



Walk #11: Meet Your Ancestors; Life, Death and Literacy

Guides:

R. Christopher Noonan, Historic Preservationist / Historic Real Estate Specialist

Luanne Crosby, Troubadour/Songwriter/Singer

Guest Speaker: Andy Koenigsburg, Geologist

November 2017

*For further or follow-up information regarding this tour, contact
rcn@preserve-inc.com / 508-473-4884 and luanne@luannecrosby.com*





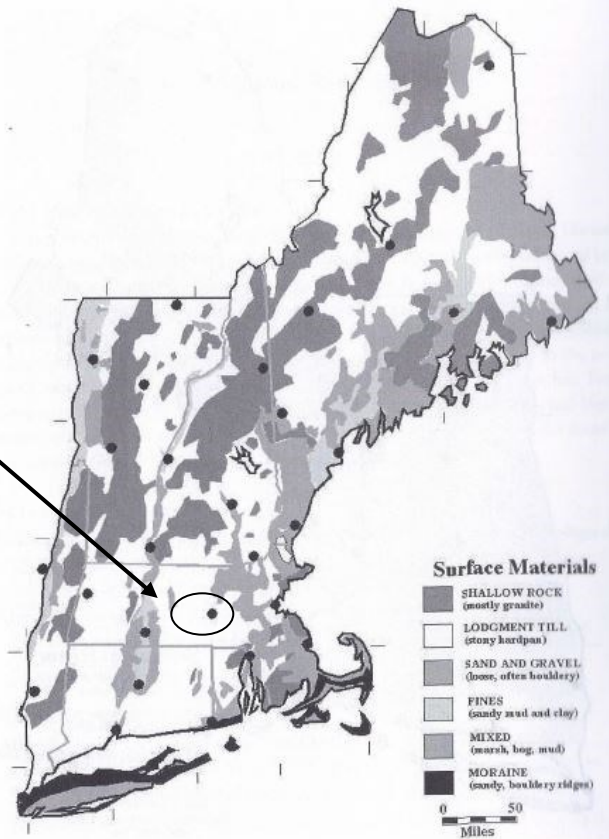
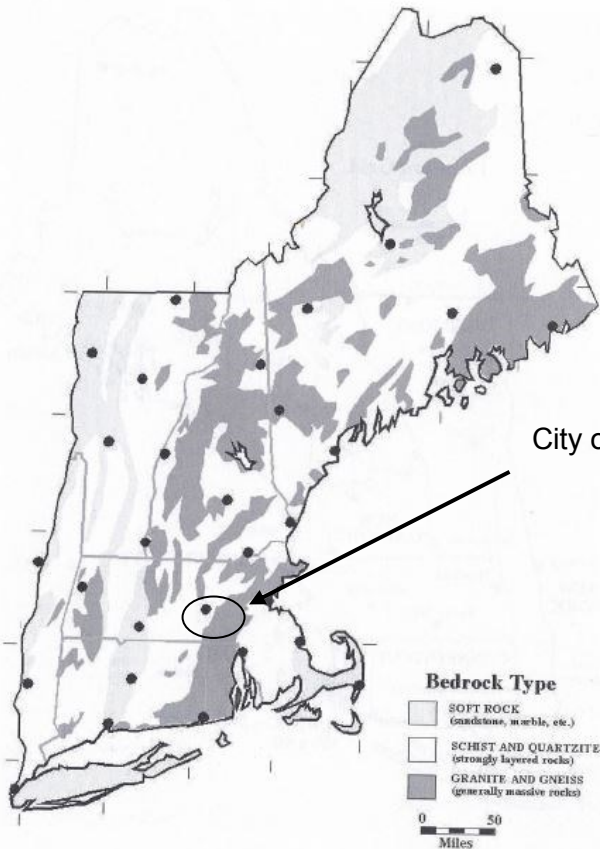
Map: 1830 Nahum Fisher



Nahum Fisher's Georgian-Federal house today at 58 South St.

2017 GIS Assessors map showing cemeteries





City of Worcester

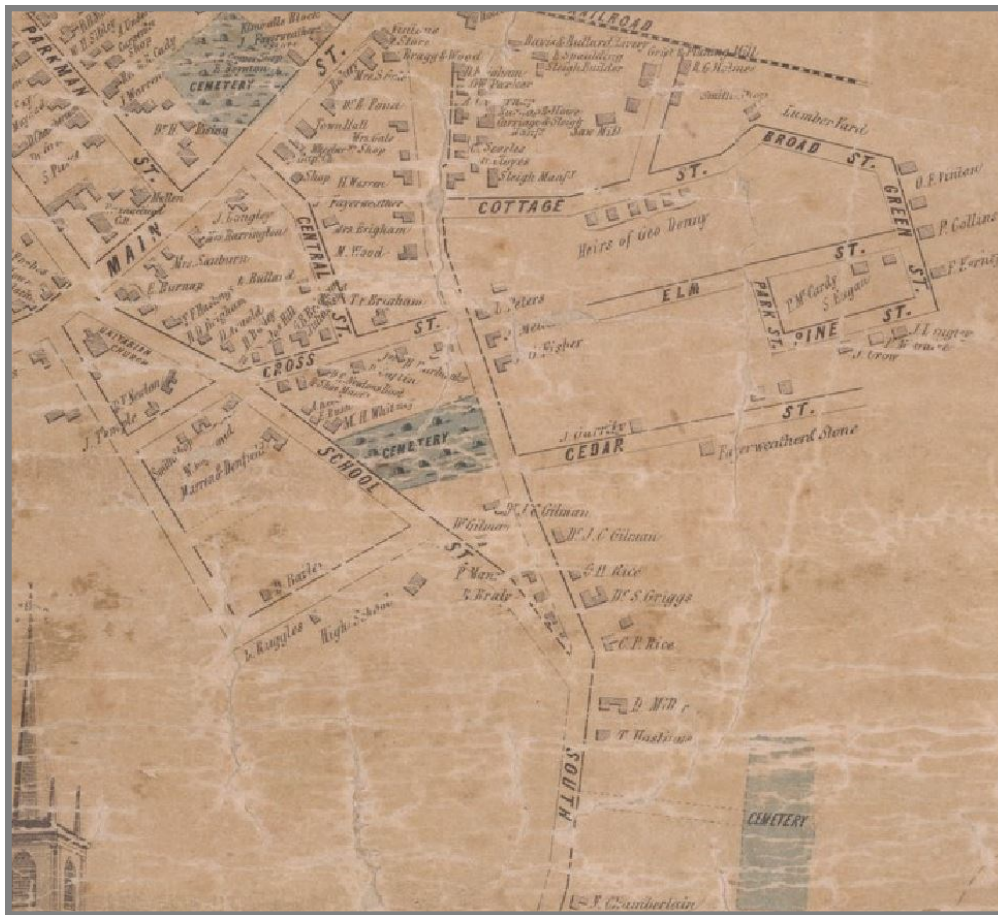
From *Exploring Stone Walls* Robert M. Thorson 2005

