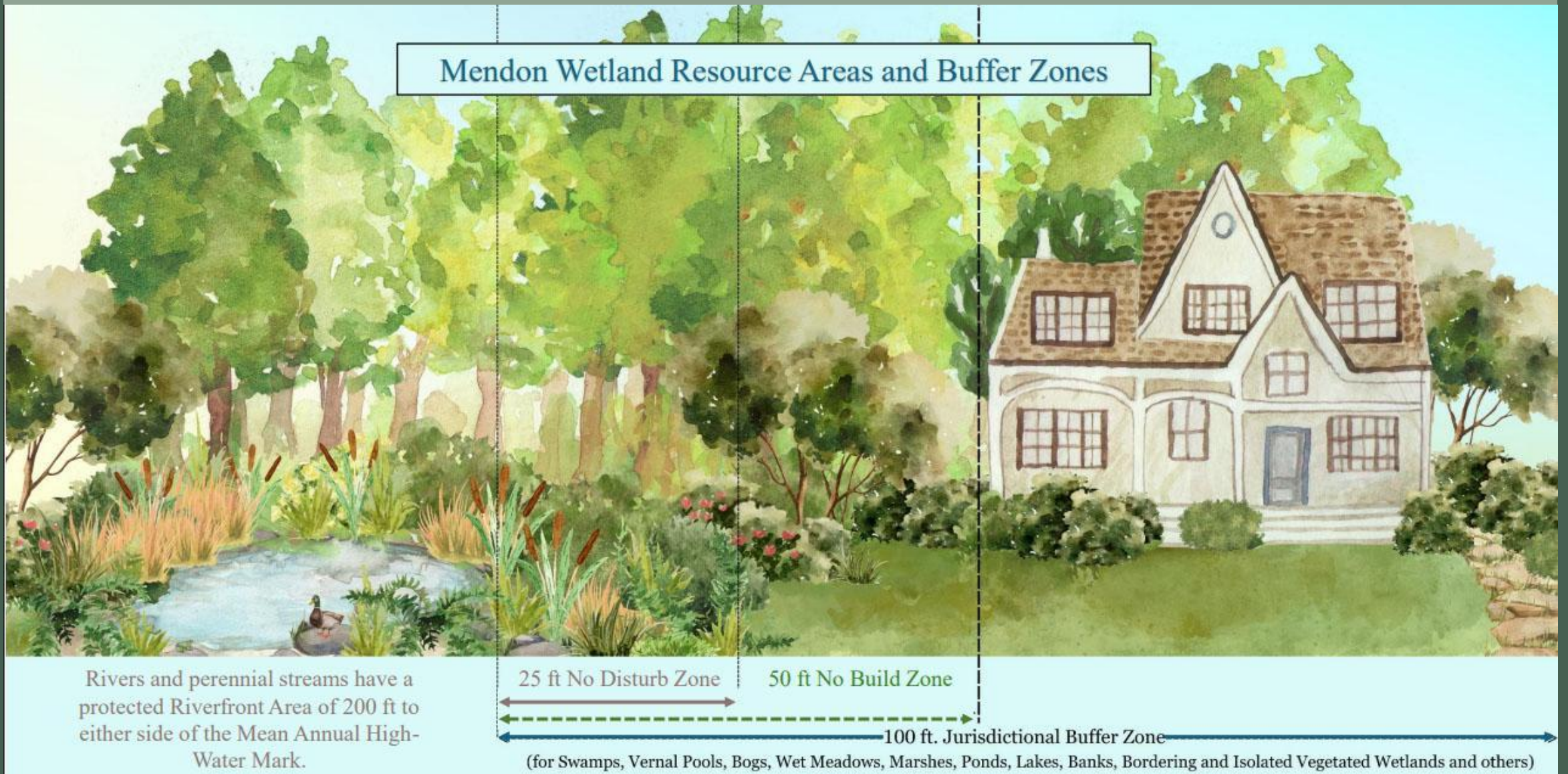
- Refers to the legal authority to regulate wetlands under specific laws. Wetlands are considered jurisdictional if they meet certain criteria, such as being adjacent to navigable waters or having a significant connection to them.

Buffer Zone

- The area surrounding a wetland that helps protect it from negative external influences. This zone enhances the wetland ecological functions, supports biodiversity, and improves water quality by filtering runoff before it enters the wetland.

Wetland Regulations- Terms & Definitions

BUFFER ZONES - Typical



WHERE DO I EVEN START?



Step 2:

Notify The Client

- Explanation of local, state and federal laws
- Permission to speak to the Municipal conservation department

Marlborough

MASSACHUSETTS

GOVERNMENT

DEPARTMENTS

SERVICES

HOW DO I...

Create a Website Account - Manage notification subscriptions, save form progress and more.

