

Town of Sudbury

Community Preservation Committee

<http://www.sudbury.ma.us>
email: cpc@sudbury.ma.us

PROJECT SUBMISSION FORM

Submitter:

Submission Date:

Group or Committee Affiliation (if any):

Submitter's address :

Purpose (please select all that apply):

- Open Space
- Community Housing
- Historic
- Recreation

Submitter's email & phone number:

Project Manager's email & phone number:

Project Name:

Project Description:

Costs:

Fiscal Year	Total Project Cost	CPC Funds Requested	Other Funding Sources (amount and source)
2021			
2022			
2023			
2024			
2025			
Total			

How does this project meet the General Criteria and Category Specific Criteria for CPC projects (see attached)?

Does this project fall within the jurisdiction or interest of other Town Boards, Committees or Departments? If so, please list the boards, committees or departments, whether applications and/or presentations have been made, and what input or recommendations have been given.

For Community Preservation Committee Use:

Form received on: _____

Project presented to CPC on: _____

Reviewed by: _____

Determination: _____



KING PHILIP WOODS THROUGH TIME

King Philip Woods, an 81-acre piece of Conservation Land purchased in 1987, lies witness to Sudbury's cultural and historical past. This site contains connections to Sudbury's indigenous Native Americans; contains a portion of the historic Old Berlin Road, the original stagecoach road from Lancaster to Boston; foundations from the infamous "Tavern of the Dammed"; with historic stone walls throughout the property, remnant of its agricultural past. Additionally, this property provides estimated and priority habitat for rare and endangered species, and contains three potential vernal pools and one certified vernal pool. This project has the unique privilege of enhancing historical resources, improving passive recreational opportunities through the introduction of interpretive signage, while improving and protecting important wildlife habitat. Given that this project restores wildlife habitat within Town conservation land and will reveal historic structures contained within, the Conservation Commission respectfully submits this application for Community Preservation Act funding for open space, with the benefit of also providing preservation and education of Sudbury's history.

Building upon a trail improvement project undertaken in 2016, which cleared trees along Old Berlin Road in King Philip Woods, this project proposes to enhance the wildlife habitat and historical value of the property by removing invasive species from a 2-3 acre portion of the site to restore Old Berlin Road and its stone walls, and the walls and foundations associated with the Tavern of the Damned. This work will restore degraded wildlife habitat value with the removal of species that are outcompeting our native species, and will prevent historic walls and foundations from falling further into disrepair. Once revealed, interpretive signs will be installed to educate the public of these elements of Sudbury's heritage.

Old Berlin Road looking towards Old Sudbury Road



Old Berlin Road looking towards Water Row



Proposed Work

Old Berlin Road is fragmented by excessive overgrowth of invasive vegetation and the trail often gets washed out from beaver activity near the pond. Part of this project includes installation of a beaver deceiver to restore trail connectivity for improved public access. This project goal is to draw people into this space to enjoy the natural and historical connection to Sudbury's rich heritage. Work includes installing interpretive signs for five purposes: 1) Provide information on Native American use of this area; 2) Provide information on colonial America, with its carriage roads and agrarian landscape; 3) Inform people on invasive species and their impact on the environment; 4) Educate people on the importance of vernal pool habitat; and 5) Retell the story of the Tavern of the Damned. All work will be accomplished by hand and will result in a positive impact on Sudbury's historical, cultural, and environmental landscape.

The Commission had a Forest Management Plan developed in 2010. The plan of the property developed as part of the Management Plan identified all on-site stone walls. The highlighted ones, on the attached map, will be revealed as part of this project. The green clouded area delineates the area of invasive species removal. (See attached map.) Vegetation will be carefully removed from the walls and foundations. Great care will be taken to ensure no stones are moved or altered.