Stone Characteristics

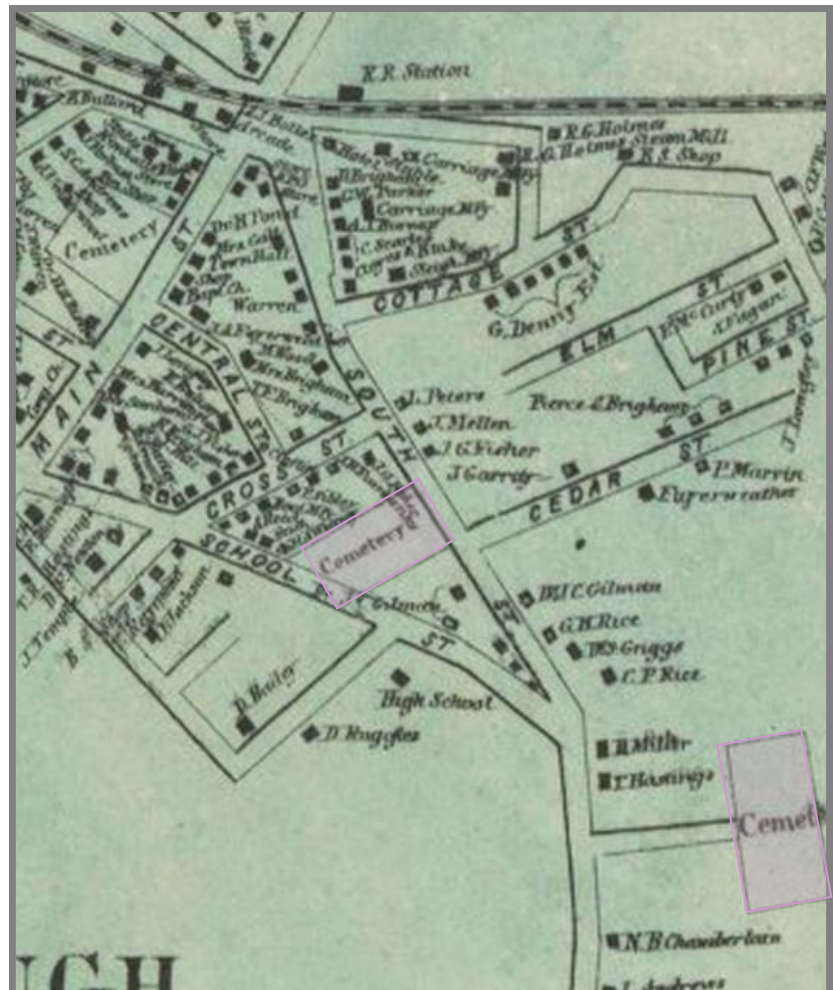
TYPE	WEIGHT	WORKABILITY	STRENGTH
soft sandstone	light	easy	low
dense sandstone	medium	medium	medium to high
limestone	heavy	medium to hard	medium to high
granite	heavy	hardest	high
slate	medium	easy	low
clay shale	medium	easy	low
basalt	heavy	medium to hard	medium to high

STONE AS A BUILDING MATERIAL

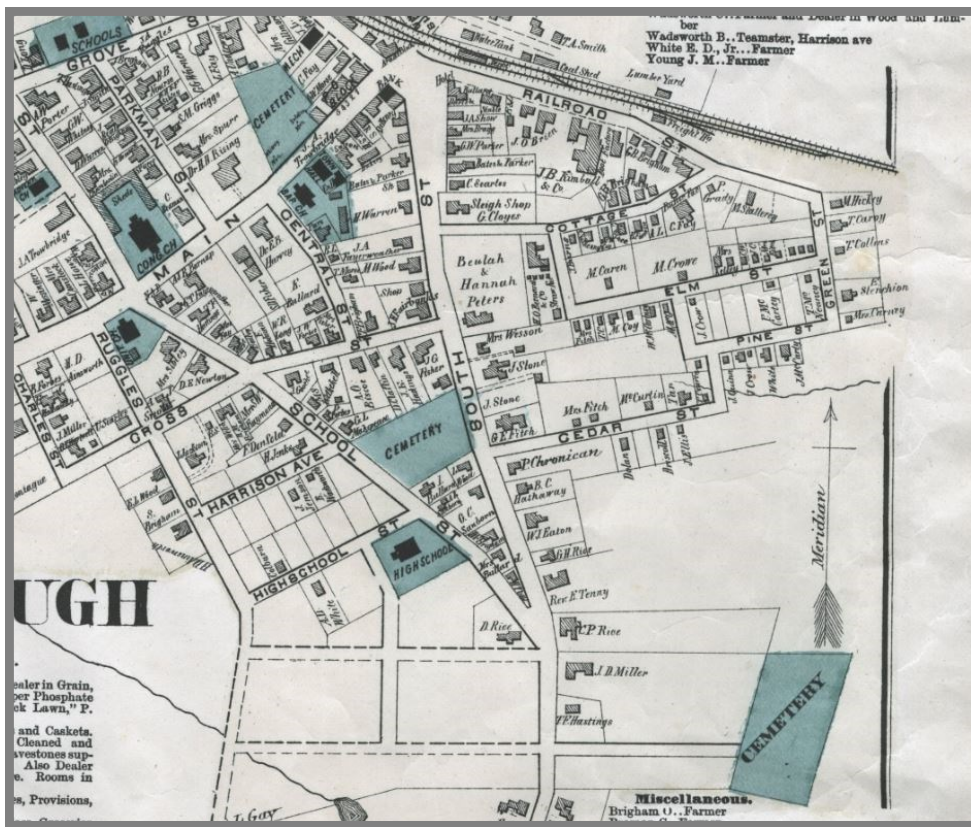
From *Building With Stone* Charles McRaven 1989



