

TOWN OF ALNA
Application for Shoreland Zoning Permit
for Removal of Non-Native Invasive Vegetation Species

Property Owner: Midcoast Conservancy

Proposed non-native invasive vegetation¹ removal project (attach additional pages, if needed):

- Location of Project: Tax Map 5 Lot 37 Size of Lot 18 acres
Provide map showing general location of lot in town.
- Species to be removed Japanese Knotweed
- Location and size of removal area and access to removal area (provide written sketch with measurements and showing nearby waterbodies.) 0.89 acres, access through trail leading from Rt 218. See map
- Method and equipment to be used for removal (see Appendix B for Best Management Practices for Knotweed) Cutting of knotweed canes with hand tools (scythe, loppers, and brush cutter)
- Herbicides to be used (if any), application method, and name of licensed applicator (if any)
Glyphosate at 3% concentration, highly targeted foliar spray application, Bob Barkalow is licensed applicator. All Best Management Practices will be followed for application.
- Erosion control measures to be employed Native plants (bare root seedlings and live stakes) will be planted to stabilize the shoreline. A 3x3ft square of geotextile fabric will be placed around bare root seedlings to control erosion and retain soil moisture.
- Revegetation plan (see Appendix C for guidelines and resources) See NRCS plan and Streambank stabilization BMP for full detail. Live stakes will be placed in holes made with rebar (minimal soil disturbance) 18" apart. Bare root stock will be placed in small holes 6' apart.
- Adverse impacts on fish, aquatic life, bird or other wildlife habitat or non-target vegetation (must consult Inland Fisheries & Wildlife, see Appendix A) Completed risk assessment with IFW through the NRCS grant, they approved the project
- Impacts on archeological and historic resources None, NRCS completed an archeological dig
- Additional permits required (must consult DEP, see Appendix A) US Army Corps permit and DEP Permit required to remove vegetation and plant below the mean high water line of the river. Already secured a variance permit from the BPC to apply herbicide in Shoreland Zone.
- Duration of removal project knotweed cutting 3-5 years, replacement planting may be needed up to 15 years

To the best of my knowledge, all information on this application is true and correct:

Signature of Owner or Authorized Agent _____ Date: _____

Address: _____ Email address: _____

Phone: _____ Date received by Planning Board: _____

¹ An updated list of non-native invasive vegetation is maintained by the Department of Agriculture, Conservation and Forestry's Natural Area Program: http://www.maine.gov/dacf/mnap/features/invasive_plants/invasives.htm
Form adopted 4/2023

TOWN OF ALNA
Shoreland Zoning Permit
for Removal of Non-Native Invasive Vegetation Species

Date of on-site inspection by Planning Board _____

Application Approved _____ Denied _____

Planning Board finds that all requirements of the Shoreland Zoning Ordinance, Section 16(D)(1 – 9) have been met with the following conditions:

- If removal of vegetation occurs via wheeled or tracked motorized equipment, the wheeled or tracked motorized equipment must be operated and stored at least 25 feet, horizontal distance, from the shoreline, except that the wheeled or tracked equipment may be operated or stored on existing structural surfaces, such as pavement or gravel;
- Removal of vegetation within 25 feet, horizontal distance, from the shoreline (water's edge or wetland edge) must occur via hand tools;
- The area must be revegetated with native species (see Exhibit C);
- Any activity involving the disturbance of soil is required to be conducted by a contractor, or supervised by an individual, certified in erosion control practices by the Department of Environmental Protection;
- All knotweed removal practices must be consistent with the methods chosen in Appendix B, and
- _____

The permit shall expire one year from the date of issuance if no substantial start is made.

Permit No. _____

Signature of Planning Board Chair (or designee) _____

Date _____

Permitting Overview

NOTE: you must provide evidence in your application you have consulted the DEP and IF&W.

NOTE: the Alna Planning Board must conduct a site visit before they can approve your application. To expedite the process, the application should be submitted 3 weeks prior to a Planning Board meeting to allow time to schedule and provide 7 days public notice before conducting the site visit.

1. Department of Environmental Protection (DEP): Natural Resource Protection Act (NRPA) → Cutting and revegetation in Shoreland Zone

Contact: *DEP Land Resources on-call number, info on cutting in/near wetlands and waterbodies: Augusta (Central Maine Regional Office) 207-287-7688; 800-452-1942*

- Protects “wetlands, great ponds, rivers, streams or brooks” and land adjacent to them (see link A)
- If your knotweed is growing IN a wetland (hydric soils & wetland vegetation) you will need a Permit by Rule from the DEP to cut any vegetation (see link B).
- If your knotweed is growing in an upland area adjacent to a wetland or waterbody you are exempt from a Permit by Rule but must adhere to Alna’s Shoreland Zoning Ordinance. The DEP exemption language is copied below (see link C for more info):

“§480-Q. Activities for which a permit is not required

A permit is not required for the following activities if the activity takes place solely in the area specified below: [PL 1987, c. 809, §2 (NEW).]

23. Cutting or clearing subject to mandatory shoreland zoning laws. Cutting or clearing of upland vegetation adjacent to those protected natural resources listed in [section 480-C, subsection 1, paragraph A](#) or B for a purpose other than forest management as long as:

A. The cutting or clearing is subject to the jurisdiction of a municipality pursuant to [chapter 3, subchapter 1, article 2-B](#); or [PL 2003, c. 637, §1 (AMD).]”