**New England
Forestry Consultants, Inc.**

Prepared By:
Gary H. Gouldrup
Consulting Forester
5/26/2010

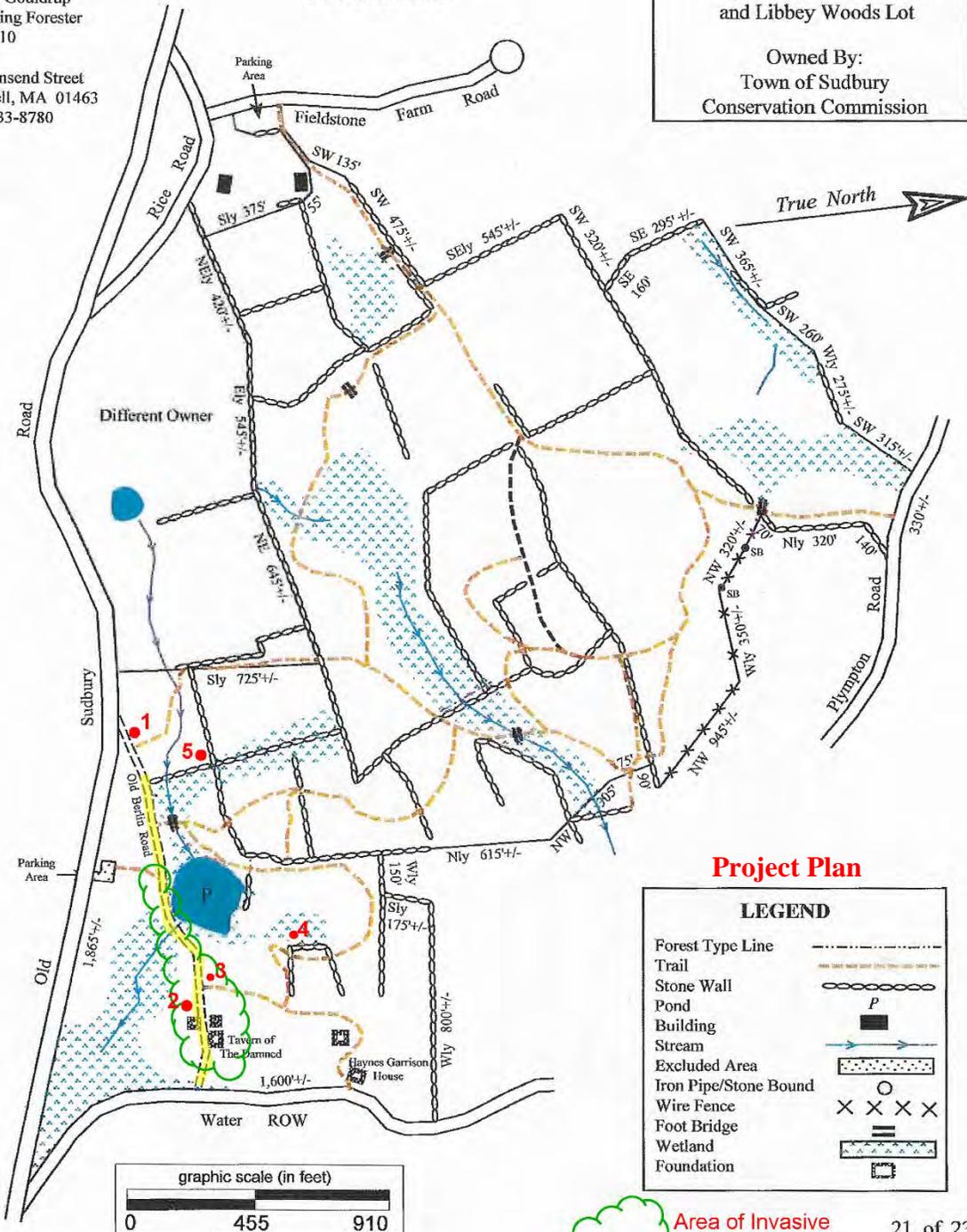
72 Townsend Street
Pepperell, MA 01463
(978) 433-8780

*Metes & bounds are approximate
and based on the Town of Sudbury
Assessor's Maps, Survey of Land,
and GPS Field Work.*