Website Sign In

Community Garden

Conservation Commission Facebook Page

Environmental Organizations

Green Community Sustainability Efforts

Native Pollinator Gardens

Open Space Plan

Stream Team Reports

Trail Maps

Wetland Permit Forms

Home | Government | Boards & Committees | Conservation Commission

Conservation Commission

Meetings

Agendas & Minutes

Members

Staff

Overview

7 pm

1st and 3rd Thursdays of the Month

City Hall

140 Main Street

Marlborough, MA 01752

Agendas are available prior to the meetings. Minutes are available following approval.

View Most Recent Agendas and Minutes.

Edward Clancy, Chair

Elizabeth Austin

William Dunbar

John Skarin

Dave Williams

Allan White

Robert McCabe

Priscilla Ryder, Conservation Officer

Craig Sullivan, Administrative Assistant

The Conservation Commission is a seven-member board of dedicated volunteers appointed by the Mayor.

The Conservation Commission's mission is to protect the natural resources of Marlborough, including both the wetlands and natural open spaces. Tasks include administering the Massachusetts Wetlands Protection Act, undertaking land acquisition, managing conservation land, and offering public education and participation on environmental issues.

Open space increases the quality of life for all residents: a healthy environment provides clean water, clean air, recreation, and increased property values. Protecting land around water supplies helps to keep our drinking water clean. The Commission permits and oversees the construction of projects within 100 feet of wetlands, or 200 feet from rivers, to ensure that the wetlands are protected from siltation or contamination due to the adjacent construction.

Cider Knoll Conservation Area Beaver Dam

Contact Us

Priscilla Ryder

Conservation Officer

Email Priscilla Ryder

Phone: 508-460-3768

Conservation Commission

Physical Address View Map

140 Main Street

Marlborough, MA 01752

Directions

Phone: 508-460-3768

Fax: 508-460-3638

Hours of Operation

Monday through Friday

9 am to 5 pm

Directory

Calendar

December 2025

SUN	MON	TUE	WED	THU	FRI	SAT
30	1	2	3	4	5	6
7	8	9	10	11	12	13

Step 3:

Contact the Conservation Department

- Let them know the status of the project and general scope of work
- Ask what type of permit would be required and the submittal requirements

Engineering Team (surveyor; wetland scientist; civil engineer)

Design Team (Landscape Architect, Designer or Horticulturist)

Landscape Contractor

Step 4:

Assemble
the Wetland
Team

You'll need:

- 1. Wetland scientist to delineate or “flag” the wetland
- 2. Surveyor to create an existing conditions plan and map the wetland flags onto the plan. Include limited topography.
- 3. Environmental consultant or civil engineer to prepare the site plan and file the Wetland permit application (known as Notice of Intent).
- 4. These professionals, depending on the size of the project, can cost \$1,500 - \$3,500+

Step 5:

Engineering,
Wetland
Flagging &
Site Survey

Call a firm that
has experience
working in your
town or city

THE LANDSCAPE PLAN

SITE PREPARATION

Sediment Control & Limit of Work

- Straw Bales
- Siltation Fence
- Filter Sock with Compost

X Avoid straw wattles with plastic netting!



Tree Removal

- Remove large trees using a crane
- Leave stumps in place - flush cut
- Consider leaving 10' snags
- Replace the trees being removed



Stockpile Areas & Tree Protection

- Designate a stockpile area for bulk materials/debris
- Mark off limit of work
- Protect critical root zones of existing trees



THE LANDSCAPE PLAN

SITE PREPARATION

DESIGN ELEMENTS & MATERIALS

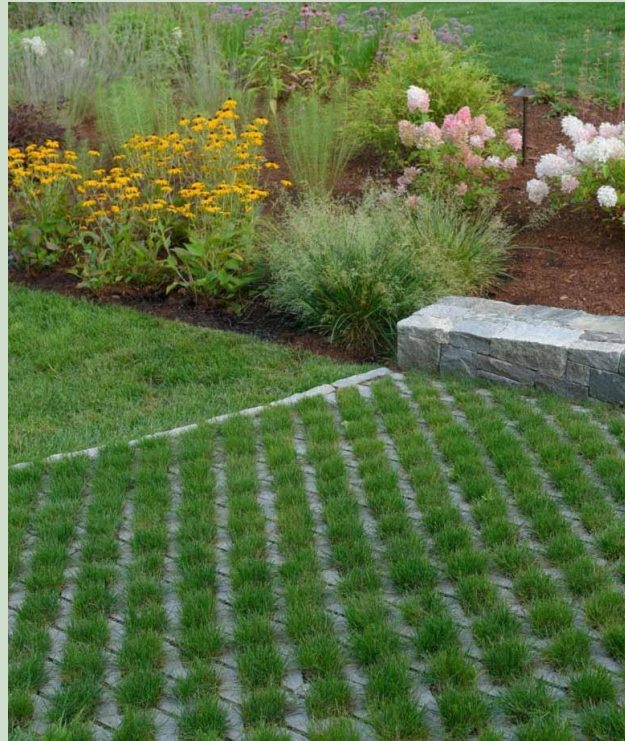
Stormwater Management

- Managing downspouts & roof runoff
 - Gravel Drip Strips
 - Drywells
- Rain gardens & swales