Map: 1855
GM Hopkins



Map: 1857
Henry F. Walling



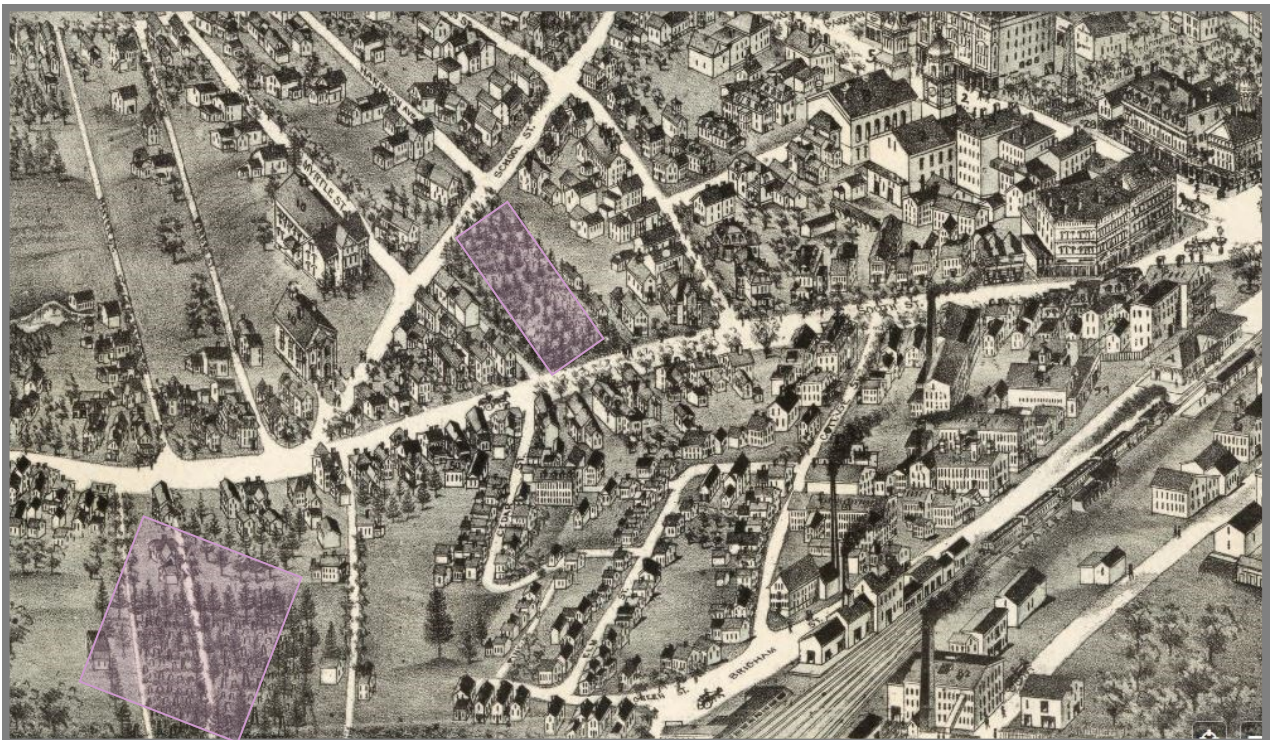
Map: 1870 J.B. Beers



Map: 1878 George H. Walker



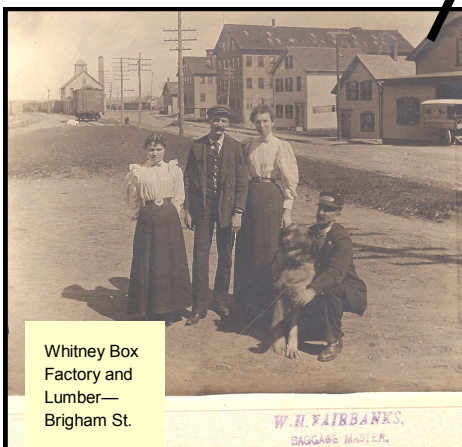
Map: 1880 E.H. Bigelow



Map: 1888 O.H. Bailey



Map: 1880 E.H. Bigelow



Whitney Box
Factory and
Lumber—
Brigham St.

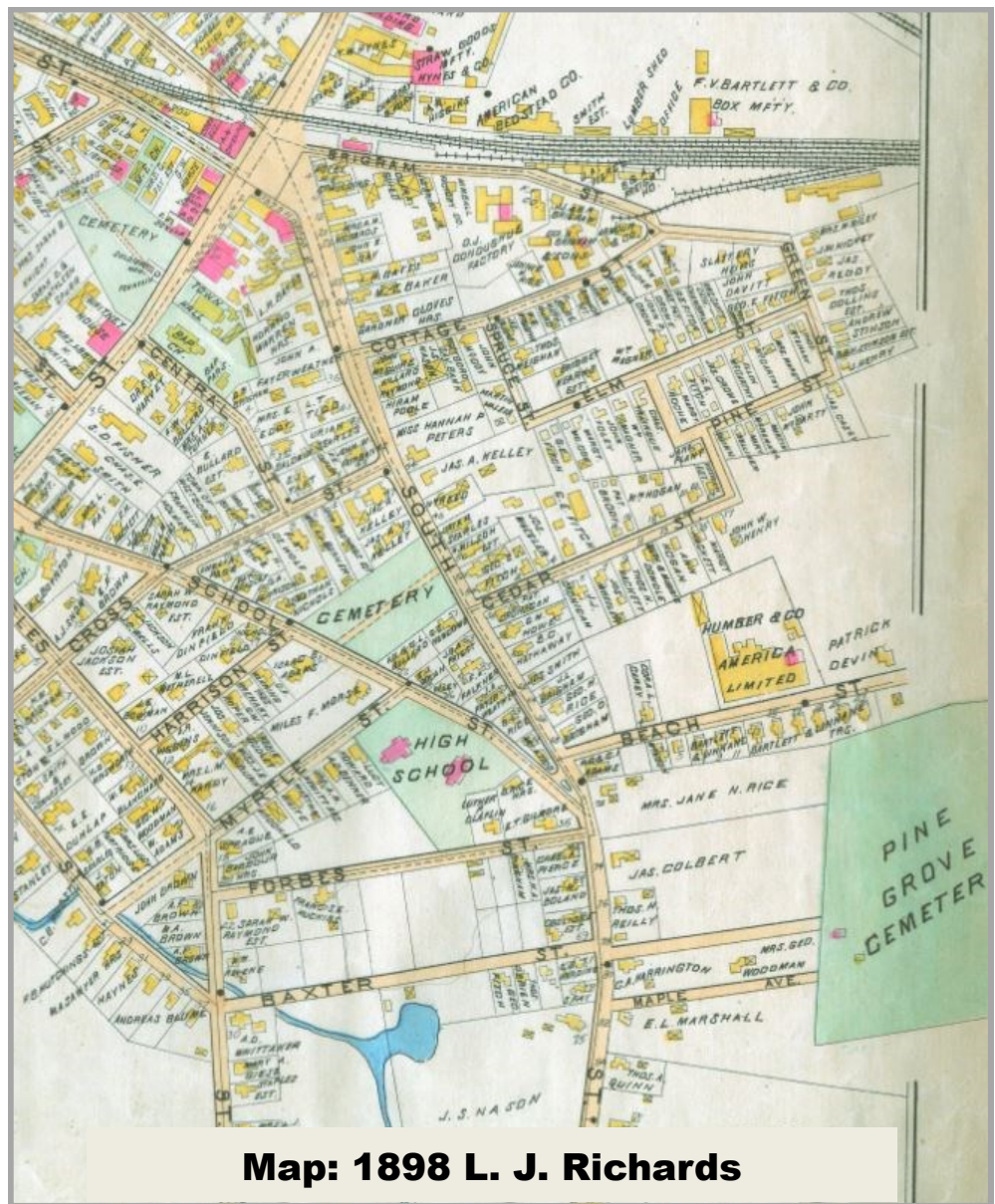
W.H. FAIRBANKS,
DAGGERS, MINN.