BOUNDARY MAP

Land in Sudbury, MA
King Philip, Piper, Dickson
and Libbey Woods Lot

Owned By:
Town of Sudbury
Conservation Commission

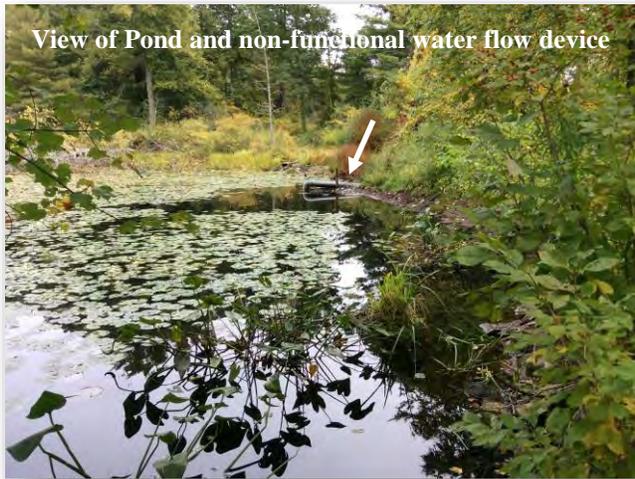


Project Plan

LEGEND

Forest Type Line	---
Trail	—
Stone Wall	—
Pond	P
Building	■
Stream	—
Excluded Area	■
Iron Pipe/Stone Bound	○
Wire Fence	× × × ×
Foot Bridge	—
Wetland	■
Foundation	■

- Area of Invasive Species Removal
- Stone walls/Foundations to uncover
- Interpretive Signs



Open Space Restoration:

King Philip Woods is identified in the Open Space and Recreation Plan as being part of a significant wildlife corridor on the east side of Sudbury. King Philip Woods is part of a larger matrix of protected lands including adjoining Town conservation lands, Piper Farm and Libby Land; Great Meadows National Wildlife Refuge to the north and east; Wolbach Farm Reservation to the south; and the historic Haynes Garrison Site to the west.

Being located within estimated and priority habitat for rare and endangered species and home to three potential vernal pools and one certified vernal pool, the diversity of wildlife using this area ranges from rare salamanders and turtles to large predators like the Northern Harrier, coyote and bob cat. Invasive species can quickly and dramatically degrade essential wildlife habitat provided by this property.



Historic landscapes bring with them a high propensity for having the presence of invasive species, many brought here by early colonists and/or introduced for landscaping. Invasive species are species not indigenous to the area and whose existence quickly overtakes the native community. About one-third of the vascular plants in Massachusetts are nonnative, but only about seven percent of these

plants are considered invasive. Invasives generally lack predators or parasites, giving them a competitive advantage over native species. They grow rapidly, vigorously resprout, have high seed germination rates and longer growing seasons. Invasive species present on site include glossy buckthorn, bittersweet, honeysuckle, winged euonymus, and multi-flora rose. Their presence has negative impacts on both the environment and can also be destructive to structures including stone foundation and walls.

Glossy buckthorn was introduced to New England as an ornamental and for wildlife habitat improvement. It grows as a multi-stemmed shrub or small (20-foot) tree and can form dense stands in forest understories and former open fields. Although its berries are eaten by birds and other wildlife, they are mildly toxic, and offer very low nutritional value. Its presence severely reduces native species diversity and richness of plant and wildlife assemblages.

Asiatic bittersweet was introduced for ornamental uses in the 1860s. Asiatic bittersweet is a vigorously growing deciduous, climbing, woody vine that can grow to lengths of up to 60 foot, climbing over and smothers vegetation which may die from excessive shading or breakage. When bittersweet climbs high up on trees the increased weight can lead to uprooting and blow-over during high winds and heavy snowfalls.



Asian Bush Honeysuckle form large dense stands that out compete native plant species. They alter habitats by decreasing light availability, by depleting soil moisture and nutrients, and possibly by releasing toxic chemicals that prevent other plant species from growing in the vicinity. They may also compete with many native species for pollination among local insects.