Hardscapes & Paving

- Permeable paving and gravel
- Dry stacked walls with gaps for wildlife
- Footings for decks and sheds



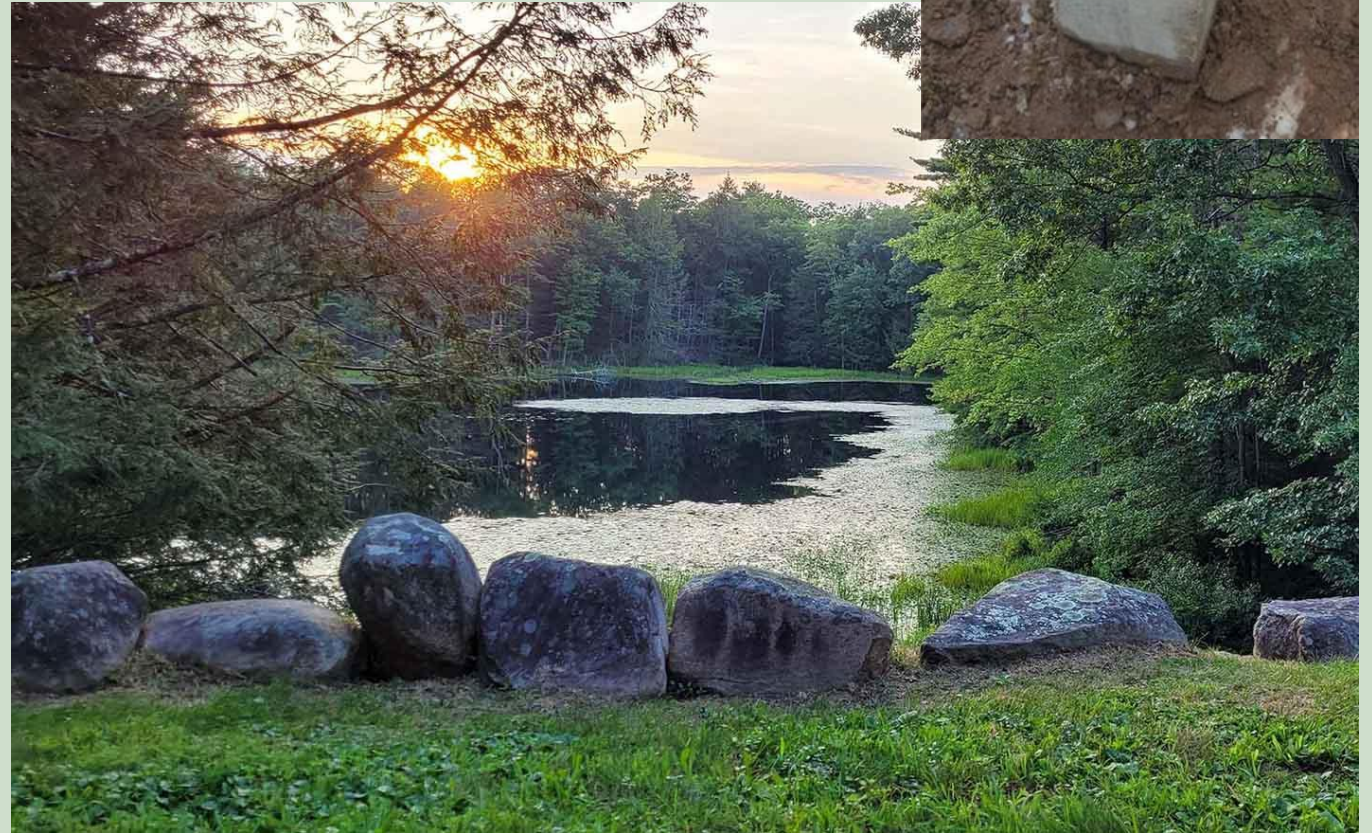
Fences

- Demarcate “no disturb zones”
- Allow wildlife passage
- Larger openings and gaps



Boulders & Permanent Bounds

- Demarcate buffer zones with boulders
- Stone, concrete or Feno Markers
- Prevents encroachment on future projects