**Bay State Abrasives
1920's to 2000's**

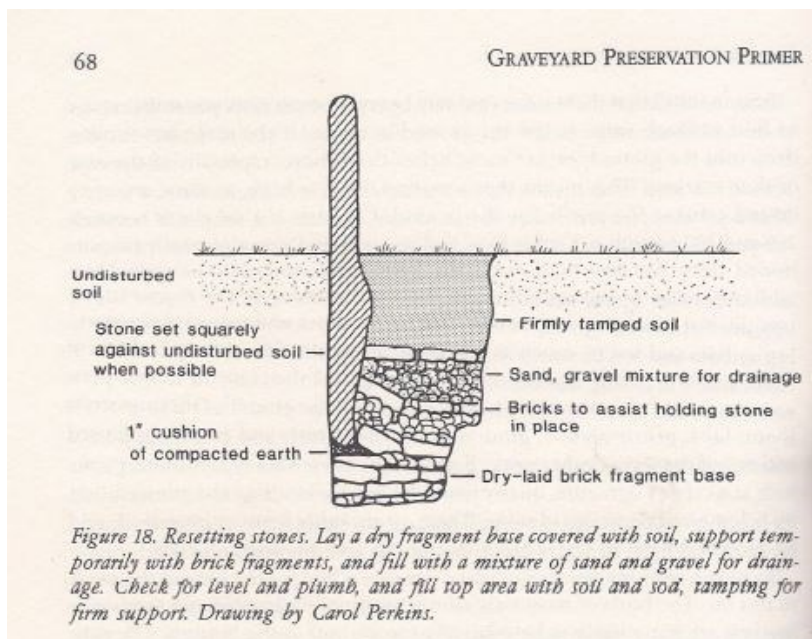


Bay State Commons





Damaged Cemetery Marker –Memorial Cemetery 1725



From *A Graveyard Preservation Primer*
Lynette Strangstad, 1988



Memorial Obelisk –Memorial Cemetery 1725

GENERAL GUIDELINES FOR CLEANING STONE GRAVE MARKERS

Evaluate the Surface to be Cleaned

Determine the type of stone.

Check the entire stone for condition. Some areas of a stone may be more weathered than others and need to be treated more gently.

Determine the type of soiling.

Do **Not** Clean:

If the stone has cracks, loose or broken parts, is tilted or unstable.

If grains of the surface come off on your hands at the touch.

If there are underlying hollow areas [gently tap the surface with your finger].

If joints are open. Point first with soft lime mortar or lead as appropriate prior to cleaning. Do **not** use silicone caulk.

If the temperature is below 40° F, frost is anticipated, or temperature exceeds 85° F.

Do **not** attempt to clean stones without first receiving proper direction.

Do not clean stones often. Even the most carefully cleaned stone loses some stone particles with each cleaning.

Test the Water

Test the water for excessive amounts of salts, iron and other potentially deleterious materials.

Use filters at faucets or in cleaning equipment if needed.

Select the Appropriate Equipment

Garden Hose: Use on fragile stones and for gentle cleanings.

Steam Cleaner [with variable pressure and measurement gauges]: Use on all stones, varying psi accordingly.

Pressure Washer [with variable pressure and measurement gauges]: Use **only** on stable granite and **only** with a fan tip nozzle.

Washer Nozzle: Always use a fan tipped nozzle with no less than a 15° spread.

Brushes: Use soft nylon brushes or soft natural bristle masonry brushes. Soft toothbrushes and sometimes smooth wooden sticks like ice cream sticks or tongue depressors are acceptable for intricate areas as are Q-tips. Never use wire brushes, brillo pads, steel wool, scotchbrite or other abrasive pads. Do **not** use metal tools to clean stones.

Miscellaneous: Make sure water is available. Provide plastic buckets for non-ionic detergents and biocides. Do not mix solutions. Provide spray bottles or small pumps with sprayers for the application of non-ionic detergents and biocides. Provide clean soft rags, natural sponges, goggles and rubber gloves.

Determine the Appropriate Water Pressure

Garden hose pressure is best. Use the lowest effective pressure because water can act as a damaging abrasive, particularly on old weathered stones. Pressure washing can reduce the longevity of a stone and reduce legibility. Note that water is used by some stone fabricators to cut granite.

For Marble, Sandstone, rough cut Limestone, damaged Slate and other stones: Use low water pressure 35-60 psi maximum on sound stone. Use a garden hose or hand held steam cleaner. **Never** use high water pressure.

For Slate, Rose Quartz and other silicate stones: Treat the same as for Marble.

For Limestone: Treat the same as for Marble.

For Granite: Use 100 to 600 psi maximum on sound stone. Other stones will abrade at this pressure.