A. More about the NRPA:

<http://www.mainelegislature.org/legis/statutes/38/title38sec480-C.html>

B. More about Permit by Rule: <https://www.maine.gov/dep/land/nrpa/ip-pbr.html>

C. More about the exemption:

<http://www.mainelegislature.org/legis/statutes/38/title38sec480-Q.html>

2. DEP and Board of Pesticide Control → Pesticide Use

Contact DEP Water Quality on-call number, info on pesticide waste discharge license: Augusta (Central Maine Regional Office): 207-287-7688; 800-452-1942

- To apply herbicide in/near waterbodies and wetlands, you must obtain a General Permit for the Discharge of Pesticides from the DEP OR apply for a “Variance” from the Board of Pesticide Control to be exempt from obtaining a permit. To qualify for a Variance, you must follow all Best Management Practices outlined in the “Herbicide Use in Wetlands Fact Sheet” linked below.
- Link to General permit: <https://www.maine.gov/dep/water/wd/pesticide/index.html>
- Link to Variance form: <https://www.maine.gov/dacf/php/pesticides/documents2/forms/VariancePermitCh29-2022.pdf>
- Herbicide use in Wetlands Fact Sheet: [https://www.maine.gov/dacf/php/pesticides/documents2/FACTSHEETHerbicideGuidanceApr2006\(2016\).pdf](https://www.maine.gov/dacf/php/pesticides/documents2/FACTSHEETHerbicideGuidanceApr2006(2016).pdf)

3. Department of Inland Fisheries & Wildlife (IF&W) → Habitat Concerns

- Must consult to see if your property contains or is adjacent to any Essential Habitat for threatened, endangered, or species of special concern. **If so, IF&W must be contacted to request and obtain a “certification of review and approval”.** This approval must be submitted with the Alna permit application; or Permit by Rule if your invasive species are growing in a wetland.
 - i. Maps showing areas of Essential Habitat are available from IF&W regional headquarters, municipal offices, and DEP regional offices. You can call the DEP Land Resource’s office (207-287-7688) OR IF&W to determine if your property contains Essential Habitat (207) 287-8000; IFWEnvironmentalreview@maine.gov.

4. US Army Corps of Engineers → Instream Work

- If you plan to work below the High Tide Line or the Mean High Water Mark of the Sheepscot River or any river, stream, or brook, or in any salt or freshwater wetland, this is considered working IN the river and may require additional permitting from the US Army Corps of Engineers.

Additional Information on Alna’s Shoreland Zoning Ordinance:

- GENERAL: The “Shoreland Zone” is the land buffering any waterbody or wetland. Alna’s Shoreland Zoning Ordinance describes the size of the shoreland zone and what activities are permitted in this area. Alna’s Shoreland Zoning Ordinance is available on the town’s website and from the town office. You may call Alna’s Planning Board Chair or Code Enforcement Officer if you are unclear about whether you need a permit.

APPENDIX A

- DISTRICTS: Alna's shoreland zone is divided into different "Zoning Districts." The activities that require a permit are different within each district. Alna's shoreland zoning map is on the town's web site or can be viewed at the town office.

- Town of ALNA: Section 14, Table 1 (5) requires a permit for "Clearing or removal of vegetation for activities other than timber harvesting." Specific standards are found in Section 15 (O).
 - A permit is required if you are in a Stream Protection or Resource Protection District.
 - Limited Residential, Head Tide Village, and Alewife Fishery District's DO NOT require a permit, but you must comply with applicable land use standards.
 - Exception: If Knotweed is in a field that you have regularly maintained and mowed within the shoreland zone, you may continue this practice so long as you do not expand the existing field.

APPENDIX B

Knotweed Best Management Practices

CHECK ALL that apply to your proposed work to control Knotweed in the Shoreland Zone.

Special Notes:

- 1. No live cuttings may be disposed of or composted outside of the zone of removal. Windrowing or piling of cut live stems must be done within the cut area and beyond 25 feet of any wetland or water.*
- 2. Any practices that stray from recommendations must be verified by evidence of research and/or consultation with experts.*

- Dead cane removal in preparation for control practices, November 1 thru April 15.
 by hand tools. by rotary mower. by sicklebar mower
- Dead Cane removal per above, by prescribed controlled burn, December 1 thru April 15. (must be permitted and supervised or performed by Alna Fire Department personnel.)
- Repeated cutting of green shoots, more than 25 feet from estimated high water mark and any wetland, not fewer than four (4) times and not to exceed four (4) feet in height. May 1 thru September 1. Windrow disposal of live cuttings within the cut area only.
 by hand tools. by rotary mower by sicklebar
- Cutting of green shoots within 25 feet of the estimated high-water mark and any wetland, two (2) times or more and not to exceed six (6) feet in height, May 15 thru September 1. Windrow disposal of live cuttings ONLY within a Knotweed area under current management which is beyond 25 feet from estimated high water mark and any wetland.
- Herbicidal "burning" of new growth by Licensed Pesticide Applicator. NOT permitted for landowner application. Permitted only for new growth less than chest height AND not later than June 1.
- September herbicide application of surfactant-Glyphosate per the Label, 25 feet from estimated high water mark and any wetland. Target plants may not exceed four (4) feet in height. Landowner may apply only when site visit by Alna Planning provides this approval. Complex application sites or areas of special sensitivity require Licensed Pesticide Applicator; TBD by site visit. (This practice requires repeated prior cutting through the growing season.)
- September herbicide application of wetland and aquatic-approved herbicide within the 25 feet area from estimated high water mark and any wetland, by Licensed Pesticide Applicator ONLY. This practice requires two (2) prior cuttings of mature growth during the growing season). By injection, wick applicator or other method approved by DEP.
- September spray application of Agronomic Vinegar (Acetic Acid @ 20%) by Landowner. Plants may not exceed four (4) feet in height. This practice requires repeated prior cutting through the growing season.