Winged Euonymus, or burning bush, was introduced as a landscaping plant as early as the 1860s. It is a multi-stemmed deciduous shrub that can grow up to 20 feet. It forms dense thickets that prevent native species from growing. The seeds are also well liked by various bird species and can spread to areas that are not yet affected. They are hard to control because of the large amount of seed that are

produced annually. The shrub was widely planted along highways and in developments for its colorful foliage in the fall.

Multiflora rose was introduced to the East Coast from Japan in 1866 as rootstock for ornamental roses. Beginning in the 1930s, the U.S. Soil Conservation Service promoted it for use in erosion control and as "living fences" to confine livestock. It was also used as "crash barriers" by highway departments across the country. Fruits are readily sought after by birds which are the primary dispersers of its seed. Germination of Multiflora rose seeds is enhanced by passing through the digestive tract of birds.



Interpretive signs will be installed to educate people on vernal pool habitat, as well as invasive species and the negative impact they pose on the environment.

Historic Preservation:

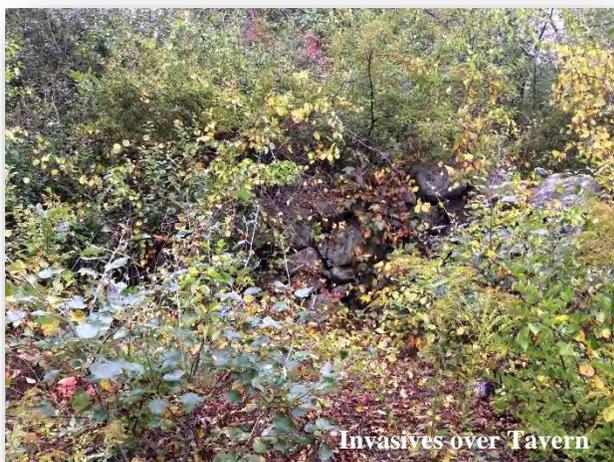
A large portion of King Philip Woods is located within the Old Sudbury Historic District. Foundations of three structures associated with the Tavern of the Dammed, as well as the stone walls along Old Berlin Road are buried under invasive growth (see photos below). This project proposes to uncover these structures by carefully removing vegetation from around them. No stones will be removed or repositioned to accomplish this work.



This area is also known to have been inhabited by Native Americans. Old Berlin Road was formerly a path used by Native Americans to access the Sudbury River. A proposal was submitted in 2015 to evaluate and map Piper Farm, Libby Conservation Area, King Philip Woods, and Haynes Garrison House. To the best of my knowledge, no official evaluation of the rock formations thought

to possess historical Native American significance, has been conducted. An amateur evaluation of potential Native American features within King Philip Woods was found on-line which identified areas in the western side of the property. Work associated with this project will focus on the area of the road bed and the Tavern foundations which is removed from the area where potential sites were found. No stones will be altered or moved as part of this project.

The foundations associated with the Tavern of the Damned, which was about the size of the Wayside Inn, can be seen along Old Berlin Road. It was here, in the middle of the 18th century, that at least 13 unfortunate travelers, seeking shelter for the night, fell victim to Captain Lightfoot and his men. These structures are almost encased in invasive plants. Vegetation will be removed to reveal these foundations. Uncovering the foundation of the barn will not only prevent degradation of the structure from vegetation but it will also open up the area, preventing it from being used as an illicit party site.



The Conservation Department will work with the Historic Commission to develop interpretive signs describing the story of this land, from Native American settlement, to the establishment of colonial Sudbury, with its introduction of roads and creation of agrarian landscapes with their stone walls, to the unfortunate victims of the Tavern of the Damned.

There was also an Apple Orchard in this area. If any old apple trees are revealed by the invasive species removal work, interpretive signs will also be installed. Numerous apple sapplings are still present in the understory of the forest along the trail to the Haynes Garrison.