From Preservation Guidelines for Municipally Owned Historic Burial Grounds and Cemeteries, 2nd Edition, Mass DEM, Historic Cemeteries Preservation Initiative, 2000

Select Appropriate Cleaning Solutions

Clean only if necessary. Always use the weakest cleaning agent that cleans stone effectively. Do not increase the recommended strength of a given solution. Use only those solutions recommended for the type of stone being cleaned.

Soapstone: Use water only.

Slate and Sandstone: If water is ineffective, use a sodium free, non-ionic detergent like PhotoFlo, Triton-X or Igepal at a rate of one ounce to five gallons of water.

Marble and Limestone: If water is ineffective, use a sodium free, non-ionic detergent like PhotoFlo, Triton-X or Igepal at a rate of one ounce to five gallons of water. For more stubborn cleaning requirements use Vulpex at a rate of one part Vulpex to 2 to 4 parts water. **Never** use household soaps, bathroom and sink cleansers, abrasive cleaners or solutions containing sodium like Ivory Soap, Clorox [sodium hypochlorite], Borax, Spic and Span, Comet, TSP [tri-sodium phosphate], Calgon, Fantastik, Formula 409 or other formulations with caustic lye [sodium hydroxide, NaOH].

Biological Growth Remover for Marble and Limestone: If an acceptable test is achieved, use calcium hypochlorite [CaOCl sold as HTH or SST in pool supply stores], Architectural Biocide D-2 or hydrogen peroxide. A 1 to 2% solution [125 to 250 cc in 5 gallons of clean warm water] with a small amount of non-ionic detergent [0.2% Triton-X-100, 20 to 25 ml in 5 gallons of water] is recommended. Use 2 ounces by volume of dry HTH to 5 quarts of water and note that it must be dissolved in warm water. Vulpex is an effective, although expensive, detergent for black and green growths on granite. Do **not** use Clorox.

Never use household bleaches for cleaning.

Never use a cleaning solution more acidic than pH 4.5.

Never use wire brushes.

Never use high pressure spraying or sandblasting.

Clean with the Least Aggressive Method

Remove dry loose particles with a soft bristled brush.

Gentle cleaning with clean water is best.

Test selected cleaning method[s] in a small unobtrusive area, preferably on the back of a stone, before general application.

Prewet the stone thoroughly. Do **not** press the nozzle up against the stone. The softer the stone, the farther back from the surface the nozzle should be.

Flush thoroughly with a low pressure hose to remove most surface dirt.

Then, if determined necessary:

Prewet the area with water before using a cleaning solution.

Prepare a dilute alkaline solution, 1 ounce in 5 gallons of water.

Apply the solution from bottom to top with a spray bottle.

Allow solution to soak into the surface for 3 to 5 minutes.

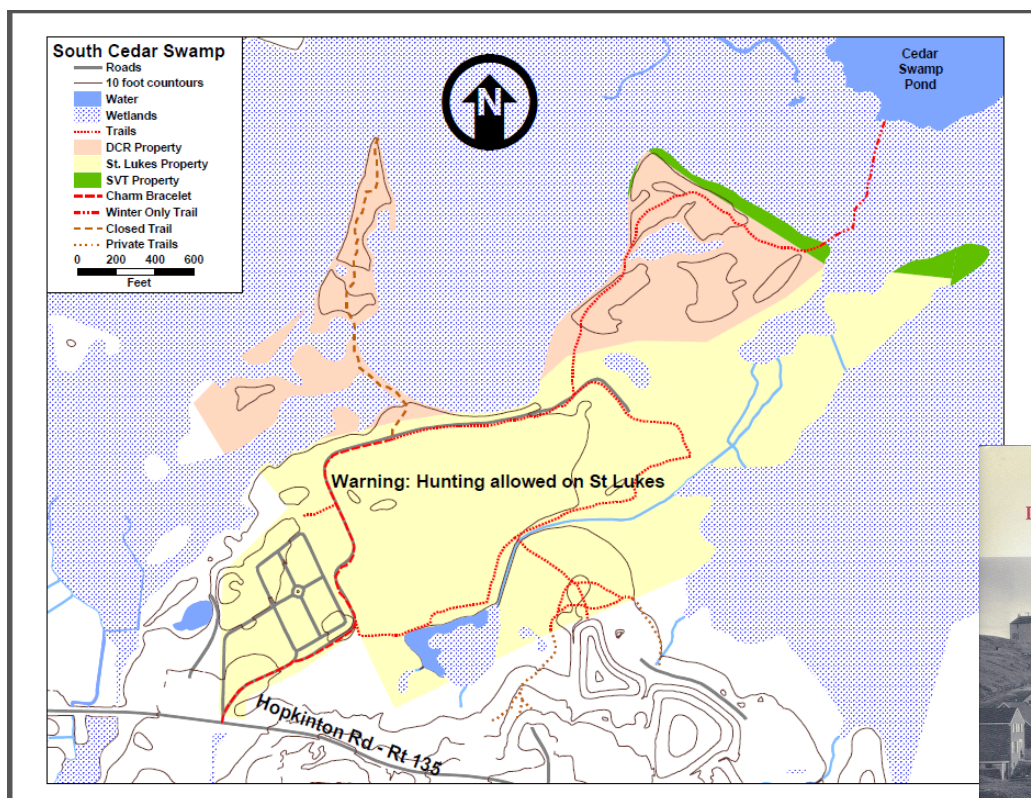
Scrub gently with a soft nylon brush or soft natural bristle masonry brush, cleaning from bottom to top to avoid streaking.

Rinse thoroughly with clean water from top to bottom. Do **not** allow cleaning solutions to dry on a stone surface.

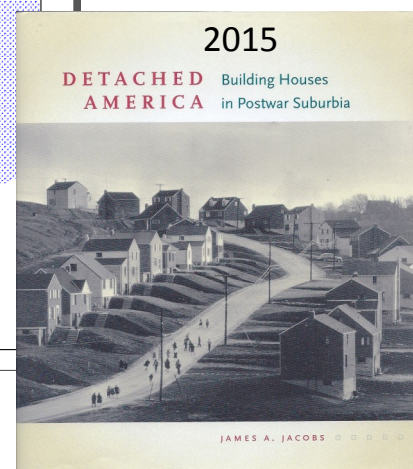
Rinse for at least 5 minutes and do **not** direct the rinsing spray at one area for longer than 5 to 7 seconds.