APPENDIX B

Small patch (less than 1,000 square feet only) control by other methods: Suffocation by heavy tarp, carpeting, geotextile, mulch and cutting, hardware cloth, other. (Note: this approval is for one year of the practice with re-submission for the second-year approval required.)

Provide details of the plan here: _____

Assessment of site conditions by April of subsequent year, and submission of the second year of Control Practices and Revegetation Plan to Alna Planning Board for approval for continued control practices. (Authorization of this application is for practices in the current year only.)

END

APPENDIX C

Revegetation Guidelines & Resources

GUIDELINES

- (1) The property owner must submit a revegetation plan that describes revegetation activities and maintenance. The plan must include a scaled site plan, depicting where vegetation was, or is to be removed, where existing vegetation is to remain, and where vegetation is to be planted, including a list of all vegetation to be planted.
- (2) Revegetation must occur along the same segment of shoreline and in the same area where vegetation was removed and at a density comparable to the pre-existing vegetation, except where a shoreline stabilization activity does not allow revegetation to occur in the same area and at a density comparable to the pre-existing vegetation, in which case revegetation must occur along the same segment of shoreline and as close as possible to the area where vegetation was removed:
- (3) If part of a permitted activity, revegetation shall occur before the expiration of the permit. If the activity or revegetation is not completed before the expiration of the permit, a new revegetation plan shall be submitted with any renewal or new permit application.
- (4) Revegetation activities must meet the following requirements for trees and saplings:
 - (a) All trees and saplings removed must be replaced with native noninvasive species;
 - (b) Replacement vegetation must at a minimum consist of saplings;
 - (c) If more than three (3) trees or saplings are planted, then at least three (3) different species shall be used;
 - (d) No one species shall make up 50% or more of the number of trees and saplings planted;
 - (e) If revegetation is required for a shoreline stabilization project, and it is not possible to plant trees and saplings in the same area where trees or saplings were removed, then trees or sapling must be planted in a location that effectively reestablishes the screening between the shoreline and structures; and
 - (f) A survival rate of at least eighty (80) percent of planted trees or saplings is required for a minimum five (5) years period.
- (5) Revegetation activities must meet the following requirements for woody vegetation and other vegetation under three (3) feet in height:
 - (a) All woody vegetation and vegetation under three (3) feet in height must be replaced with native noninvasive species of woody vegetation and vegetation under three (3) feet in height as applicable;
 - (b) Woody vegetation and vegetation under three (3) feet in height shall be planted in quantities and variety sufficient to prevent erosion and provide for effective infiltration of stormwater;

APPENDIX C

- (c) If more than three (3) woody vegetation plants are to be planted, then at least three (3) different species shall be planted;
 - (d) No one species shall make up 50% or more of the number of planted woody vegetation plants; and
 - (e) Survival of planted woody vegetation and vegetation under three feet in height must be sufficient to remain in compliance with the standards contained within this chapter for minimum of five (5) years
- (6) Revegetation activities must meet the following requirements for ground vegetation and ground cover:
- (a) All ground vegetation and ground cover removed must be replaced with native herbaceous vegetation, in quantities and variety sufficient to prevent erosion and provide for effective infiltration of stormwater;
 - (b) Where necessary due to a lack of sufficient ground cover, an area must be supplemented with a minimum four (4) inch depth of leaf mulch and/or bark mulch to prevent erosion and provide for effective infiltration of stormwater; and
 - (c) Survival and functionality of ground vegetation and ground cover must be sufficient to remain in compliance with the standards contained for a minimum of five (5) years.

RESOURCES

Buffer Handbook Plant List:

https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUK_EwjS3fW3-ur9AhVPkIkEHT0xA0UQFnoECAkQAQ&url=https%3A%2F%2Fwww.maine.gov%2Fdep%2Fland%2Fwatershed%2Fbuffplantlist.pdf&usq=AOvVaw3SIJTLq8imy-c8J7Wv357f

**Permit Application: Honor Sage (Map 7 Lot 36), Midcoast Conservancy (Map 5 Lot 37)
2/13/2024**

Vegetation Removal in Shoreland Zone

1. Project Background:

Japanese Knotweed is an invasive plant that spreads aggressively if not managed. There is a significant infestation along the river below Head Tide Dam, with the densest clusters occupying the area surrounding Midcoast Conservancy's Trout Brook North property. At Trout Brook North, knotweed covers approximately 0.89 acres in the Shoreland zone and 800 feet of riverbank. Honor Sage's land lies across the river from Trout Brook North off of Rt 194 and has about 0.84 acres of knotweed in the Shoreland Zone and 2,000 feet of riverbank on the Sheepscot. The knotweed colonized riverbank at both properties is eroding in places, causing silting of prime salmon rearing and spawning habitat and allowing live root fragments to float down river where they can sprout and start new infestations.