THE LANDSCAPE PLAN

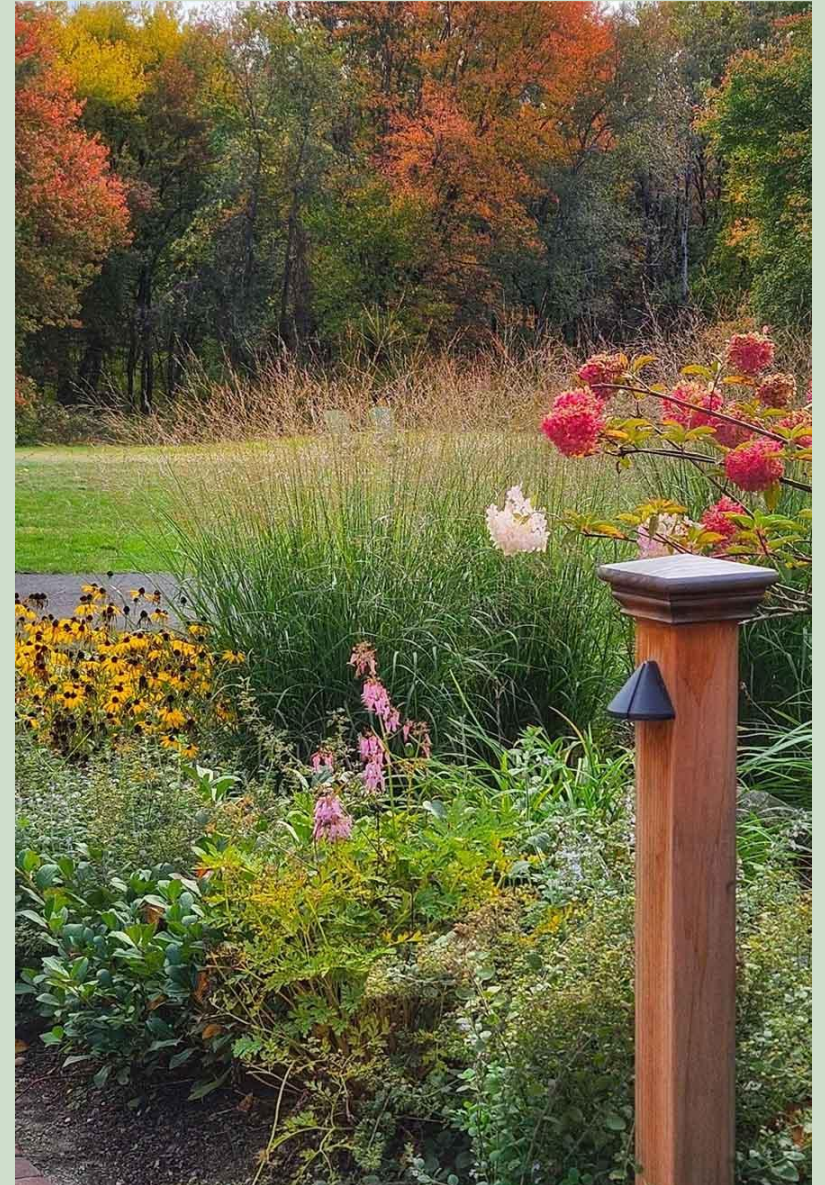
SITE PREPARATION

DESIGN ELEMENTS & MATERIALS

PLANTS

Planting Plan

- Consider site existing conditions (soil moisture, sun exposure, wildlife browsing)
- In jurisdictional areas, use only native species
- List native region on plant list



Plant Source Lists

- Go Botany at Native Plant Trust website
- Municipal Approved Plant List
- MA Natural Heritage Vascular Plant List - Native list by county

GO BOTANY

Discover thousands of New England plants

Home Simple Key PlantShare Full Key Dichotomous Key Teaching Help

You are here: [Simple Key](#) > [Woody plants](#) > [Broad-leaved woody plants](#) > *Clethra alnifolia*

Clethra alnifolia – coastal sweet-pepperbush



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Facts

Coastal sweet pepperbush is primarily a member of the tall shrub layer of coastal swamps, where it can attain moderate densities as it proliferates from stolons. Lauded for its fragrant, bottle-brush blooms of white flowers that attract many pollinators, as well as its easy growth and pleasing shape, this shrub is a good choice for moister garden borders.

Habitat

Ridges or ledges, shores of rivers or lakes, swamps, woodlands

New England distribution

Adapted from BONAP data

Native
■ county documented



[about the labels on this map](#)

Found this plant? Take a photo and [post a sighting](#).