Project Timeline and Budget

1. Clear all vegetation for the width of Old Berlin Road and adjacent stone walls by hand except for large trees and native shrubs. Following completion of work, the area shall be monitored annually and vegetation removed as needed to maintain the road width. (Funding is not being requested for annual maintenance.)
2. Install a beaver deceiver under the trail to improve the integrity of this trail which is being compromised by flooding due to beaver activity clogging a culvert.
3. Clear all vegetation from the tavern and barn foundations.
4. Consult with the Historic Commission to install interpretative signs to tell the story of Captain Lightfoot and the infamous Tavern of the Dammed, as well as its Native American connection.

Work	Price	Timeline	Total
Hire a consultant to work with volunteers to remove invasive species from Old Berlin Road, stone walls and foundations	\$45,000	Fall 2020	\$45,000
Install Beaver Deceiver	\$2,000	Summer 2020	\$2,000
Install Interpretive Signs	\$600	Fall 2020	\$600
TOTAL			\$ 47,600
In Kind Services that will be undertaken or coordinated by the Conservation Dept.			
Developing Notice of Intent application		Winter 2019	
Volunteer Assistance with Vegetation Removal		Fall 2020	

Work	Price	Timeline	Total
Sign Design		Winter 2019	
Update Trail Map		Winter 2020	

This project will require a Notice of Intent application with the Conservation Commission. In preparation of this project the Commission had the wetland professionally delineated in 2019. All required permitting will be developed in-house. The project will also require coordination with the Historic Commission to develop appropriate interpretive signage.

The Commission has obtained quotes for similar invasive species management work and has identified anticipated obstacles to complete the work. This project is anticipated to cost approximately \$45,000. The Commission also obtained a quote to install the beaver deceiver which was about \$2,000.00. (See Quotes attached.)

Work will require permitting from the Conservation Commission which will be completed over the winter 2020 to ensure the project is shovel ready when funds are made available, should this project be funded.

Restoration of this site dovetails nicely into one of the Commission primary initiatives, updating of the Town’s trail maps, most recently updated in 1970s. For long-term management, the Commission is committed to establishing a Land Management Sub-Committee to monitor and manage the Town’s conservation land and Conservation Restrictions. Annual maintenance, consisting of manual removal of invasive species, will be necessary.

Conclusion

The proposed project meets many of the open space objectives identified in the Community Preservation Committee Report. Specifically, it provides for the restoration of essential wildlife habitat for rare and endangered species, with the express purpose to protect land for the well-being of indigenous flora and fauna through the removal of invasive species. The project protects the integrity of on-site environmental and historic resources, preserves Sudbury’s rural and agricultural character and improves the passive recreational experience for visitors. Signage will be developed and installed at the adjacent potential vernal pool, educating visitors of the importance of protecting these valuable resources, as well as, to educate people about invasive species.

Under historic preservation, this project helps preserve historic foundations, a historic roadway which once linked Boston with rural colonial America. It will also serve to educate visitors of the Native American linkage and their connection to the land through interpretive signage.

This project helps preserve a current town asset, and reveals to the public, stories from Sudbury's heritage. The goal is to bring a piece of Sudbury's rural and agricultural heritage to life, enhancing visitors passive recreational use of the land.

Thank you for your consideration to fund this project that serves to preserve Sudbury's historical heritage and environmental integrity of King Philips Woods.



ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

Amherst Office
15 Research Drive
Amherst, Massachusetts 01002
Tel 413.256.0202 Fax 413.256.1092

April 22, 2019

Sudbury Conservation Commission
Deborah Dineen
275 Old Lancaster Road
Sudbury, MA 01776

Re: Cost Proposal – King Phillip Conservation Area Meadow Restoration

Ms. Dineen:

SWCA Environmental Consultants (SWCA) is pleased to present a cost proposal for the development and implementation of a meadow restoration plan associated with a proposed meadow located at the King Phillip Conservation Area in Sudbury, Massachusetts. This proposal details a description of work necessary for the development of a Meadow Restoration Plan that will be submitted to the Town of Sudbury as well as the implementation of components of the Meadow Restoration Plan to restore the meadow at the King Phillip site.