Japanese Knotweed is a threat because it spreads aggressively, outcompetes all native plants, and reduces water quality. The large root rhizomes of Japanese Knotweed do not stabilize and hold the soil as well as native vegetation with finer roots. Japanese Knotweed also dies in the winter, leaving the soil bare and exposed for much of the year including the spring flooding. The native species that occur in this rich floodplain habitat include many native woody shrubs, small trees, ostrich fern, cardinal flower, iris, and other beautiful floodplain species. Protecting this native biodiversity and water quality is our aim.

2. Proposed Vegetation Removal in Shoreland Zone

Overview

We would like to stabilize the riverbank and restore the floodplain habitat by removing Japanese Knotweed and replanting with native species. The purpose of this permit application is to gain permission to begin cutting knotweed below the mean high water line and to begin planting native species; a previous permit from the planning board in 2022 allowed us to manage knotweed above the mean high water line at Trout Brook and another in 2023 allowed the same at Honor Sage's. Now that this knotweed is under control, we would like to begin revegetating with native spp and expand work to manage knotweed below the mean high water line.

Midcoast Conservancy has received a NRCS-USDA Environmental Quality Improvement Program (EQIP) grant to manage knotweed and restore native habitat at Trout Brook North and Honor Sage's property. The approval process for this grant included a review from the Department of Inland Fisheries and Wildlife as well as an archeological survey to confirm there will be no impacts to rare, threatened, or endangered species or to cultural resources along the Sheepscot River. The EQIP grant includes a revegetation plan prepared by NRCS according to their specifications (see "Riparian Forest Buffer Practice" sheet). The majority of activities will take place in the next 3-5 years, but replacement planting of native bare root stock that dies may be necessary over the next 15 years.

Plan Details

April:

- Cut dead knotweed cane from the 2023 growth season with hand tools
- Begin planting live stakes (3' long cuttings from native plants) along streambank, below the mean high water line and in the first 15' from the river (see Streambank stabilization BMP). Live stakes are planted roughly every 18" in 2-3 rows by sticking a piece of rebar into the soft soil about 12" deep to create a hole, then placing the live stake into the hole

and gently pushing the soil in around it to secure it. This practice creates very minimal soil disturbance. Live staked species will be collected from local native sources of dogwood and willow. See the Riparian Buffer Practice sheet for approximate quantities of plants.

May:

- Cut live knotweed canes with hand tools once they reach hip height. All live cut material will be dragged 25 feet away from the river's edge to prevent flooding from carrying it downstream where it can root and create new populations. Spreading it and leaving it to dry is the sun will kill it.
- Plant bare root seedlings in upland area, above mean high water line. Small holes are dug roughly 6-12" wide and 6-12" deep depending on the size of the bare root stock. Each hole is then refilled with the native soil and covered with a 3x3' square of geotextile fabric to prevent erosion, keep weeds at bay, and retain soil moisture. Bare root stock is planted roughly every 6' in a diamond grid pattern within the upland part of the shoreland zone, 15-35' away from the river. Bareroot seedling species will include silky dogwood, grey dogwood, nannyberry, arrowwood, river birch, streamco willow, and black willow. See the Riparian Buffer Practice sheet for approximate quantities of plants.

June-August:

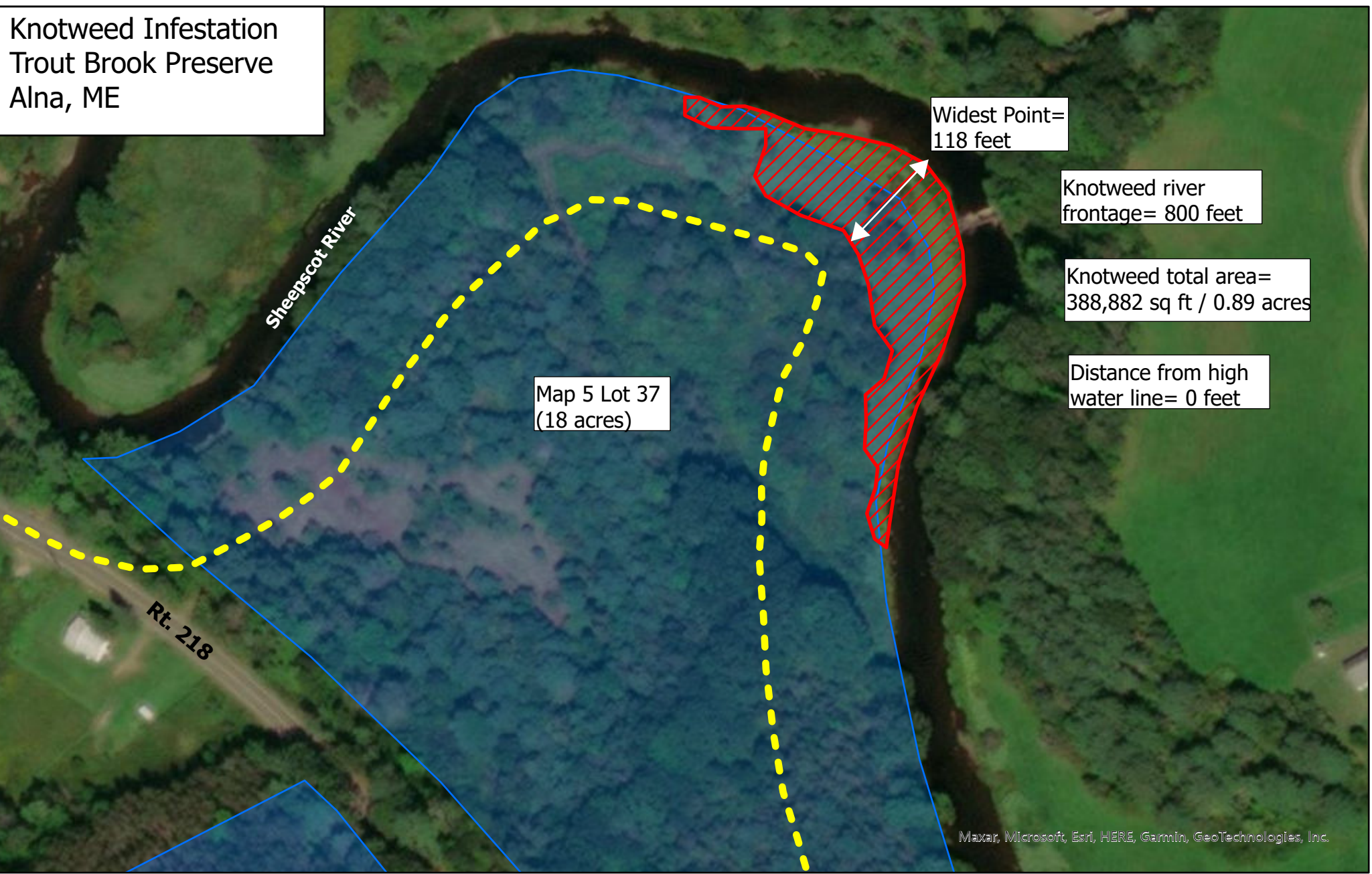
- Repeatedly cut live knotweed canes with hand tools when they reach hip height, ~1x/month