North America distribution

Adapted from BONAP data



[enlarge](#)

CARLISLE CONSERVATION COMMISSION - APPROVED PLANT LIST for JURISDICTIONAL PROJECTS

TYPE	BOTANICAL NAME	COMMON NAME	DRIER UPLAND	FORESTED WETLANDS & SHADE	WET, SUNNY MEADOWS	BANKS & WATER'S EDGE	UNDER WATER (>1' DEEP)	WETLAND INDICATOR
Deciduous Trees	<i>Acer rubrum</i>	Red Maple	x	x	x	x		FAC
	<i>Acer saccharinum</i>	Silver Maple	x	x	x	x		FACW
	<i>Benthamidia (Cornus) florida</i>	Flowering Dogwood	x	x	x			FACU
	<i>Betula nigra</i>	River Birch	x		x	x	x	FACW
	<i>Betula papyrifera</i>	Paper Birch	x					FACU
	<i>Hamamelis virginiana</i>	Witch-Hazel	x	x				FAC-
	<i>Nyssa sylvatica</i>	Sweet Gum	x	x	x	x		FAC
	<i>Quercus alba</i>	White Oak	x	x	x			FACU
	<i>Quercus rubra</i>	Red Oak	x	x	x			FACU-
Evergreen Trees	<i>Juniperus virginiana</i>	Eastern Red Cedar	x		x			UPL
	<i>Pinus strobus</i>	White Pine	x	x	x			FACU
	<i>Tsuga canadensis</i>	Eastern Hemlock	x	x				FACU
Evergreen Shrubs	<i>Juniperus horizontalis</i>	Prostrate Juniper	x		x			FACU
	<i>Kalmia latifolia</i>	Mountain Laurel	x	x	x			FACU
Shrubs	<i>Amelanchier canadensis</i>	ShadBush	x	x	x			FAC
	<i>Cephalanthus occidentalis</i>	Buttonbush	x	x	x	x	x	OBL
	<i>Clethra alnifolia</i>	Sweet Pepper Bush	x	x	x	x	x	FAC+
	<i>Comptonia peregrina</i>	Sweet Fern	x		x			UPL
	<i>Corylus americana</i>	American Hazelnut	x	x	x	x		FACU-
	<i>Ilex verticillata</i>	Winterberry Holly	x		x	x	x	FACW+
	<i>Lindera benzoin</i>	Spice Bush	x		x	x		FACW-
	<i>Photinia (Aronia) arbutifolia</i>	Red Chokeberry	x		x			FACW
	<i>Photinia (Aronia) melanocarpa</i>	Black Chokeberry	x		x			FAC
	<i>Rhododendron viscosum</i>	Swamp Azalea		x	x	x		OBL
	<i>Swida (Cornus) racemosa</i>	Grey Dogwood	x	x	x	x		FAC
	<i>Swida (Cornus) sericea</i>	Red Osier Dogwood	x	x	x	x		FACW+
	<i>Vaccinium angustifolium</i>	Low Bush Blueberry	x	x	x			FACU-
	<i>Vaccinium corymbosum</i>	High Bush Blueberry	x	x	x	x		FACW

Additional Ideas

- Removal of lawn to create plant beds instead
- Removal of invasive plants
- Native Seed Mixes