The proposed meadow is bordered by the main trail access to the south, a break in stone wall to the north, the wetland along Water Row to the east and an elevated mound to the west that is located east of a potential vernal pool. This area contains historic foundations associated with the "Tavern of Demons" and a barn as well as a former apple orchard.

SWCA appreciates the opportunity to provide these environmental services to you. If you have any questions or require additional information, please do not hesitate to contact me by phone at (413) 658-2056, or via email at sfisher@swca.com. Thank you for considering SWCA for your project needs.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Fisher". The signature is stylized and written in cursive.

Scott Fisher
Team Lead - Ecological Restoration Division

ITEM 1 DEVELOPMENT OF A MEADOW RESTORATION PLAN

SWCA will develop a Meadow Restoration Plan for a three-acre meadow at the King Phillip Conservation Area. The intent of the plan is to provide guidance for the establishment of a meadow and detail an Operation and Maintenance Plan (O&M Plan) for years 1-5 outlining the maintenance of the meadow for the near future. SWCA will provide the following services:

SCOPE OF SERVICES

- Supply of a draft Meadow Restoration Plan and O&M Plan for review by the Sudbury Conservation Commission
- Upon review/comments by the Sudbury Conservation Commission, SWCA will finalize the Meadow Restoration Plan
 - The plan will detail potential meadow restoration measures
 - Tree and shrub clearing and removal
 - Soil preparation
 - Seeding/mulching
 - Written description of management options for the maintenance of the vegetation within the meadow for the first 1-5 years
 - Both mechanical and chemical management operations will be included
 - The plan will be submitted electronically to the Sudbury Conservation Commission for distribution to any relevant parties

The lump sum cost for Item 1 is \$1,650.

ITEM 2 IMPLEMENTATION OF THE MEADOW RESTORATION PLAN

We anticipate that the meadow restoration plan will be a living document that will be adjusted during each element of the restoration project. The following scope of services involve basic restoration elements that we feel are more than likely to occur as part of the restoration project. The services provided under this item may be adjusted if the accepted Meadow Restoration Plan outlines alternative restoration measures than those detailed below. For the purpose of providing an informative cost proposal we have separated the services and pricing associated with the clearing portion of the restoration project. The scope of services associated with this item are based on an anticipated meadow restoration plan outline. SWCA will provide the following services:

SCOPE OF SERVICES - CLEARING

- Cut, remove and dispose of all non-desirable woody plant material within the 3-acre meadow location
 - SWCA will hire and manage a subcontractor for this component of the project

The unit cost for these services is \$16,100/acre cleared. For 3 acres the total cost is \$48,300.

SCOPE OF SERVICES – MEADOW RESTORATION SEEDING & MONITORING

- Seedbed preparation
 - Use of a harley rake to prepare open ground seedbed areas
 - Powered by a track-driven skid steer
- Supply and disseminate a native meadow restoration seed mix across the site
 - Installed via hydroseeder
 - Includes hydro-mulch and fertilizer
 - As approved by the Town of Sudbury
 - At the seeding rates recommended by the supplier
- Conduct meadow maintenance during the First year
 - As detailed in the Meadow Restoration Plan
 - Monitoring the development of desired meadow plants
 - One monitoring event
 - September
 - Spot seeding in small areas where the seed has not germinated
 - Hand removal of non-desirable species
 - Submittal of annual status report of the meadow restoration effort to the Conservation Commission
- Conduct meadow maintenance during the Second Year
 - Monitoring the development of the meadow
 - Two monitoring events
 - May and September
 - Submittal of semi-annual status report of the meadow restoration effort to the Conservation Commission

The lump sum cost for these services is \$31,250.

PROVISIONS

Should additional site visits or site work be required beyond those detailed above, a change order request for additional project funding will be requested.

The services associated with each item will be invoiced on a monthly basis. Invoices are due 30 days from issuance. This proposal is valid for a period of 90 days from receipt.