Check pH for neutral balance.

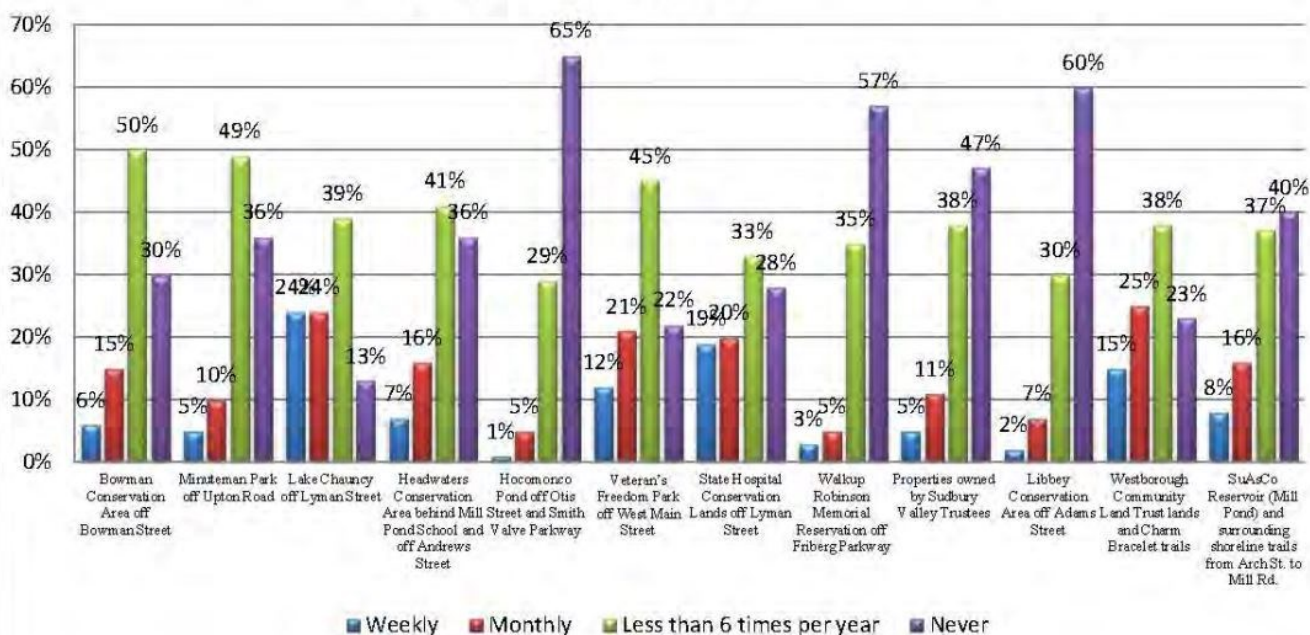
Check the stone once it is dry and later in the season.



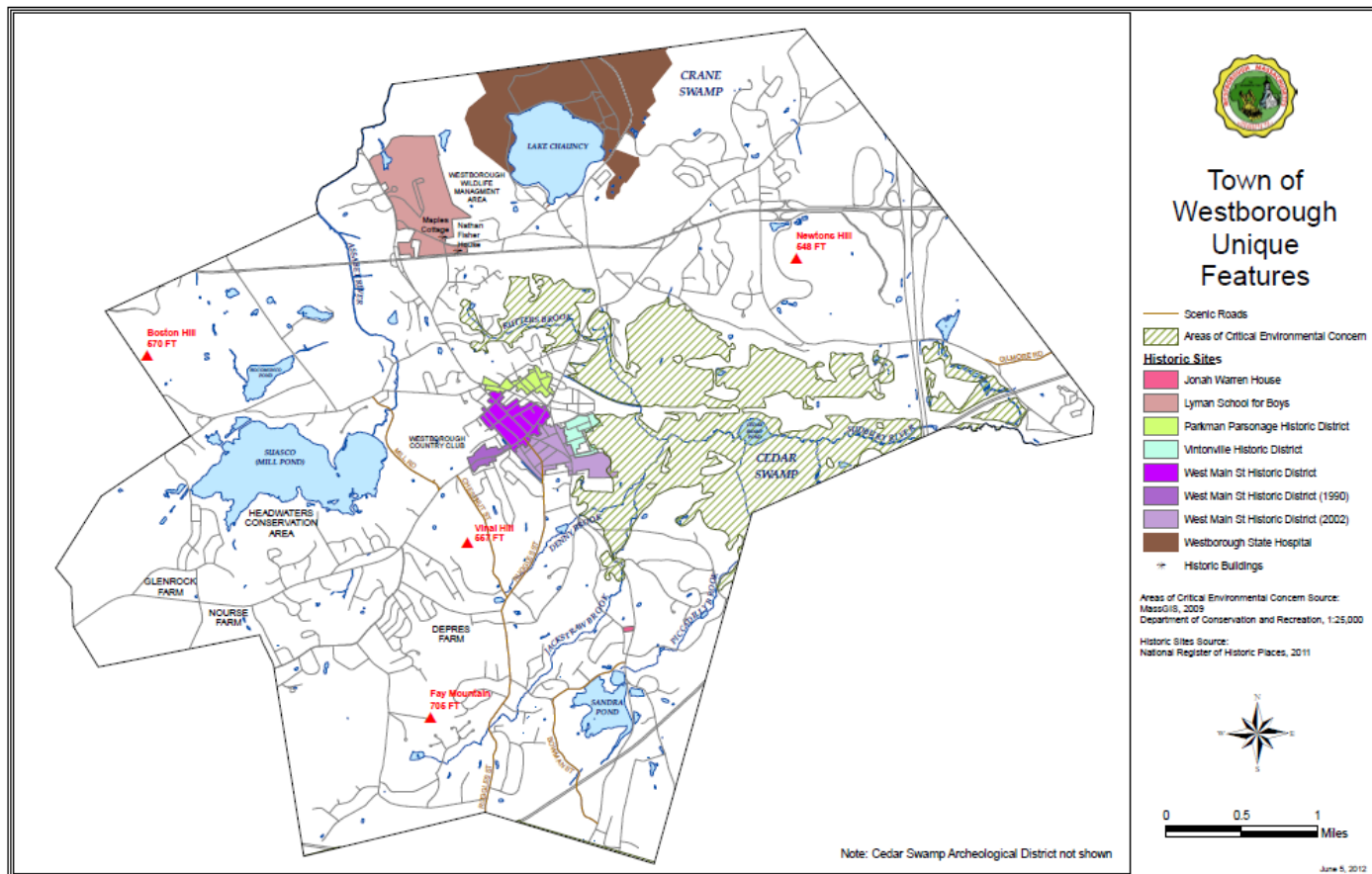
St Luke's Cemetery, Hopkinton Rd. 1869
Layered land use with public, private, non-profit