September:

- Apply targeted foliar application of 3% glyphosate to knotweed leaves. The exact dates of herbicide application will depend on weather windows and the plant's time of flowering. Herbicide will be applied either right as flower buds begin to form, or right after they fade. This helps protect native pollinators who are attracted to the flowers. All BMP will be followed, including not using a surfactant below the mean high water line and hiring a licensed applicator (Bob Barkalow). Other BMP include only applying on days with very low wind and applying pointing away from the water. The foliar application with a small handheld or backpack sprayer is so targeted and low concentration that the risk of drift into the river is very low. The surfactant used in herbicides is the component that is harmful to aquatic systems, which is why it is omitted when applying in a wetland or water body.

Additional Permitting: We received two variance permits from the DEP that exempt us from obtaining a full Waste Discharge License to apply herbicide in the shoreland zone, one for Honor Sage's property and one for Trout Brook. We have also applied for a Permit by Rule, Section 12: Restoration of Natural Areas from the DEP and a General Permit from the US Army Corps of Engineers. These two permits are required to cut vegetation and plant below the mean high water line of the river. If possible, we would like to pursue approval from Alna's Planning Board that is conditional upon us receiving the required permitting from the DEP and US Army Corps of Engineers. This will allow us to pursue all three permits simultaneously, instead of waiting on the federal permits.

Knotweed Infestation
Trout Brook Preserve
Alna, ME



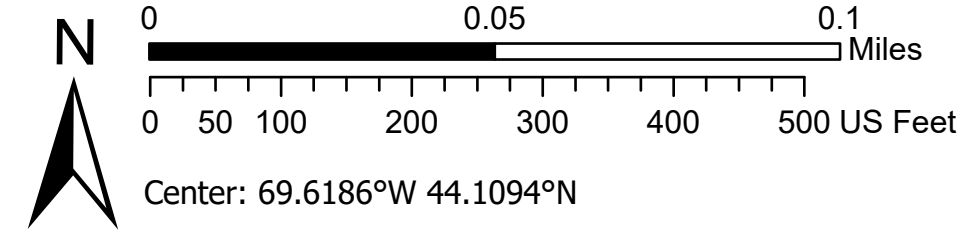
Map 5 Lot 37
(18 acres)




Widest Point=
118 feet

Knotweed river
frontage= 800 feet

Knotweed total area=
388,882 sq ft / 0.89 acres

Distance from high
water line= 0 feet



-  Knotweed Infestation
-  Property Bounds
-  Resource Protection Zone (150ft setback)

Map by I. Curtis May 2022
Data Sources: ESRI World Imagery (ESRI);
BWH Dataset (MNAP);
Alna Town Parcels (MEGIS)

Maxar, Microsoft, Esri, HERE, Garmin, GeoTechnologies, Inc.

Sheepscot Knotweed Program

Alna Shoreland Zone Application – February, 2024

Low Impact Streambank Stabilization with Bioengineering

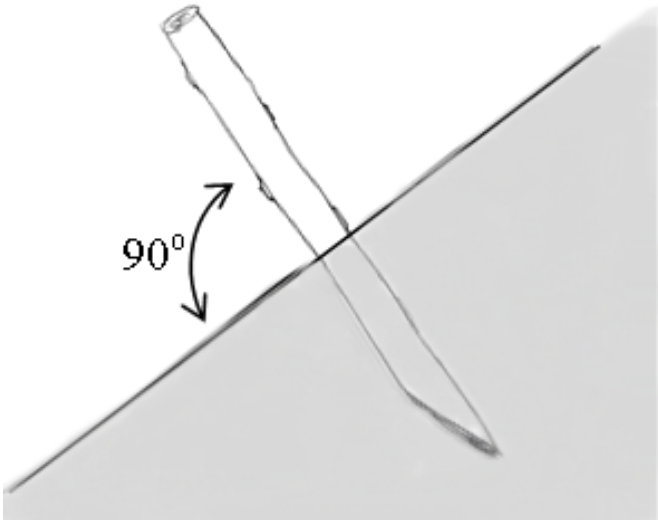
Midcoast Conservancy and Sheepscot Knotweed Project volunteers will perform streambank stabilization along the mainstem of the Sheepscot on the private, conserved property of Honor Sage and the Conservancy's Troutbrook North Preserve. Bioengineering techniques will be used under an approved NRCS-USDA Environmental Quality Improvement Program grant.