167 Main Street
P. O. Box 716
Rowley Massachusetts
USA

978.948.7717 Office

derosaenvironmental.com

May 3, 2019

BY ELECTRONIC MAIL

Deborah Dineen
dineend@sudbury.ma.us

**RE: Estimate for Professional Services: Invasive
Plant Removal & Management Plan**

**King Phillip Woods
57 Water Row, Sudbury, MA 01776**

Dear Ms. Dineen,

Our firm has prepared the following cost estimate to provide professional services for the removal of invasive species, soil stabilization and management plan. This proposal is based on our previous discussions and our knowledge of the site.

Scope of Work/Estimate of Costs

Our firm will provide the following services:

1. Preparation of Site Management Plan: \$4200
 - a. Site Inspection; Drone Flight
 - b. Plan Preparation
 - c. Presentation to Conservation Commission and/or other boards as needed
2. Invasive species removal and oversight: \$30,000
 - a. Work with contractor to removal and dispose of invasive species using whole plant removal techniques
 - b. Manage existing desirable species and recommend, source and install additional plant species to maximize visual interest and ecological services to the local environment
3. Disturbed soil stabilization: included in site work

- a. Stabilize any disturbed soils with seed (red fescue) and hay mulch as needed during removal activities.
4. Native upland seed mix (red fescue) per pound: 18/pound (Est 160 pounds)
5. Training of local volunteers to implement Operations and Maintenance Plan: \$1000
6. Work beyond this scope will not be conducted without prior authorization from yourself, or, your authorized representative.

TOTAL ESTIMATED COST: \$38,080

Payment Terms

Interim billings will be made on routinely submitted substantiated invoices. Contract Agreement

Receipt of an executed copy of this contract/proposal will constitute notice to proceed.

1. All work product remains the property of DeRosa Environmental Consulting, Inc. until outstanding invoices are paid in full.
2. DeRosa Environmental reserves the right to withdraw all unpaid work product at any time for any reason.
3. Payments on invoices are due within 30 days of receipt and on or before any scheduled hearings, meetings, or site inspections scheduled regarding the project.
4. Checks or money orders should be made out to DeRosa Environmental Consulting, Inc. and sent to:

DeRosa Environmental Consulting, Inc.
167 in Street, PO Box 716
Rowley, MA 01969

Deborah Dineen agrees to the above terms and conditions regarding the retention of DeRosa Environmental Consulting, Inc. to perform the described scope of work.

Agreed to

Ms. Deborah Dineen, or
Authorized Representative

Date

Wetland Replication, Wildlife Habitat Assessment, Permit Preparation, and Ecological Services

We appreciate the opportunity to provide this estimate of costs for you regarding this project. Should you have any questions, please call anytime.

Respectfully submitted,

DeRosa Environmental Consulting, Inc.



by Michael J. DeRosa, Principal
Wetland Ecologist

michalederosaj@gmail.com

MJD/eeg

Cc: Nancye Rossiter (by email)

BEAVER SOLUTIONS

Michael Callahan
 14 Mountain Road
 Southampton, MA 01073
 www.beaversolutions.com

PROPOSAL

<i>Date</i>
6/26/2019

<i>Project Location</i>
King Phillip CA Spillway

<i>Project Description</i>
Pond Level Control

<i>Proposal for</i>
Lori Capone, Conservation Coordinator Conservation Commission 275 Old Lancaster Road Sudbury, MA 01776

<i>Description</i>	<i>Quantity</i>	<i>Cost</i>	<i>Total</i>
Optional Annual Maintenance Agreement - The Flexible Pond Leveler pipe system will be inspected annually and as needed through 12-31-19 for beaver related or other damage, and the pipe adjusted if necessary to maintain proper water level. Price includes Beaver Solutions "Worry-Free Guarantee". Minor repairs and materials are included at no additional charge.	1	300.00	300.00
Discount - Partial year discount for the optional annual Maintenance Plan.		-175.00	-175.00
Permits - Unless otherwise arranged the Board of Health and/or Conservation Commission Emergency Permits will be obtained by the client.	0	250.00	0.00
Total			\$1,955.00