THE LANDSCAPE PLAN

SITE PREPARATION

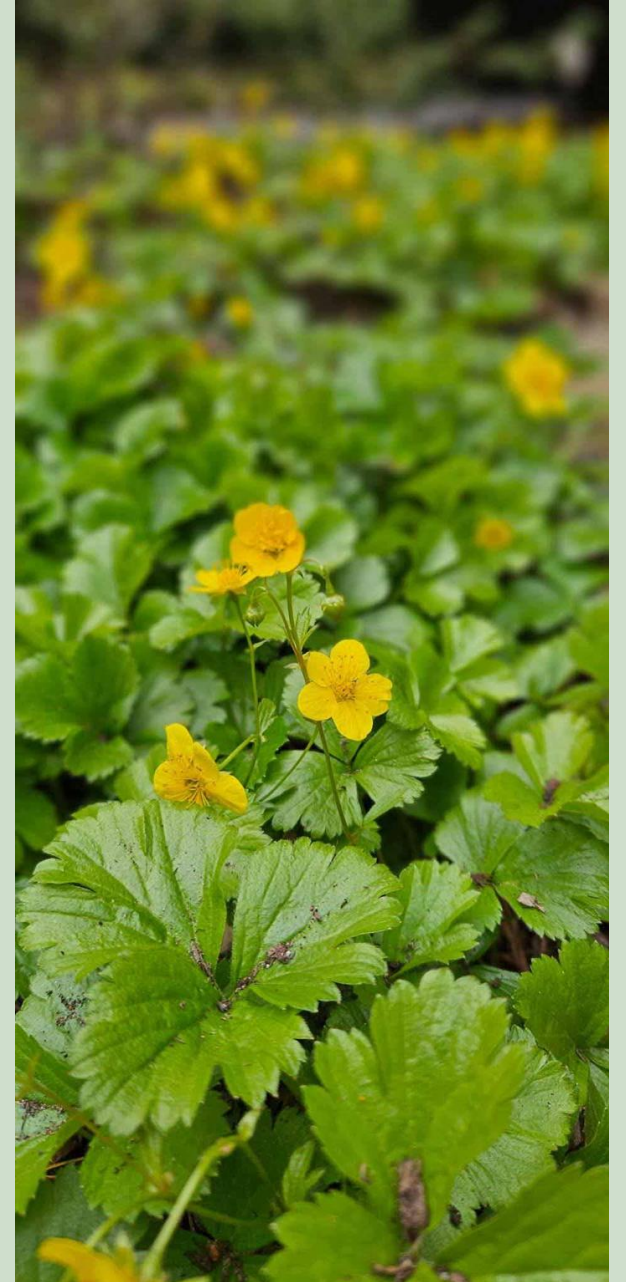
DESIGN ELEMENTS & MATERIALS

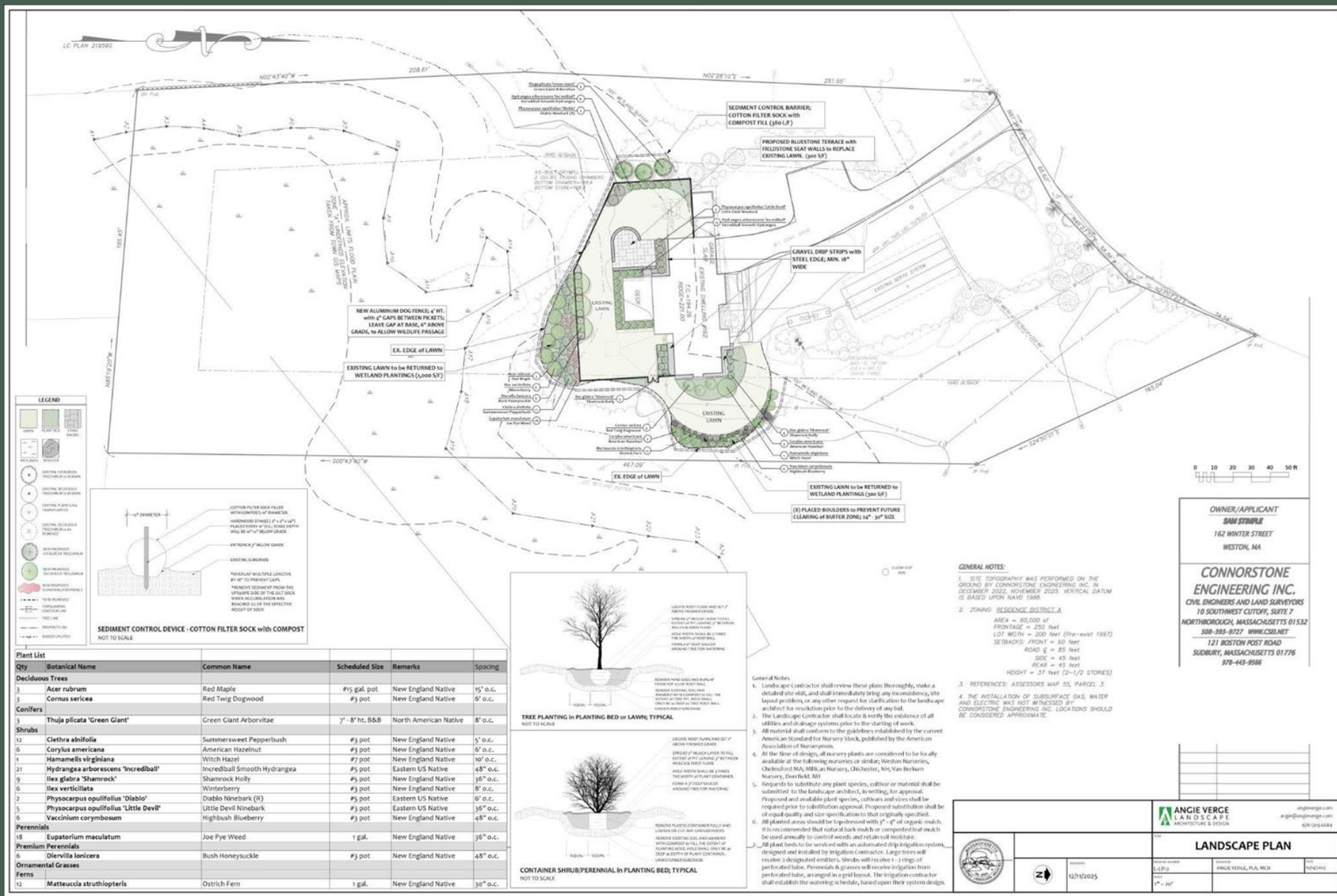
PLANTS

MAINTENANCE and
MONITORING

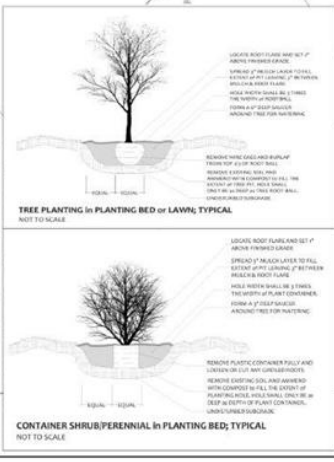
Post- Installation

- Provide a Maintenance Plan for the landscape maintenance company
- Propose Multi-year Invasive Plant Management Programs, if required
- Submit Annual monitoring Reports to confirm plants are established