Objectives of the practice include:

1. Reduce bank soil erosion with native species root structures from the mean low water elevation to the top of bank.
2. Reduce edge of stream velocities reducing multiple stressors to streambank soils and habitat.
3. Provide living, small woody texture to the streambank increasing invertebrate habitat.
4. Improving shoreline shallow water habitat for forage fish species.
5. Decrease sedimentation and encourage benthic recruitment of mollusks and aquatic larval insects.

Methods of the Practice:

1. Beginning in April, 2024, volunteers will source native willows and dogwood live cuttings from approved local sites. Species include: Willows, (Streamco, Sandbar, Black, Red Osier, other native species), and Dogwoods, (Gray, Silky, Arrowood, other natives).
2. Cuttings of approximately three feet in length and one-half inch in diameter will be immediately cold-stored for streambank installation as soon as practical in April.
3. Installation of live stake streambank stabilization is performed variously in two or three rows of deeply inserted cuttings, root end down, at 90 degrees to the bank angle and in a triangular grid of approximately 18" to 24" centers.
4. Cuttings will generally be installed continuous with the length of the streambank, however, as bank angle and observed erosion demand, may be increased in density.
5. When necessary, live cuttings will be layered in "brush mattresses" where excessive erosion is observed. Such application will stabilize erodible sites with greater root/plant densities.
6. All practices will comply with USDA – NRCS technical standards.



**TYPICAL - Cut, Live Stake
Insertion into Streambank
Soil Profile.**

Image – U of Maine Cooperative
Extension



**Example of Live Stake
Streambank Being
Installed.**

Image – U of Maine Cooperative
Extension



Example of First Year Live Stake Growth – Root Development is Faster than the Foliar Growth. Streambank is Effectively Stabilized in Two Growing Seasons. Often Requiring Some Supplemental Planting in Year Two.

Image – U of Maine Cooperative Extension

Outcomes of the Practice:

1. Preliminary live stake plantings in April, 2024 will be performed at 25% of the intended outcomes. Following by adjustments in the density of the practice based on observed performance strengths/deficiencies, each site will be planted at 100% criteria April, 2025.
2. Treated streambank segments will reach 90% stabilization by summer, 2026.
3. Minor spot treatments with additional cuttings will be undertaken in April 2027.

Riparian Forest Buffer

Conservation Practice Job Sheet

ME-391



Definition

A riparian forest buffer is an area of trees and shrubs located adjacent to streams, lakes, ponds, and wetlands.

Purpose

Riparian forest buffers of sufficient width intercept sediment, nutrients, pesticides, and other materials in surface runoff and reduce nutrients and other pollutants in shallow subsurface water flow. Woody vegetation in buffers provides food, cover and connectivity for wildlife, helps aquatic life by lowering water temperatures by shading the stream or waterbody, and slows out-of-bank flood flows. In addition, the vegetation closest to the stream or waterbody provides litter fall and large wood important to fish and other aquatic organisms as a nutrient source and structural components to increase channel roughness and habitat complexity. Also, the woody roots increase the resistance of streambanks and shorelines to erosion caused by high water flows or waves. Some tree and shrub species in a riparian forest buffer can be managed for timber, wood fiber, and horticultural products.

Where used

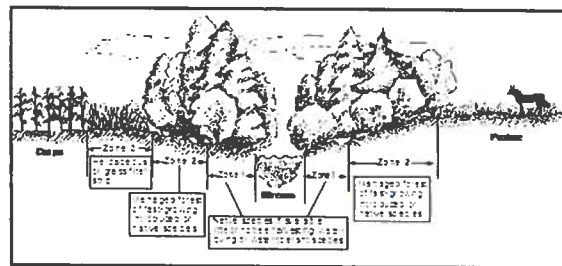
Buffers are located along or around permanent or intermittent streams, lakes, ponds, wetlands, and seeps in a variety of settings, such as cropland, rangeland, forest land, and urban areas.

Operation and maintenance

Replace dead and dying woody species in newly established plantings. Trees and shrubs in a riparian forest buffer can eventually become crowded slowing their growth and the growth, survival and composition of understory species. As the buffer matures, periodic harvesting of some of the overstory trees and shrubs becomes an important activity for maintaining plant health and buffer function. To maintain proper function of a planting, excessive water flows and erosion must be controlled upslope of the riparian forest buffer (filter strip, diversion, critical area planting, residue management). New plantings must be protected from grazing during establishment (prescribed grazing, use exclusion) period, as well as pests, including competing vegetation and animal pests (deer, beaver and mice).

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the ME NRCS Field Office Technical Guide. See practice specification guide sheets Riparian Forest Buffer, code 391, Tree/Shrub Establishment, code 612, and Tree/Shrub Site Preparation, code 490 where appropriate.



A riparian forest buffer includes the forested area closest to the stream or waterbody, and the forested area adjacent to and up gradient from there. If periodic and excessive water flows, erosion, and sediment from upslope fields or tracts are anticipated, an area of herbaceous plants or grass and a diversion or terrace may also be needed upstream.