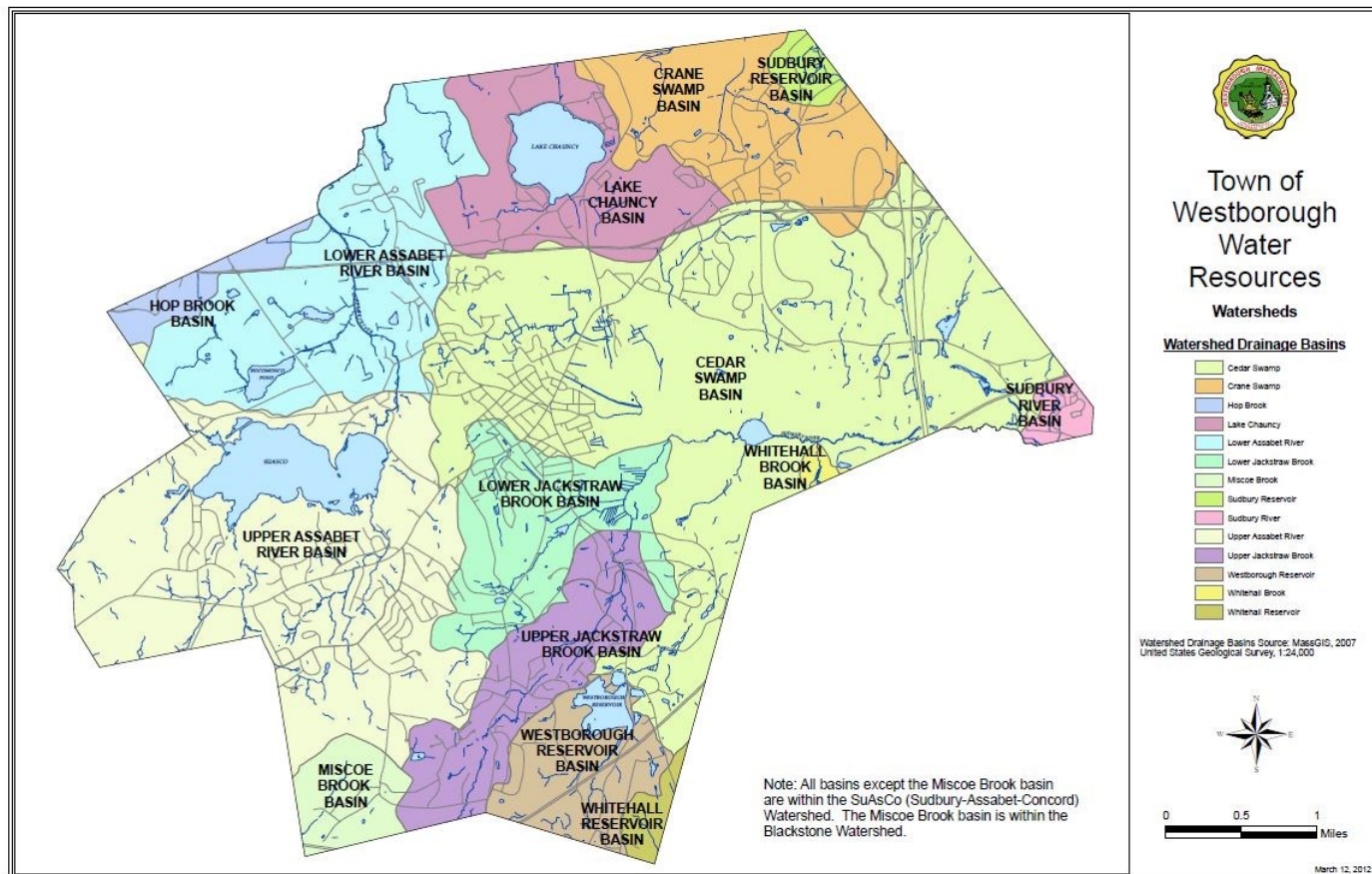
2. How often do you visit or use the following conservation areas?



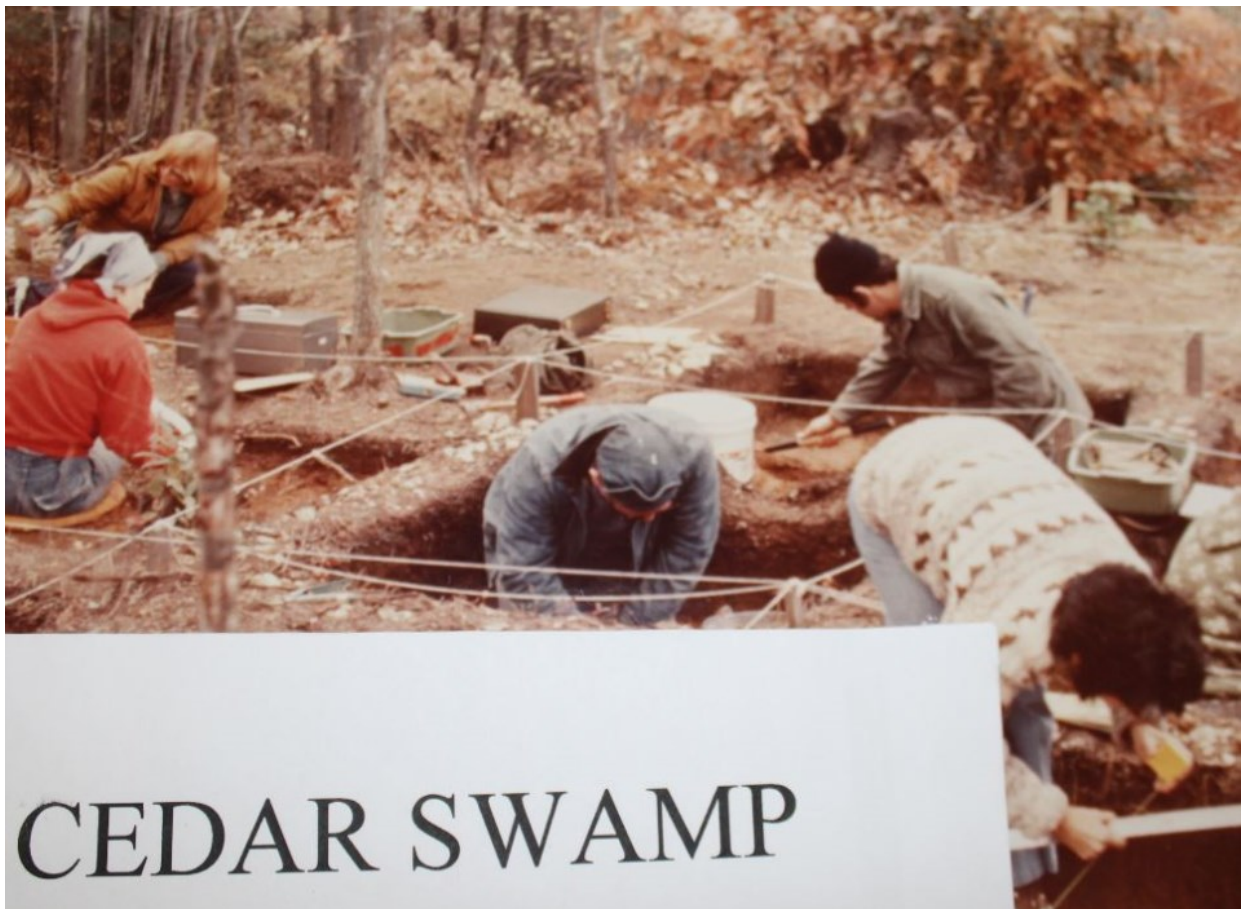
From Westborough Open Space and Recreation Plan, 2017