Plant List		Common Name	Scheduled Size	Remarks	Spacing
Deciduous Trees					
3	Acer rubrum	Red Maple	#15 gal. pot	New England Native	15' o.c.
3	Cornus sericea	Red Twig Dogwood	#3 pot	New England Native	6' o.c.
Conifers					
3	Thuja plicata 'Green Giant'	Green Giant Arborvitae	7' - 8' ht. B&B	North American Native	8' o.c.
Shrubs					
12	Clethra alnifolia	Summersweet Pepperbush	#3 pot	New England Native	5' o.c.
6	Corylus americana	American Hazelnut	#3 pot	New England Native	6' o.c.
1	Hamelia virginiana	Witch Hazel	#7 pot	New England Native	10' o.c.
21	Hydrangea arborescens 'Incrediball'	Incrediball Smooth Hydrangea	#5 pot	Eastern US Native	48" o.c.
6	Ilex glabra 'Shamrock'	Shamrock Holly	#3 pot	New England Native	36" o.c.
6	Ilex verticillata	Winterberry	#3 pot	New England Native	8' o.c.
2	Physocarpus opulifolius 'Diablo'	Diablo Ninebark (H)	#5 pot	Eastern US Native	6' o.c.
5	Physocarpus opulifolius 'Little Devil'	Little Devil Ninebark	#3 pot	Eastern US Native	36" o.c.
6	Vaccinium corymbosum	Highbush Blueberry	#3 pot	New England Native	48" o.c.
Perennials					
18	Eupatorium maculatum	Joe Pye Weed	1 gal.	New England Native	36" o.c.
Premium Perennials					
6	Diervilla lonicera	Bush Honeysuckle	#3 pot	New England Native	48" o.c.
Ornamental Grasses					
Ferns					
12	Matteuccia struthiopteris	Ostrich Fern	1 gal.	New England Native	36" o.c.



General Notes:

1. SITE TOPOGRAPHY WAS PERFORMED ON THE PROPERTY BY CONNORSTONE ENGINEERING, INC. IN DECEMBER 2022, NOVEMBER 2023. VERTICAL DATUM IS BASED UPON NAD 83.
2. ZONING: RESIDENCE DISTRICT A.
AREA = 80,000 sq ft
FRONTAGE = 250 feet
LOT WIDTH = 250 feet (Per-exist 1997)
SEBACKS: FRONT = 60 feet
ROAD E = 85 feet
SIDE = 45 feet
REAR = 45 feet
HEIGHT = 37 feet (2-1/2 STORIES)
3. REFERENCES: ASSESSORS MAP 55, PARCEL 3.
4. THE INSTALLATION OF SUBSURFACE GAS, WATER AND ELECTRIC WAS NOT WITNESSED BY CONNORSTONE ENGINEERING, INC. LOCATIONS SHOULD BE CONSIDERED APPROXIMATE.
5. Requests to substitute any plant species, cultivar or material shall be submitted to the landscape architect, in writing, for approval. Proposed and available plant species, cultivars and sizes shall be required prior to substitution approval. Proposed substitution shall be of equal quality and size specification to that originally specified.
6. All planted areas should be top-dressed with 2" - 4" of organic mulch. It is recommended that natural bark mulch or composted leaf mulch be used annually to control weeds and retain soil moisture.
7. All plant beds to be serviced with an automated drip irrigation system, designed and installed by irrigation contractor. Large trees will receive 2 designated emitters. Shrubs will receive 1 - 2 rings of perforated tube. Perennials & grasses will receive irrigation from perforated tube, arranged in a grid layout. The irrigation contractor shall establish the watering schedule, based upon their system design.

OWNER/APPLICANT
SAM STIMPLE
162 WINTER STREET
WESTON, MA

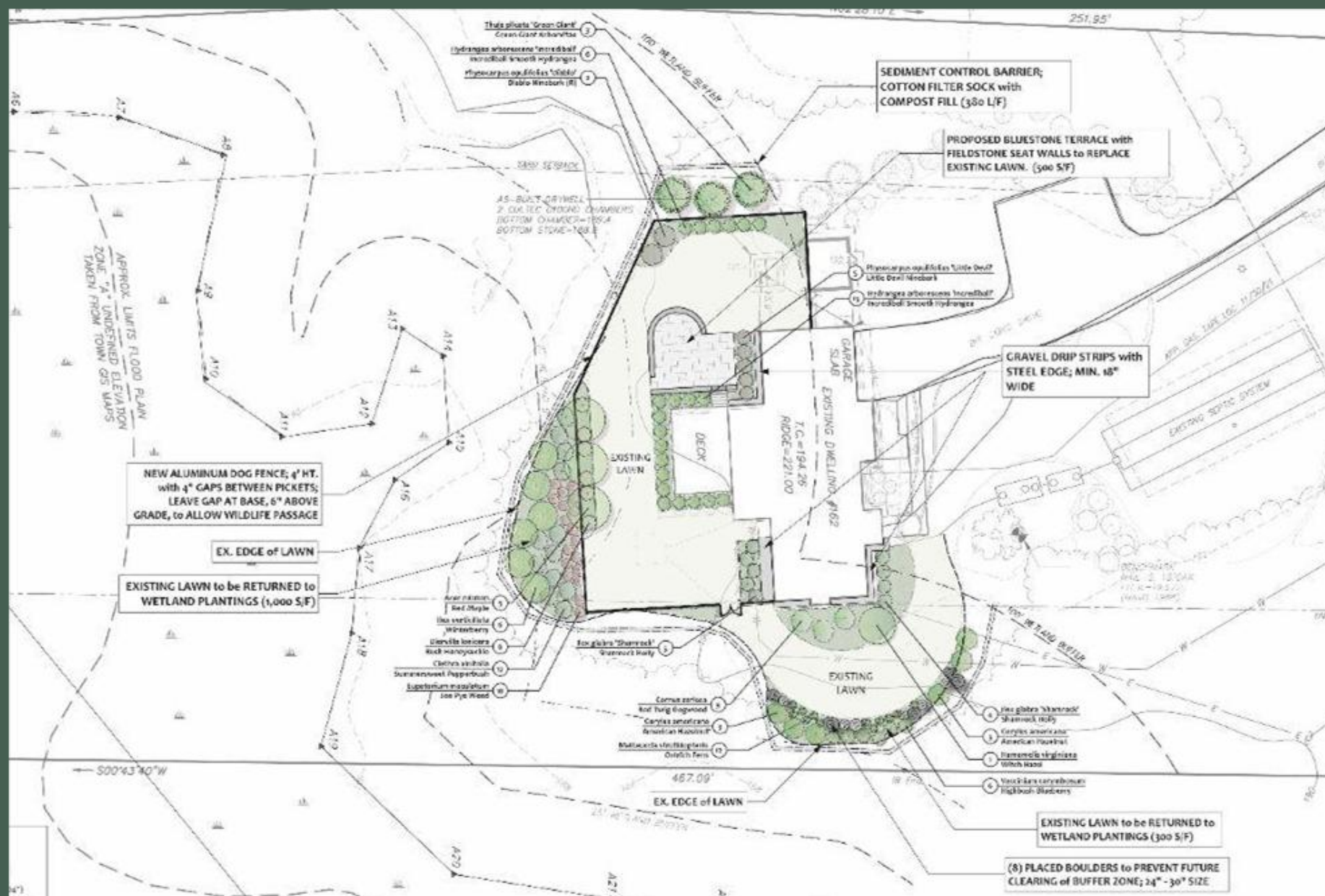
CONNORSTONE ENGINEERING INC.
CIVIL ENGINEERS AND LAND SURVEYORS
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NORTHBOROUGH, MASSACHUSETTS 01532
978-393-9727 WWW.CSEI.NET
121 BOSTON POST ROAD
SUDBURY, MASSACHUSETTS 01776
978-443-9566

ANGIE VERGE LANDSCAPE
ARCHITECTURE & DESIGN
angieverge.com
angie@angieverge.com
603-393-9566

LANDSCAPE PLAN

DATE: 12/1/2025
SCALE: 1" = 30'

ANGIE VERGE LANDSCAPE ARCHITECTURE & DESIGN



THE PUBLIC HEARING

A green-tinted photograph of a building with large windows and a stone path leading into a wooded area. The image is used as a background for a congratulatory message.

CONGRATULATIONS!

YOU GOT YOUR WETLAND PERMIT!

HELPFUL RESOURCES

- **Mass Municipal Mapper GIS**
<https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html>
- **MA Wetland Protection Act** <https://www.mass.gov/doc/310-cmr-1000-the-wetlands-protection-act/download>
- **MA Association of Conservation Commissioners**
<https://www.maccweb.org/>
- **Approved Plant List for Jurisdictional Projects (Town of Carlisle)**
<https://www.carlislema.gov/DocumentCenter/View/2158/Plant-List-for-Jurisdictional-Projects-CONDENSED?bidId=>
- **Vascular Plants of MA by County; NHESP**
<https://www.mass.gov/doc/the-vascular-plants-of-massachusetts-a-county-checklist/download>