Riparian Forest Buffer – Job Sheet

Name: MIDCOAST CONSERVANCY	County: Lincoln Town: Alna
Field(s): Tract 1490 Field 1; Tract 73 Fields 2,5,6,7	Farm #: 1316 Tract1490, Farm 47 Tract 73
Designed By: Peter Abello	Approved By: <i>Peter Abello</i>
Date: 9/18/23	Signature: <i>Peter Abello</i> Date: 9-18-2023

Purpose (check all that apply)	
<input type="checkbox"/> Create shade to lower water temps/improve aquatic habitat <input type="checkbox"/> Provide detritus/large woody debris for aquatic/terrestrial organisms <input type="checkbox"/> Create wildlife habitat and establish wildlife corridors <input type="checkbox"/> Reduce excess sediment, organic material, nutrients, pesticides in surface runoff and excess nutrients/chemicals in shallow ground water flow	<input type="checkbox"/> Provide a harvestable crop of timber, fiber, forage, fruit, or other wood-tree related crops consistent with other purposes <input type="checkbox"/> Provide protection against scour erosion within the floodplain <input checked="" type="checkbox"/> Restore natural riparian plant communities <input type="checkbox"/> Moderate winter temperatures to reduce freezing of aquatic over-wintering habitats <input type="checkbox"/> Increase carbon storage

Layout - Refer to ME 391 Specification Guide Sheet.		
Water body/course type and name, other: Main stem Sheepscot River		
Minimum buffer zone widths (ft) – specify left and right of stream (facing upstream/downstream (circle appropriate one)) for a two-side buffer; use left only for water bodies, such as lakes and ponds; include herbaceous species when needed or refer to other jobs sheets (393). Refer to ME Standard 391 Specification Guide Sheet for appropriate buffer width determination.		
15 feet from top of streambank	Remaining buffer Area Width:	Herbaceous Area (optional)
Left: 15 feet Right: 15 feet	Left 35 to 45 feet Right: 85 ft	Left: Right:
Notes: 2 rows of trees, 6 x 6 spacing	Notes: Live stake willows, shrubs. 1500 plants per acre	Notes:
Buffer zone length (ft): LEFT 1300 feet. RIGHT - 500 feet		
Additional location and layout requirements:		

Woody Plant Materials Information - Refer to ME 391 Specification Guide Sheet for species to plant in riparian areas. For plants per acre and avg. spacing, refer to ME 391 Specification Guide Sheet. NOTE: Minimum of two different species each of trees/shrubs is required.					
Species/cultivars:	Plants/ac:	Total # of Plants:	Kind of stock ¹ :	Planting dates:	Avg. Spacing ² :
First 15 Feet: min of two rows, min. 2 spec)	1200	732	BA	4/15 - 5/30	6 x 6
1 - Black Willow					Ft X Ft
2 - Red Maple					Ft X Ft
3 - Balsam Fir					Ft X Ft
4 - Black Cherry					Ft X Ft
Remaining buffer area Width: min. 2 spec.	1500	2800	BA/CU	4/15 - 5/30	6 x 6
1 - Nannyberry					Ft X Ft
2 - Streamco Willow			CU		Ft X Ft
3 - Arrowwood Viburnum					Ft X Ft
4 - Indigo Silky Dogwood					Ft X Ft

¹BA=bareroot, CU=container, CUTting; include size, caliper, height, and age as applicable. ²Spacing between plants to achieve plants/acre.

Riparian Forest Buffer – Job Sheet

Temporary Storage Instructions (Refer to ME Standard and Specification 612)

Planting stock that is dormant may be stored temporarily in a cooler or cool, moist, darkened area up to 3 days. For more than 3 days or for stock that is expected to begin growth before planting, dig a V-shaped trench (healing-in-bed) sufficiently deep and bury seedlings so that all roots are covered by soil. Pack the soil firmly and water thoroughly. Additional requirements:

Site Preparation (Refer to ME Standard and Specification 490)

Remove debris and control competing vegetation to allow enough spots or sites for planting and planting equipment. The following method of site preparation is planned: Mechanical means such as plowing, disking or rototilling, Chemical control of vegetation, Hand scalping the area where trees are to be planted, Other: _____
Additional requirements (include width of streambank adjacent to the water left undisturbed if plowing, disking or rototilling):

SEE Brush Mgt. Job sheet for win-pst report

Planting Methods (Refer to ME Standard and Specification 612)

For container and bareroot stock, plant stock to a depth even with the root collar in holes deep and wide enough to fully extend the roots. Pack the soil firmly around each plant. Cuttings are inserted in moist soil with at least 2 to 3 buds showing above ground. Pest Management including weed control is required.