From Westborough Open Space and Recreation Plan, 2017

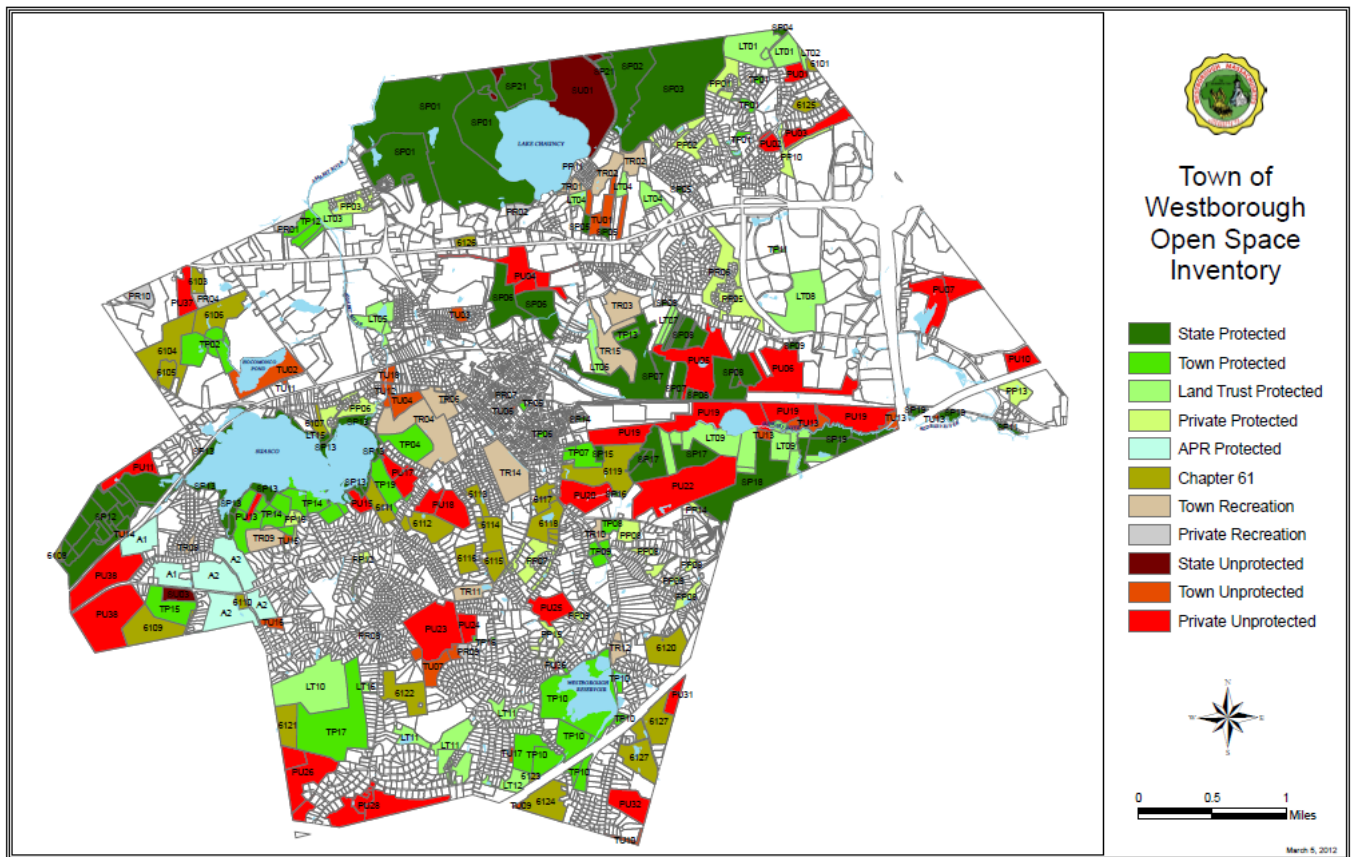


National Register Cedar Swamp Archeology District 1988



TIMELINE

Paleo-Indian:	12,000 - 10,000 B.P.
Late Paleo-Indian:	10,000 - 9,000 B.P.
Early Archaic:	9,000 - 8,000 B.P.
Middle Archaic:	8,000 - 6,000 B.P.
Late Archaic:	6,000 - 3,700 B.P.
Transitional Archaic:	3,700 - 2,700 B.P.
Early Woodland:	2,700 - 2,000 B.P.
Middle Woodland:	2,000 - 1,000 B.P.
Late Woodland:	1,000 - 400 B.P.
Contact:	400 - 150 B.P.



From Westborough Open Space and Recreation Plan, 2017