Vegetation Mat-Size 3 # 3 Tree Shelter-Size _____ # _____ Other _____
Additional requirements:

Operation and Maintenance

The buffer must be inspected periodically and protected from damage so proper function is maintained. Replace dead or dying tree/shrub stock to provide adequate plant densities as described in the 391 standard and continue control of competing vegetation to allow proper establishment for at least 3 years. Periodic harvesting of trees and shrubs in zone 2 may be necessary to maintain the health and vigor of mature stands. Keep large dead and dying trees for cavity nesting birds and a source of large wood in aquatic habitats. Additional requirements:

NEPA requirements met, including ESA & cultural resource assessment? Permits required? Permit No. _____ (if Yes)

COMPLETION/CHECKOUT CERTIFICATION

I have job approval authority and certify this practice as applied meets NRCS Standards and Specifications:

NRCS Representative name and title (type or print):	
NRCS Representative Signature:	Date:

As-Built Notes (include date completed by client, treated acres and describe any changes to original design):

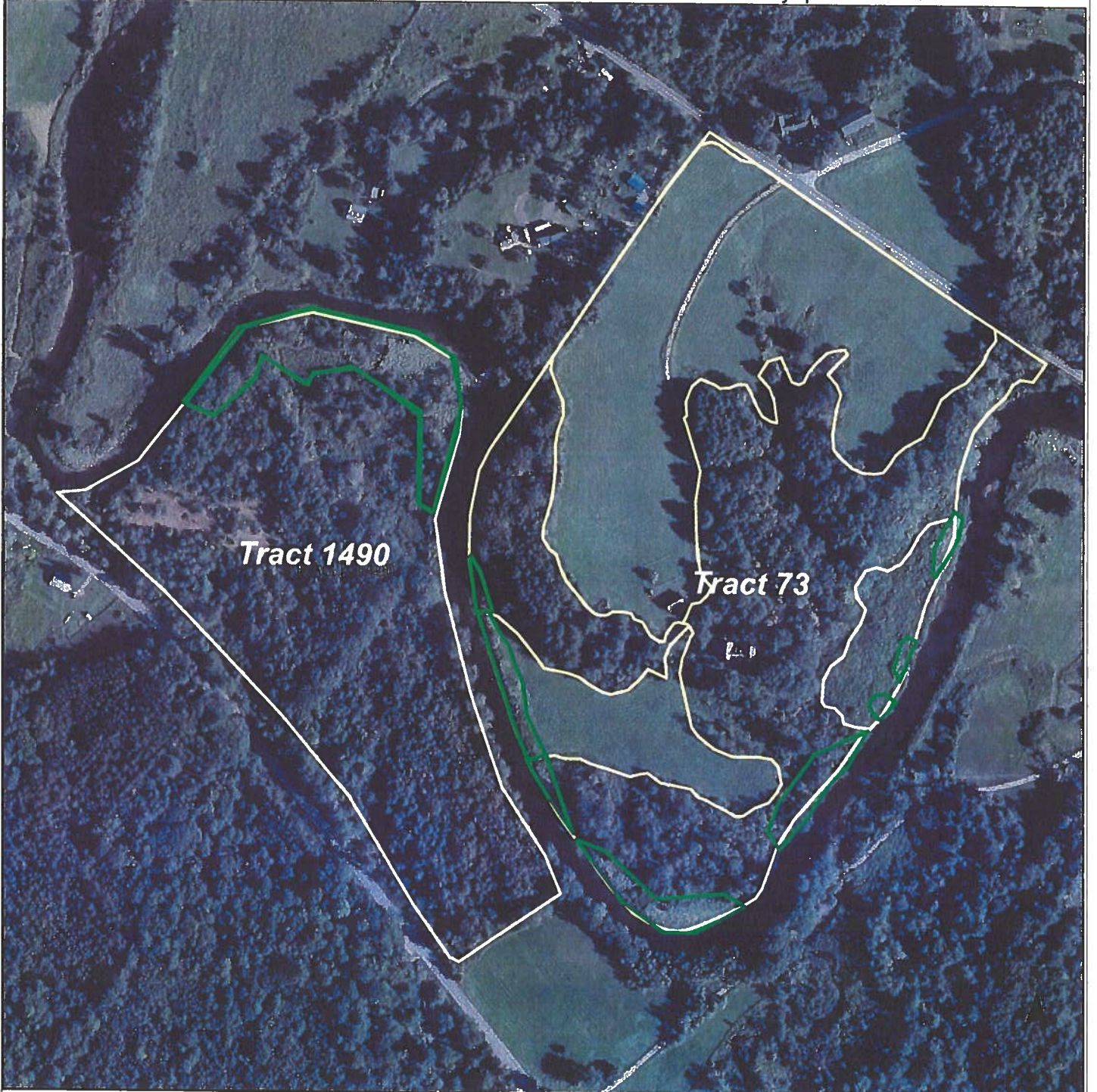
Questions regarding the planting or maintenance of the buffer planting should be directed to [name of technical specialist], at [phone number].



RIPARIAN FOREST BUFFER PLAN MAP

Date: 9/18/2023

Customer(s): MIDCOAST CONSERVANCY
District: Knox-Lincoln SWCD
Land Units: Tract 1490 Field 1; Tract 73 Fields 2,5,6,7

Field Office: Augusta Service Center
Agency: USDA-NRCS
County/State: Alna, Lincoln County, ME
Assisted By: peter abello



	Planned Riparian Forest Buffer
	Land Units Tracts 1490 + 73

Prepared with assistance from USDA-Natural Resources Conservation Service

1 in = 333 ft



LANDOWNER/OPERATOR ACKNOWLEDGES:

- a. They have received a copy of the specifications and understand the contents including the scope and location of the practice.
- b. They have obtained all necessary permits and/or rights in advance of practice application, and will comply with all ordinances and laws pertaining to the application of this practice.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS.
- d. Maintenance of the installed work is necessary for proper performance during the life of the practice.
The practice life is 15 years

I have reviewed all specifications and agree to install as specified:

Landowner/operator name and title (type or print):		
Landowner/operator Signature:		Date: